SET-1

KENDRIYA VIDYALAYA SANGATHAN AGRA REGION
PRE BOARD EXAMINATION 2022-23

Class : XII **Time Allowed : 03:00 Hours**
Subject : (083) Computer Science **Maximum Marks : 70**

General instructions:

- *This question paper contains five sections, Section A to E.*
- *All questions are compulsory.*
- *Section A have 18 questions carrying 01 mark each.*
- *Section B has 07 Very Short Answer type questions carrying 02 marks each.*
- *Section C has 05 Short Answer type questions carrying 03 marks each.*
- *Section D has 03 Long Answer type questions carrying 05 marks each.*
- *Section E has 02 questions carrying 04 marks each. One internal choice is given in Q34 against part C only.*
- *All programming questions are to be answered using Python Language only.*

Section – A		
Q01.	State True or False "Tuple is datatype in Python which contain data in key-value pair."	(1)
Q02.	Which of the following is not a keyword? (A) eval (B) assert (C) nonlocal (D) pass	(1)
Q03.	Given the following dictionaries dict_student = {"rno" : "53", "name" : 'Rajveer Singh'} dict_marks = {"Accts" : 87, "English" : 65} Which statement will merge the contents of both dictionaries? (A) dict_student + dict_marks (B) dict_student.add(dict_marks) (C) dict_student.merge(dict_marks) (D) dict_student.update(dict_marks)	(1)
Q04.	Consider the given expression: not ((True and False) or True)	(1)

	Which of the following will be correct output if the given expression is evaluated? (A) True (B) False (C) NONE (D) NULL	

Q05.	Select the correct output of the code:
	>>> s='mail2kv@kvsangathan.kvs.in'
	>>> s=s.split('kv')
	>>> op = s[0] + "@kv" + s[2]
	>>> print(op)
	(A) mail2@kvsangathan (B) mail2@sangathan**.**
	(C) mail2@kvsangathan**.** (D) mail2kvsangathan**.**
		(1)

Q06.	Which functions is used to close a file in python? (A) close (B) cloose() (C) Close() (D) close()	(1)
Q07.	Fill in the blank: _____ command is used to change table structure in SQL. (A) update (B) change (C) alter (D) modify	(1)
Q08.	Which of the following commands will remove the entire database from MYSQL? (A) DELETE DATABASE (B) DROP DATABASE (C) REMOVE DATABASE (D) ALTER DATABASE	(1)
Q09.	Which of the following statement(s) would give an error after executing the following code? D={'rno':32,'name':'Ms Archana','subject':['hindi','english','cs'],'marks':(85,75,89)} #S1 print(D) #S2 D['subject'][2]='IP' #S3 D['marks'][2]=80 #S4 print(D) #S5 (A) S1 (B) S3 (C) S4 (D) S3 and S4	(1)
Q10.	Fill in the blank: _____ is a non-key attribute, whose values are derived from the primary key of some other table. (A) Primary Key (B) Candidate Key (C) Foreign Key (D) Alternate Key	(1)

Q11.	The correct syntax of seek() is: (A) seek(offset [, reference_point]) (B) seek(offset, file_object) (C) seek.file_object(offset) (D) file_object.seek(offset [, reference_point])	(1)
Q12.	Fill in the blank: The SELECT statement when combined with _____ clause, returns records without repetition. (A) DISTINCT (B) DESCRIBE (C) UNIQUE (D) NULL	(1)
Q13.	Fill in the blank: _____ is a communication methodology designed to deliver both voice and multimedia communications over Internet protocol. (A) SMTP (B) VoIP (C) PPP (D) HTTP	(1)
Q14.	What will the following expression be evaluated to in Python? print (round (100.0 / 4 + (3 + 2.55) , 1)) (A) 30.0 (B) 30.55 (C) 30.6 (D) 31	(1)
Q15.	Which function is used to display the total number of records from a table in a database? (A) total() (B) total(*) (C) return(*) (D) count(*)	(1)
Q16.	In order to open a connection with MySQL database from within Python using mysql.connector package, _____ function is used. (A) open (B) connect (C) database() (D) connectdb()	(1)
	Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as (A) Both A and R are true and R is the correct explanation for A (B) Both A and R are true and R is not the correct explanation for A (C) A is True but R is False (D) A is false but R is True	
Q17.	str1= “Class” + ”Work” ASSERTION: Value of str1 will be “ClassWork”. REASONING: Operator ‘+’ adds the operands, if both are numbers & concatenates the string if both operands are strings.	(1)

Q18.	Assertion: CSV (Comma Separated Values) is a file format for data storage which looks like a text file. Reason (R): The information is organized with one record on each line and each field is separated by semi-colon.	(1)
	Section – B	

Q19.	Vivek has written a code to input a number and check whether it is even or odd number. His code is having errors. Rewrite the correct code and underline the corrections made.
	Def checkNumber(N):
	status = N%2
	return
	#main-code
	num=int(input(" Enter a number to check :))
	k=checkNumber(num)
	if k = 0:
	print("This is EVEN number")
	else:
	print("This is ODD number")
		(2)

Q20.	Write two points of difference between Bus topology and star topology. OR Write two points of difference between XML and HTML.	(2)
Q21.	(A) Given is a Python string declaration: message='FirstPreBoardExam@2022-23' Write the output of: print(message[: : -3].upper()) (B) Write the output of the code given below: d1={'rno':25, 'name':'dipanshu'} d2={'name':'himanshu', 'age':30,'dept':'mechanical'} d2.update(d1) print(d2.keys())	(2)
Q22.	Explain the use of 'Foreign Key' in a Relational Database Management System. Give example to	(2)

	support your answer.	
Q23.	(A) Write the full forms of the following: (i) HTTP (ii) FTP (B) What is the use of TELNET?	(2)

Q24.	Predict the output of the Python code given below:
	data=["L",20,"M",40,"N",60]
	times=0
	alpha=""
	add=0
	
	for c in range(1,6,2):
	times = times + c
	alpha = alpha + data [c-1] + "@"
	add = add + data[c]
	print (times, add, alpha)
	
	OR
	
	Predict the output of the Python code given below:
	L=[1,2,3,4,5]
	Lst=[]
	for i in range(len(L)):
	if i%2==1:
	t=(L[i],L[i]**2)
	Lst.append(t)
	print(Lst)
		(2)

Q25.	Differentiate between order by and group by clause in SQL with appropriate example. OR	(2)

	Categorize the following commands as DDL or DML: INSERT, UPDATE, ALTER, DROP	
	Section – C	
Q26.	Write the output of the queries (i) to (vi) based on the table given below:	(3)

TABLE: CHIPS

BRAND_NAME	FLAVOUR	PRICE	QUNATITY
LAYS	ONION	10	5
LAYS	TOMATO	20	12
UNCLE CHIPS	SPICY	12	10
UNCLE CHIPS	PUDINA	10	12
HALDIRAM	SALTY	10	20
HALDIRAM	TOMATO	25	30

(i) Select BRAND_NAME, FLAVOUR from CHIPS where PRICE <> 10;

(ii) Select * from CHIPS where FLAVOUR=”TOMATO” and PRICE > 20;

(iii) Select BRAND_NAME from CHIPS where price > 15 and QUANTITY < 15;

(iv) Select count(distinct (BRAND_NAME)) from CHIPS;

(v) Select price , price *1.5 from CHIPS where FLAVOUR = “PUDINA”;

(vi) Select distinct (BRAND_NAME) from CHIPS order by BRAND_NAME desc;

Q27.	Write a function countINDIA() which read a text file ‘myfile.txt’ and print the frequency of the words ‘India’ in it (ignoring case of the word). Example: If the file content is as follows: INDIA is my country. I live in India. India has many states. The countIndia() function should display the output as: Frequency of India is 3 OR Write a function countVowel() in Python, which should read each character of a text file “myfile.txt” and then count and display the count of occurrence of vowels (including small cases	(3)

and upper case).

Example:

If the file content is as follows:

INDIA is my country. I live in India. India has many states.

The countVowel() function should display the output as:

Total number of vowels are : 20

Q28. (A) Consider the following tables BOOKS and ISSUED in a database named "LIBRARY". Write SQL commands for the statements (i) to (iv). (3)

Table: BOOKS

BID	BNAME	AUNAME	PRICE	TYPE	QTY
COMP11	LET US C	YASHWANT	350	COMPUTER	15
GEOG33	INDIA MAP	RANJEET P	150	GEOGRAPHY	20
HIST66	HISTORY	R BALA	210	HISTORY	25
COMP12	MY FIRST C	VINOD DUA	330	COMPUTER	18
LITR88	MY DREAMS	ARVIND AD	470	NOBEL	24

Table: ISSUED

BID	QTY_ISSUED
HIST66	10
COMP11	5
LITR88	15

(i) Display book name and author name and price of computer type books.

(ii) To increase the price of all history books by Rs 50.

(iii) Show the details of all books in ascending order of their prices.

(iv) To display book id, book name and quantity issued for all books which have been issued.

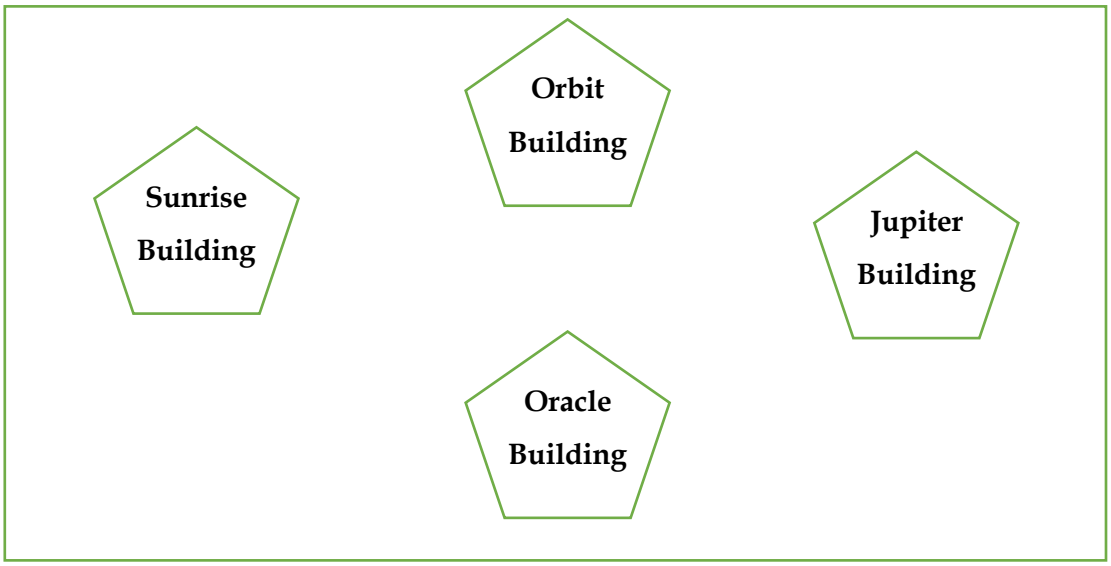
(B) Write the command to view all tables in a database.

Q29. Write a function lenFOURword(L), where L is the list of elements (list of words) passed as argument to the function. The function returns another list named 'indexList' that stores the indices of all four lettered word of L. (3)

For example:

	If L contains [“DINESH”, “RAMESH”, “AMAN”, “SURESH”, “KARN”] The indexList will have [2, 4]	
Q30.	A list contains following record of a student: [StudentName, Class, Section, MobileNumber] Write the following user defined functions to perform given operations on the stack named ‘xiia’: (i) pushElement() - To Push an object containing name and mobile number of students who belong to class xii and section ‘a’ to the stack (ii) popElement() - To Pop the objects from the stack and display them. Also, display “Stack Empty” when there are no elements in the stack. For example: If the lists of students details are: [“Rajveer”, “99999999999”,”XI”, “B”] [“Swatantra”, “8888888888”,”XII”, “A”] [“Sajal”,”77777777777”,”VIII”,”A”] [“Yash”, “1010101010”,”XII”,”A”] The stack “xiia” should contain [“Swatantra”, “8888888888”] [“Yash”, “1010101010”] The output should be: [“Yash”, “1010101010”] [“Swatantra”, “8888888888”] Stack Empty **OR** Write a function in Python, Push(SItem) where, SItem is a dictionary containing the details of stationary items– {Sname:price}. The function should push the names of those items in the stack who have price greater than 25. Also display the count of elements pushed into the stack. For example: If the dictionary contains the following data:	(3)

	Ditem = {“Rubber”:5, "Pencil":5, "Pen":30, "Notebook": 60, "Eraser":5, “Watch”: 250} The stack should contain Pen Notebook Watch The output should be: The count of elements in the stack is 3	
	Section – D	
Q31.	*Aryan Infotech Solutions has set up its new center at Kamla Nagar for its office and web based activities. The company compound has 4 buildings as shown in the diagram below:*	(5)



Distance between various buildings.	
Jupiter Building to Orbit Building	50 Mtrs
Orbit Building to Oracle Building	85 Mtrs.
Oracle Building to Sunrise Building	25 Mtrs.
Sunrise Building to Jupiter Building	170 Mtrs.
Jupiter Building to Oracle Building	125 Mtrs.
Orbit Building to Sunrise Building	45 Mtrs.

Number of Computers in each of the buildings is follows:	
Jupiter Building	30
Orbit Building	150

Oracle Building	15
Sunrise Building	35

i) Suggest a cable layout of connections between the buildings.

ii) Suggest the most suitable place (i.e. building) to house the server of this organisation with a suitable reason

iii) Suggest the placement of the following devices with justification:

a. Internet Connecting Device/Modem

b. Switch

iv) The organisation is planning to link its sale counter situated in various parts of the same city, which type of network out of LAN, MAN or WAN will be formed? Justify your answer.

v) What do your mean by PAN? Explain giving example.

Q32. (2+3)

(A) Write the output of the code given below:

```
def printMe(q,r=2):
    p=r+q**3
    print(p)

#main-code
a=10
b=5
printMe(a,b)
printMe(r=4,q=2)
```

(B) The code given below inserts the following record in the table Student:

RollNo	Name	Clas	Marks
Integer	String	Integer	Integer

Note the following to establish connectivity between Python and MySQL:

* Username is root

* Password is toor@123

* The table exists in a "stud" database.

* The details (RollNo, Name, Clas and Marks) are to be accepted from the user.

Write the following missing statements to complete the code:

Statement 1 – to form the cursor object

Statement 2 – to execute the command that inserts the record in the table Student.

Statement 3 - to add the record permanently in the database

```
import mysql.connector as mysql
def sqlData():
    con1=mysql.connect(host="localhost",user="root", password="toor@123", database="stud")
     mycursor =  _____                                    #Statement 1
     rno=int(input("Enter Roll Number :: "))
    name=input("Enter name :: ")
    clas=int(input("Enter class :: "))
    marks=int(input("Enter Marks :: "))
    querry="insert into student values({},'{}',{},{})".format(rno,name,clas,marks)
     _____                                                #Statement 2
     _____                                                # Statement 3
     print("Data Added successfully")
```

OR

(A) Predict the output of the code given below:

```
s="C++VsPy"
m=""
for i in range(0, len(s)):
    if (s[i] >= 'a' and s[i] <= 'm'):
        m = m +s[i].upper()
    elif (s[i] >= 'n' and s[i] <= 'z'):
        m = m +s[i-1]
    elif (s[i].isupper()):
        m = m + s[i].lower()
    else:
        m = m +'&'
print(m)
```

(B) The code given below reads the following record from the table named student and displays only those records who have marks greater than 90:

RollNo	Name	Clas	Marks

Integer	String	Integer	Integer

Note the following to establish connectivity between Python and MySQL:

* Username is root

* Password is toor@123

* The table exists in a "stud" database.

Write the following missing statements to complete the code:

Statement 1 – to form the cursor object

Statement 2 – to execute the query that extracts records of those students whose marks are greater than 90.

Statement 3- to read the complete result of the query (records whose marks are greater than 90) into the object named data, from the table student in the database.

```
import mysql.connector as mysql
def sql_data():
    con1=mysql.connect(host="localhost",user="root",password="toor@123", database="stud")
    mycursor=_____                                  #Statement 1
    print("Students with marks greater than 90 are : ")
    _____                                           #Statement 2
    data=_____                                      #Statement 3
    for i in data:
        print(i)
        print()
```

Q33. What is the advantage of using a csv file for permanent storage? (5)

Write a Program in Python that defines and calls the following user defined functions:

(i) ADD() – To accept and add data of a teacher to a CSV file 'teacher.csv'. Each record consists of a list with field elements as tid, name and mobile to store teacher id, teacher name and teacher mobile number respectively.

(ii) COUNTRECORD() – To count the number of records present in the CSV file named 'teacher.csv'.

OR

Give any one point of difference between a binary file and a csv file.

Write a Program in Python that defines and calls the following user defined functions:

	(i) add() – To accept and add data of an employee to a CSV file 'employee.csv'. Each record consists of a list with field elements as eid, name and salary to store employee id, employee name and employee salary respectively. (ii) search()- To display the records of the employee whose salary is more than 40000.	
	Section – E	
Q34.	Layna creates a table STOCK to maintain computer stock in vidyalaya. After creation of the table, she has entered data of 8 items in the table.	(1+ 1+ 2)

Table : STOCK

stockid	dopurchase	name	make	Price
101	2020-07-06	CPU	ACER	12000
102	2020-09-01	CPU	ACER	12750
103	2020-09-01	MONITOR	ACER	7500
104	2016-08-03	PROJECTOR	GLOBUS	37250
105	2016-05-26	VISUALIZER	GLOBUS	17500
106	2020-07-23	WIFI RECEIVER	ZEBION	450
107	2015-02-18	PRINTER	LEXMARK	38000
108	2020-07-23	HEADPHONE	BOAT	750

Based on the data given above answer the following questions:

(i) Identify the most appropriate column, which can be considered as Primary key.

(ii) If three columns are added and 5 rows are deleted from the table stock, what will be the new degree and cardinality of the above table?

(iii) Write the statements to:

(a) Insert the following record into the table

Stockid - 201, dateofpurchase – 18-OCT-2022, name – neckphone

Make – BoAT, price - 500

(b) Decrease the price of stock by 5% whose were purchased in year 2020

OR (Option for part iii only)

(iii) Write the statements to:

(a) Delete the record of stock which were purchased before year 2015.

(b) Add a column STATUS in the table with datatype as char with 1 characters

Q35.	Vishnu is a Python programmer. He has written a code and created a binary file record.dat with studentid, subjectcode and marks. The file contains 10 records. He now has to update a record based on the studentid id entered by the user and update the marks. The updated record is then to be written in the file temp.dat. The records which are not to be	(1+ 1+ 2)

updated also have to be written to the file temp.dat. If the student id is not found, an appropriate message should to be displayed.

As a Python expert, help him to complete the following code based on the requirement given above:

```
import _______                                          #Statement 1
def update_data():
   rec={}
   fin=open("record.dat","rb")
   fout=open("_______________")                          #Statement 2
   found=False
    sid=int(input("Enter student id to update his marks :: "))
   while True:
        try:
             rec = _________________                     #Statement 3
             if rec["studentid"]==sid:
                  found=True
                  rec["marks"]=int(input("Enter new marks  :: "))
                   pickle._____________                  #Statement 4
             else:
                   pickle.dump(rec,fout)
        except:
             break
    if found==True:
          print ("The marks of studentid ", sid ," has been updated.")
    else:
          print("No student with such id is not found")
   fin.close()
   fout.close()
```

(i) Which module should be imported in the program? (Statement 1)

(ii) Write the correct statement required to open a temporary file named temp.dat. (Statement 2)

(iii) Which statement should Aryan fill in Statement 3 to read the data from the binary file, record.dat and in Statement 4 to write the updated data in the file, temp.dat?

0-O-o- End of Paper –o-O-0

MARKING SCHEME

Section – A

Q01.	False	(1)
Q02.	(A) eval	(1)
Q03.	(D) dict_student.update(dict_marks)	(1)
Q04.	(B) False	(1)
Q05.	(C) mail2@kvsangathan**.**	(1)
Q06.	(D) close()	(1)
Q07.	(C) alter	(1)
Q08.	(B) DROP DATABASE	(1)
Q09.	(C) S4	(1)
Q10.	(C) Foreign Key	(1)
Q11.	(D) file_object.seek(offset [, reference_point])	(1)
Q12.	(A) DISTINCT	(1)
Q13.	(B) VoIP	(1)
Q14.	(C) 30.6	(1)
Q15.	(D) count(*)	(1)
Q16.	(B) connect	(1)
Q17.	(A) Both A and R are true and R is the correct explanation for A	(1)
Q18.	(C) A is True but R is False	(1)
	Section – B	

Q19.	Def checkNumber(N): # Def should be def
	status = N%2
	return # return what? Should be return status
	#main-code
	num=int(input(“ Enter a number to check :)) # Message not enclosed within quotation mark
	k=checkNumber(num)
	if k = 0: # must be k = = 0
	print(“This is EVEN number”)
	else:
	print(“This is ODD number”)
	
	(½ mark for each correct correction made and underlined.)
		(2)

Q20.	1 mark for each correct point of difference	(2)
Q21.	(A) 322ADORSF	(2)

	(B) dict_keys(['name', 'age', 'dept', 'rno']) 1 Marks for each correct answer.	
Q22.	A foreign key is used to set or represent a relationship between two relations (or tables) in a database. Its value is derived from the primary key attribute of another relation. (1 mark for explanation and 1 mark for example) (Any relevant correct example may be marked)	(2)
Q23.	(A) (i) HTTP: Hyper Text Transfer Protocol (ii) FTP: File Transfer Protocol (½ mark for every correct full form) (B) TELNET is used to access a remote computer / network. (1 mark for correct answer)	(2)
Q24.	1 20 L@ 4 60 L@M@ 9 120 L@M@N@ (½ M + ½ M + 1 M) means ½ - ½ marks for first two lines and 1 mark for last line. OR [(2, 4), (4, 16)] (½ mark for each correct pair of tuple , ½ mark for enclosing in parenthesis) means concept of tuple and list	(2)
Q25.	1 mark for the difference and 1 mark for appropriate example OR DDL- ALTER, DROP DML – INSERT, UPDATE (½ mark for each correct categorization)	(2)
	Section – C	
Q26.	½ Marks for each correct answer (i) BRAND_NAME FLAVOUR LAYS TOMATO UNCLE CHIPS SPICY HALDIRAM TOMATO (ii) BRAND_NAME FLAVOUR PRICE QUANTITY HALDIRAM TOMATO 25 30 (iii) BRAND_NAME LAYS (iv) count(distinct (BRAND_NAME)) 3 (v) PRICE PRICE*1.5	(3)

	10 15 (vi) distinct (BRAND_NAME) UNCLE CHIPS LAYS HALDIRAM	

Q27.	def countINDIA():
	f=open('d:\\myfile.txt')
	data=f.read()
	data=data.split()
	
	ctr=0
	for w in data:
	if w.upper()=='INDIA':
	ctr=ctr+1
	print('Frequency of India is ',ctr)
	
	#main
	countINDIA()
	OR
	def countVowel():
	ctr=0
	f=open('d:\\myfile.txt')
	data=f.read()
	for ch in data:
	if ch.lower() in 'aeiou':
	ctr=ctr+1
	
	print('Total number of vowels are : ', ctr)
		(3)

Q28.	(A) (i) select bname, auname, price from books where bid like “comp%”; (ii) update books set price = price + 50 where bid like “hist%”; (iii) select * from books order by price; (iv) select bid, bname, qty_issued from books, issued where books.bid = issued.bid; (½ mark for each correct SQL) (B) SHOW TABLES; (1 mark for correct answer)	(2+1)
Q29.	def lenFOURword(L):	(3)

```
    indexList=[]
    for i in range(len(L)):
        if len(L[i])==4:
            indexList.append(i)
    return indexList
```

½ mark for function header
½ mark for declaration of indexList
½ mark for loop
½ mark for checking condition
½ mark for appending
½ mark for returning

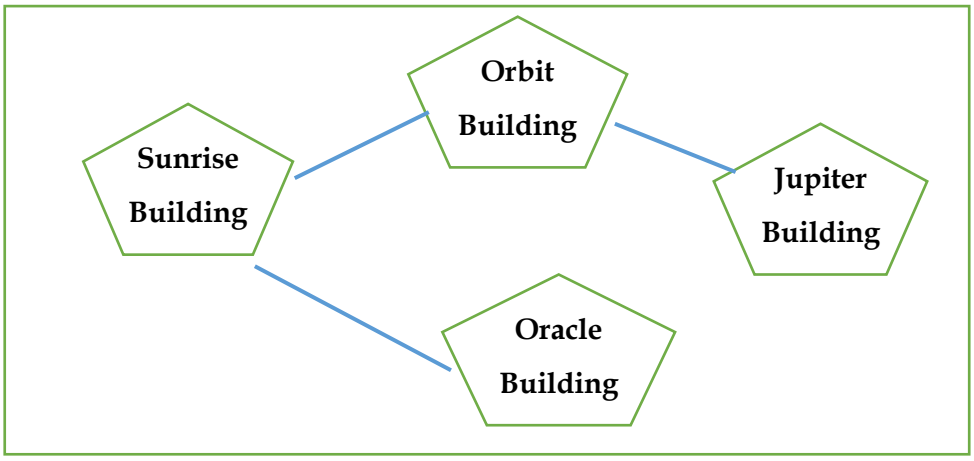
Q30. (3)

```
xiia=[]
student=[['Rajveer', '99999999999','XI', 'B'],['Swatantra', '8888888888','XII', 'A'],
['Sajal','77777777777','VIII','A'],['Yash', '1010101010','XII','A']]

def pushElement(student):
    for d in student:
        if d[2]=='XII' and d[3]=='A':
            xiia.append([d[0],d[1]])

def popElement():
    while len(xiia)!=0:
        print(xiia.pop())
    else:
        print('Stack Empty')

pushElement(student)
print(xiia)
popElement()
```

(1.5 marks for correct pushElement() and 1.5 marks for correct popElement())

OR

```
stackItem=[]
def Push(SItem):
    count=0
    for k in SItem:
        if (SItem[k]>=25):
```

	stackItem.append(k) count=count+1 print("The count of elements in the stack is : ", count) (1 mark for correct function header 1 mark for correct loop ½ mark for correct If statement ½ mark for correct display of count)	
	Section – D	
Q31.	i) Suggest a cable layout of connections between the buildings.  ii) Orbit Building iii) a. Internet Connecting Device/Modem- Orbit Building b. Switch- Each Building iv) MAN, it is formed to connect various locations of the city via various communication media. v) PAN is "Personal Area Network", basically configured at home area.	(5)
Q32.	(A) 1005 12 (B) Statement 1: con1.cursor() Statement 2: mycursor.execute(querry) Statement 3: con1.commit() (1 mark for each correct answer) OR (A) c&&vVpP (B) Statement 1:con1.cursor() Statement 2: mycursor.execute("select * from student where Marks>75")	(5)

	Statement 3: mycursor.fetchall() (1 mark for each correct statement)	

Q33.	Advantage of a csv file:
	* It is human readable – can be opened in Excel and Notepad applications
	* It is just like text file
	Program:
	import csv
	def ADD():
	fout=open("teacher.csv","a",newline="\n")
	wr=csv.writer(fout)
	tid=int(input("Enter teacher id :: "))
	name=input("Enter name :: ")
	mobile=int(input("Enter mobile number :: "))
	lst=[tid, name, mobile] --------- ½ mark
	wr.writerow(lst) --------- ½ mark
	fout.close()
	
	def COUNTR():
	fin=open("teacher.csv","r",newline="\n")
	data=csv.reader(fin)
	d=list(data)
	print("No of records :",len(d))
	fin.close()
	
	ADD()
	COUNTR()
	(1 mark for advantage
	½ mark for importing csv module
	1 ½ marks each for correct definition of ADD() and COUNTR()
	½ mark for function call statements
	)
	
	OR
	
	Difference between binary file and csv file: (Any one difference may be given)
	Binary file:
		(5)

* Extension is .dat
* Not human readable
* Stores data in the form of 0s and 1s

CSV file
* Extension is .csv
* Human readable
* Stores data like a text file

Program:

```
import csv
def add():
    fout=open("employee.csv","a",newline='\n')
    wr=csv.writer(fout)
    eid=int(input("Enter Employee Id :: "))
   name=input("Enter employee name :: ")
   salary =int(input("Enter salary :: "))
   FD=[eid, name, salary]
   wr.writerow(FD)
   fout.close()

def search():
    fin=open("employee.csv","r",newline='\n')
    data=csv.reader(fin)
    found=False
    print("The Details are")
    for i in data:
        if int(i[2])>40000:
              found=True
               print(i[0], i[1], i[2])
     if found==False:
          print("Record not found")
fin.close()
add()
print("Now displaying")
search()
```

(1 mark for difference
½ mark for importing csv module
1 ½ marks each for correct definition of add() and search()

	½ mark for function call statements)		
Section – E			
Q34.	(i)	stockid	(1+
	(ii)	degree = 8, cardinality = 3	½+½
	(iii)	(a) insert into stock values(201,'2022-10-18','neckphone','boat',500); (b) update stock set price=price*0.95 where year(dopurchase)=2020; OR (a) delete from stock where year(dopurchase) < 2015; (b) alter table stock add column STATUS char(1);	2)
Q35.	(i)	pickle (1 mark for correct module)	(4)
	(ii)	fout=open('temp.dat', 'wb') (1 mark for correct statement)	
	(iii)	Statement 3: pickle.load(fin) Statement 4: pickle.dump(rec,fout) (1 mark for each correct statement)	

0-O-o- End of Paper –o-O-0

KENDRIYA VIDYALAYA SANGATHAN
BENGALURU REGION
FIRST PRE-BOARD EXAM (SESSION 2022-23)

CLASS: XII MAX MARKS:70
SUBJECT: COMPUTER SCIENCE TIME: 3 HOURS

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A have 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each. One internal choice is given in Q35 against part c only.
8. All programming questions are to be answered using Python Language only

	SECTION A	
1.	State True or False “Python has a set of keywords that can also be used to declare variables”	1
2.	Which of the following is not a valid python operator? a) % b) in c) # d) **	1
3.	What will be the output of the following python dictionary operation? data = {'A':2000, 'B':2500, 'C':3000, 'A':4000} print(data) a) {'A':2000, 'B':2500, 'C':3000, 'A':4000} b) {'A':2000, 'B':2500, 'C':3000} c) {'A':4000, 'B':2500, 'C':3000} d) It will generate an error.	1
4.	print(True or not True and False) Choose one option from the following that will be the correct output after executing the above python expression. a) False b) True c) or d) not	1
5.	Select the correct output of the following python code: str="My program is program for you" t = str.partition("program") print(t) a) ('My ', 'program', ' is ', 'program', ' for you') b) ('My ', 'program', ' is program for you') c) ('My ', ' is program for you')	1

	d) ('My ', ' is ', ' for you')	
6.	Which of the file opening mode will open the file for reading and writing in binary mode. a) rb b) rb+ c) wb d) a+	1
7.	Which of the following statements is True? a) There can be only one Foreign Key in a table. b) There can be only one Unique key is a table c) There can be only one Primary Key in a Table d) A table must have a Primary Key.	1
8.	Which of the following is not part of a DDL query? a) DROP b) MODIFY c) DISTINCT d) ADD	1
9.	Which of the following operations on a string will generate an error? a) "PYTHON"*2 b) "PYTHON" + "10" c) "PYTHON" + 10 d) "PYTHON" + "PYTHON"	1
10.	_____ Keyword is used to obtain unique values in a SELECT query a) UNIQUE b) DISTINCT c) SET d) HAVING	1
11.	Which of the following python statement will bring the read pointer to 10^{th} character from the end of a file containing 100 characters, opened for reading in binary mode. a) File.seek(10,0) b) File.seek(-10,2) c) File.seek(-10,1) d) File.seek(10,2)	1
12.	Which statement in MySql will display all the tables in a database? a) SELECT * FROM TABLES; b) USE TABLES; c) DESCRIBE TABLES; d) SHOW TABLES;	1
13.	Which of the following is used to receive emails over Internet? a) SMTP b) POP c) PPP d) VoIP	1

14	What will be the output of the following python expression? print(2**3**2) a) 64 b) 256 c) 512 d) 32	1

15.
.
	Which of the following is a valid sql statement?
	a) ALTER TABLE student SET rollno INT(5);
	b) UPDATE TABLE student MODIFY age = age + 10;
	c) DROP FROM TABLE student;
	d) DELETE FROM student;
		1

16. .	Which of the following is not valid cursor function while performing database operations using python. Here Mycur is the cursor object? a) Mycur.fetch() b) Mycur.fetchone() c) Mycur.fetchmany(n) d) Mycur.fetchall()	1
Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as (a) Both A and R are true and R is the correct explanation for A (b) Both A and R are true and R is not the correct explanation for A (c) A is True but R is False (d) A is false but R is True		
17. .	Assertion (A): A variable declared as global inside a function is visible with changes made to it outside the function. Reasoning (A): All variables declared outside are not visible inside a function till they are redeclared with global keyword.	1
18. .	Assertion (A): A binary file in python is used to store collection objects like lists and dictionaries that can be later retrieved in their original form using pickle module. Reasoning (A): A binary files are just like normal text files and can be read using a text editor like notepad.	1
SECTION B		
19. .	Sameer has written a python function to compute the reverse of a number. He has however committed a few errors in his code. Rewrite the code after removing errors also underline the corrections made. define reverse(num): rev = 0 While num > 0: rem == num %10 rev = rev*10 + rem num = num//10 return rev print(reverse(1234))	2

20.	Mention two differences between a Hub and a switch in networking. OR Mention one advantage and one disadvantage of Star Topology.	2
21.	a) What will be the output of the following string operation. str="PYTHON@LANGUAGE" print(str[2:12:2]) b) Write the output of the following code. data = [1,2,4,5] for x in data: x = x + 10 print(data)	1 1
22.	Mention two differences between a PRIMARY KEY and a UNIQUE KEY.	2
23.	a) Expand the following abbreviations: i) URL ii) TCP b) What is the use of VoIP?	1 1

24.	Predict the output of the following python code:
	def foo(s1,s2):
	l1=[]
	l2=[]
	for x in s1:
	l1.append(x)
	for x in s2:
	l2.append(x)
	return l1,l2
	a,b=foo("FUN",'DAY')
	print(a,b)
	
	OR
	Predict the output of the following python code:
	data = [2,4,2,1,2,1,3,3,4,4]
	d = {}
	for x in data:
	if x in d:
	d[x]=d[x]+1
	else:
	d[x]=1
	print(d)
		2

25. A MySQL table, sales have 10 rows. The following queries were executed on the sales table. [2]

SELECT COUNT(*) FROM sales;

COUNT(*)
10

SELECT COUNT(discount) FROM sales;

COUNT(discount)
6

Write a statement to explain as to why there is a difference in both the counts.

OR

What is the difference between a Candidate Key and an Alternate Key

SECTION C

26. a) Consider the following tables Emp and Dept: [1+2]

Relation: Emp

empcode	ename	deptid	Salary
1001	TOM	10	10000
1002	BOB	11	8000
1003	SID	10	9000
1004	JAY	12	9000
1005	JIM	11	10000

Relation: Dept

deptid	dname
10	Physics
11	Chemistry
12	Biology

What will be the output of the following statement?

SELECT * FROM Emp NATURAL JOIN Dept WHERE dname='Physics';

b) Write output of the queries (i) to (iv) based on the table Sportsclub

Table Name: Sportsclub

playerid	pname	sports	country	rating	salary
10001	PELE	SOCCER	BRAZIL	A	50000
10002	FEDERER	TENNIS	SWEDEN	A	20000
10003	VIRAT	CRICKET	INDIA	A	15000
10004	SANIA	TENNIS	INDIA	B	5000
10005	NEERAJ	ATHLETICS	INDIA	A	12000
10006	BOLT	ATHLETICS	JAMAICA	A	8000

	10007	PAUL	SNOOKER	USA	B	10000	

(i) SELECT DISTINCT sports FROM Sportsclub;

(ii) SELECT sports, MAX(salary) FROM Sportsclub GROUP BY sports HAVING sports<>'SNOOKER';

(iii) SELECT pname, sports, salary FROM Sportsclub WHERE country='INDIA' ORDER BY salary DESC;

(iv) SELECT SUM(salary) FROM Sportsclub WHERE rating='B';

27. A pre-existing text file data.txt has some words written in it. Write a python function displaywords() that will print all the words that are having length greater than 3. **3**

Example:
For the fie content:
A man always wants to strive higher in his life
He wants to be perfect.

The output after executing displayword() will be:
Always wants strive higher life wants perfect

OR

A pre-existing text file info.txt has some text written in it. Write a python function countvowel() that reads the contents of the file and counts the occurrence of vowels(A,E,I,O,U) in the file.

28. Based on the given set of tables write answers to the following questions. **3**

Table: flights

flightid	model	company
10	747	Boeing
12	320	Airbus
15	767	Boeing

Table: Booking

ticketno	passenger	source	destination	quantity	price	Flightid
10001	ARUN	BAN	DEL	2	7000	10
10002	ORAM	BAN	KOL	3	7500	12
10003	SUMITA	DEL	MUM	1	6000	15
10004	ALI	MUM	KOL	2	5600	12
10005	GAGAN	MUM	DEL	4	5000	10

a) Write a query to display the passenger, source, model and price for all bookings whose destination is KOL.

b) Identify the column acting as foreign key and the table name where it is present in the given example.

29.	Write a function modilst(L) that accepts a list of numbers as argument and increases the value of the elements by 10 if the elements are divisible by 5. Also write a proper call statement for the function. For example: If list L contains [3,5,10,12,15] Then the modilist() should make the list L as [3,15,20,12,25]	3
30.	A dictionary contains the names of some cities and their population in crore. Write a python function push(stack, data), that accepts an empty list, which is the stack and data, which is the dictionary and pushes the names of those countries onto the stack whose population is greater than 25 crores. For example : The data is having the contents {'India':140, 'USA':50, 'Russia':25, 'Japan':10} then the execution of the function push() should push India and USA on the stack. OR A list of numbers is used to populate the contents of a stack using a function push(stack, data) where stack is an empty list and data is the list of numbers. The function should push all the numbers that are even to the stack. Also write the function pop() that removes the top element of the stack on its each call.	3
	SECTION D	
31.	Magnolia Infotech wants to set up their computer network in the Bangalore based campus having four buildings. Each block has a number of computers that are required to be connected for ease of communication, resource sharing and data security. You are required to suggest the best answers to the questions i) to v) keeping in mind the building layout on the campus.  Number of Computers.	5

Block	Number of computers
Development	100
HR	120
Admin	200
Logistics	110

Distance Between the various blocks

Block	Distance
Development to HR	50m
Development to Admin	75m
Development to Logistics	120m
HR to Admin	110m
HR to Logistics	50m
Admin to Logistics	140m

i) Suggest the most appropriate block to host the Server. Also justify your choice.

ii) Suggest the device that should should be placed in the Server building so that they can connect to Internet Service Provider to avail Internet Services.

iii) Suggest the wired medium and draw the cable block to block layout to economically connect the various blocks.

iv) Suggest the placement of Switches and Repeaters in the network with justification.

v) Suggest the high-speed wired communication medium between Bangalore Campus and Mysore campus to establish a data network.

32. a) Write the output of the following code: 2+3

```
def change(m, n=10):
   global x
   x+=m
   n+=x
   m=n+x
   print(m,n,x)
x=20
change(10)
change(20)
```

OR (only in a part)

What will be the output of the following python program?

```
 str = ""
name = "9@Days"
for x in name:
   if x in "aeiou":
      str+=x.upper()
   elif not x.isalnum():
```

```
        str+="**"
    elif x.isdigit():
        pass
    else:
        str+=x.lower()
print(str)
```

b) Sumitra wants to write a program to connect to MySQL database using python and increase the age of all the students who are studying in class 11 by 2 years.
Since she had little understanding of the coding, she left a few blank spaces in her code. Now help her to complete the code by suggesting correct coding for statements 1, 2 and 3.

```
import _____ as myc      # Statement 1

con = myc.connect(host="locahost", user="root", passwd="",
database="mydb")
mycursor = _____        #Statement 2
sql = "UPDATE student SET age=age+2 WHERE class='XI'"
mycursor.execute(sql)
sql = "SELECT * FROM student"
mycursor=con.execute(sql)
result = _____      #Statement 3
for row in result:
    print(row)
```

Statement 1 : The required module to be imported
Statement 2: To initialize the cursor object.
Statement 3: To read all the rows from the cursor object

33. A binary file data.dat needs to be created with following data written it in the form of Dictionaries. 2+3

Rollno	Name	Age
1001	TOM	17
1002	BOB	16
1003	KAY	16

Write the following functions in python accommodate the data and manipulate it.

a) A function insert() that creates the data.dat file in your system and writes the three dictionaries.
b) A function() read() that reads the data from the binary file and displays the dictionaries whose age is 16.

34. Tarun created the following table in MySQL to maintain stock for the items he has. 1+1+2

Table : Inventory

Productid	pname	company	stock	price	rating
10001	Biscuit	Parley	1000	15	C
10002	Toffee	Parley	500	5	B
10003	Eclairs	Cadbury	800	10	A
10004	Cold Drink	Coca Cola	500	25	NULL
1005	Biscuit	Britania	500	30	NULL
1006	Chocolate	Cadbury	700	50	C

Based on the above table answer the following questions.

a) Identify the primary key in the table with valid justification.
b) What is the degree and cardinality of the given table.
c) Write a query to increase the stock for all products whose company is Parley.

OR (only for part c)

Write a query to delete all the rows from the table which are not having any rating.

35. Sudheer has written a program to read and write using a csv file. He has written the following code but failed to write completely, leaving some blanks. Help him to complete the program by writing the missing lines by following the questions a) to d)

```
_____                                   #Statement 1
headings = ['Country','Capital','Population']
data = [['India', 'Delhi',130],['USA','Washington DC',50],[Japan,Tokyo,2]]
f = open('country.csv','w', newline="")
csvwriter = csv.writer(f)
csvwriter.writerow(headings)
_____                                   #Statement 2
f.close()
f = open('country.csv','r')
csvreader = csv.reader(f)
head = _____                            #Statement 3
print(head)
for x in _____:                         #Statement 4
   if int(x[2])>50:
      print(x)
```

	a) Statement 1 – Write the python statement that will allow Sudheer work with csv files. b) Statement 2 – Write a python statement that will write the list containing the data available as a nested list in the csv file c) Statement 3 – Write a python statement to read the header row in to the head object. d) Statement 4 – Write the object that contains the data that has been read from the file.	

****End****

KENDRIYA VIDYALAYA SANGATHAN
BENGALURU REGION
FIRST PRE-BOARD EXAM (SESSION 2022-23)

CLASS: XII MAX MARKS:70
SUBJECT: COMPUTER SCIENCE TIME: 3 HOURS

MARKING SCHEME

SECTION A		
1.	State True or False "Python has a set of keywords that can also be used to declare variables"	1
A	False	
2.	Which of the following is not a valid python operator? a) % b) in c) # d) **	1
A	#	
3.	What will be the output of the following python dictionary operation? data = {'A':2000, 'B':2500, 'C':3000, 'A':4000} print(data) a) {'A':2000, 'B':2500, 'C':3000, 'A':4000} b) {'A':2000, 'B':2500, 'C':3000} c) {'A':4000, 'B':2500, 'C':3000} d) It will generate an error.	1
A	{'A':4000, 'B':2500, 'C':3000}	
4.	print(True or not True and False) Choose one option from the following that will be the correct output after executing the above python expression. a) False b) True c) or d) not	1
A	True	
5.	Select the correct output of the following python code: str="My program is program for you" t = str.partition("program") print(t) a) ('My ', 'program', ' is ', 'program', ' for you') b) ('My ', 'program', ' is program for you') c) ('My ', ' is program for you') d) ('My ', ' is ', ' for you')	1
A	a) ('My ', 'program', ' is program for you')	

6.	Which of the file opening mode will open the file for reading and writing in binary mode. a) rb b) rb+ c) wb d) a+	1
A	rb+	
7.	Which of the following statements is True? a) There can be only one Foreign Key in a table. b) There can be only one Unique key is a table c) There can be only one Primary Key in a Table d) A table must have a Primary Key.	1
A	There can be only one Primary Key in a Table	
8.	Which of the following is not part of a DDL query? a) DROP b) MODIFY c) DISTINCT d) ADD	1
A	DISTINCT	
9.	Which of the following operations on a string will generate an error? a) "PYTHON"*2 b) "PYTHON" + "10" c) "PYTHON" + 10 d) "PYTHON" + "PYTHON"	1
A	"PYTHON" + 10	
10.	_____ Keyword is used to obtain unique values in a SELECT query a) UNIQUE b) DISTINCT c) SET d) HAVING	1
A	DISTINCT	
11.	Which of the following python statement will bring the read pointer to 10^{th} character from the end of a file containing 100 characters, opened for reading in binary mode. a) File.seek(10,0) b) File.seek(-10,2) c) File.seek(-10,1) d) File.seek(10,2)	1
A	File.seek(-10,2)	

12.	Which statement in MySql will display all the tables in a database? a) SELECT * FROM TABLES; b) USE TABLES; c) DESCRIBE TABLES; d) SHOW TABLES;	1
A	SHOW TABLES;	
13.	Which of the following is used to receive emails over Internet? a) SMTP b) POP3 c) PPP d) VoIP	1
A	POP3	
14	What will be the output of the following python expression? print(2**3**2) a) 64 b) 256 c) 512 d) 32	1
A	512	

15.	Which of the following is a valid sql statement?
	a) ALTER TABLE student SET rollno INT(5);
	b) UPDATE TABLE student MODIFY age = age + 10;
	c) DROP FROM TABLE student;
	d) DELETE FROM student;
		1

A	DELETE FROM student;	
16.	Which of the following is not valid cursor function while performing database operations using python. Here Mycur is the cursor object? a) Mycur.fetch() b) Mycur.fetchone() c) Mycur.fetchmany(n) d) Mycur.fetchall()	1
A	Mycur.fetch()	
Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as (a) Both A and R are true and R is the correct explanation for A (b) Both A and R are true and R is not the correct explanation for A (c) A is True but R is False (d) A is false but R is True		
17.	Assertion (A): A variable declared as global inside a function is visible with changes made to it outside the function. Reasoning (A): All variables declared outside are not visible inside a function till they are redeclared with global keyword.	1
A	Both A and R are true and R is the correct explanation for A	

<table>
<tr><td>18.</td><td>Assertion (A): A binary file in python is used to store collection objects like lists and dictionaries that can be later retrieved in their original form using pickle module.
Reasoning (A): A binary files are just like normal text files and can be read using a text editor like notepad.</td><td>1</td></tr>
<tr><td>A</td><td>A is True and R is False</td><td></td></tr>
<tr><td colspan="3">SECTION B</td></tr>
<tr><td>19.</td><td>Sameer has written a python function to compute the reverse of a number. He has however committed a few errors in his code. Rewrite the code after removing errors also underline the corrections made.
define reverse(num):
rev = 0
While num > 0:
rem == num %10
rev = rev*10 + rem
num = num//10
return rev
print(reverse(1234))</td><td>2</td></tr>
<tr><td>A</td><td><u>def</u> reverse(num):
rev = 0
<u>while</u> num > 0:
<u>rem =</u> num %10
rev = rev*10 + rem
num = num//10
<u>return rev</u>
print(reverse(1234))</td><td></td></tr>
<tr><td>20.</td><td>Mention two differences between a Hub and a switch in networking.

OR

Mention one advantage and one disadvantage of Star Topology.</td><td>2</td></tr>
<tr><td>A</td><td><table><tr><th>Hub</th><th>Switch</th></tr><tr><td>Hub is a passive Device</td><td>Switch is an active device</td></tr><tr><td>Hub broadcasts messages to all nodes</td><td>Switch sends the messages to intended node.</td></tr></table>Or any other valid difference between the two. Each difference carries 1 mark.

OR

Advantage: The network remains operational even if one of the nodes stops working.
Disadvantage: The network stops working if the central hub stops working.
Or any other valid advantage or disadvantage. Each carries 1 mark</td><td></td></tr>
</table>

<table>
<tr><td>21.</td><td>a) What will be the output of the following string operation.
str="PYTHON@LANGUAGE"
print(str[2:12:2])

b) Write the output of the following code.
data = [1,2,4,5]
for x in data:
x = x + 10
print(data)</td><td>1

1</td></tr>
<tr><td>A</td><td>TO@AG - No partial marking
[1,2,4,5] - No partial marking</td><td></td></tr>
<tr><td>22</td><td>Mention two differences between a PRIMARY KEY and a UNIQUE KEY</td><td>2</td></tr>
<tr><td>A</td><td><table><tr><td>PRIMARY KEY</td><td>UNIQUE KEY</td></tr><tr><td>There can be only one primary key in a table</td><td>There can be more than one unique keys in a table</td></tr><tr><td>The primary key cannot have null values</td><td>Unique can have null values</td></tr></table>Each difference carries 1 mark.</td><td></td></tr>
<tr><td>23.</td><td>a) Expand the following abbreviations:
i) URL ii) TCP

b) What is the use of VoIP?</td><td>1

1</td></tr>
<tr><td>A</td><td>i) Uniform Resource Locator - 1/2
ii) Transmission Control Protocol - ½

VoIP is used to transfer audio and video over internet - 1</td><td></td></tr>
<tr><td>24.</td><td>Predict the output of the following python code:
def foo(s1,s2):
l1=[]
l2=[]
for x in s1:
l1.append(x)
for x in s2:
l2.append(x)
return l1,l2
a,b=foo("FUN",'DAY')
print(a,b)

OR
Predict the output of the following python code:
data = [2,4,2,1,2,1,3,3,4,4]
d = {}
for x in data:</td><td>2</td></tr>
</table>

<table>
<tr><td></td><td>if x in d:
  d[x]=d[x]+1
else:
  d[x]=1
print(d)</td><td></td></tr>
<tr><td>A</td><td>['F', 'U', 'N'] ['D', 'A', 'Y'] Each list correctly written will fetch 1 mark. ½ mark can be given if the list is figured out in the answer.
OR
{2: 3, 4: 3, 1: 2, 3: 2}
The dictionary elements can be written in any order.</td><td></td></tr>
<tr><td>25.</td><td>A MySQL table, sales have 10 rows. The following queries were executed on the sales table.
SELECT COUNT(*) FROM sales;
<table><tr><td>COUNT(*)</td></tr><tr><td>10</td></tr></table>
SELECT COUNT(discount) FROM sales;
<table><tr><td>COUNT(discount)</td></tr><tr><td>6</td></tr></table>
Write a statement to explain as to why there is a difference in both the counts.
OR
What is the difference between a Candidate Key and an Alternate Key</td><td>2</td></tr>
<tr><td>A</td><td>The values are different because discount column is having 4 rows with NULL values.
OR
<table><tr><td>CANDIDATE KEY</td><td>ALTERNATE KEY</td></tr><tr><td>All the attributes in a relation that have the potential to become a Primary key</td><td>All the leftover candidate keys after selecting the primary key</td></tr></table></td><td></td></tr>
<tr><td colspan="3">SECTION C</td></tr>
<tr><td>26.</td><td>a) Consider the following tables Emp and Dept:</td><td>1+2</td></tr>
</table>

Relation: Emp

empcode	ename	deptid	Salary
1001	TOM	10	10000
1002	BOB	11	8000
1003	SID	10	9000
1004	JAY	12	9000

Relation: Dept

deptid	dname
10	Physics
11	Chemistry
12	Biology

What will be the output of the
following statement?
SELECT * FROM Emp NATURAL JOIN Dept WHERE dname='Physics';

b) Write output of the queries (i) to (iv) based on the table Sportsclub

Table Name: Sportsclub

playerid	pname	sports	country	rating	salary
10001	PELE	SOCCER	BRAZIL	A	50000
10002	FEDERER	TENNIS	SWEDEN	A	20000
10003	VIRAT	CRICKET	INDIA	A	15000
10004	SANIA	TENNIS	INDIA	B	5000
10005	NEERAJ	ATHLETICS	INDIA	A	12000
10006	BOLT	ATHLETICS	JAMAICA	A	8000
10007	PAUL	SNOOKER	USA	B	10000

(i) SELECT DISTINCT sports FROM Sportsclub;

(ii) SELECT sports, MAX(salary) FROM Sportsclub GROUP BY sports HAVING sports<>'SNOOKER';

(iii) SELECT pname, sports, salary FROM Sportsclub WHERE country='INDIA' ORDER BY salary DESC;

(iv) SELECT SUM(salary) FROM Sportsclub WHERE rating='B';

A

a)

deptid	empcode	ename	Salary	dname
10	1001	TOM	10000	Physics
10	1003	SID	9000	Physics

i)

DISTINCT sports
SOCCER
TENNIS
CRICKET
ATHLETICS
SNOOKER

ii)

Sports	MAX(salary)
SOCCER	50000
TENNIS	20000
CRICKET	15000
ATHLETICS	12000

iii)

pname	sports	salary
VIRAT	CRICKET	15000
NEERAJ	ATHLETICS	12000
SANIA	TENNIS	5000

iv)

SUM(salary)
15000

27. A pre-existing text file data.txt has some words written in it. Write a python function displaywords() that will print all the words that are having length greater than 3. 3

Example:
For the fie content:
A man always wants to strive higher in his life
He wants to be perfect.

The output after executing displayword() will be:
Always wants strive higher life wants perfect

OR

A pre-existing text file info.txt has some text written in it. Write a python function countvowel() that reads the contents of the file and counts the occurrence of vowels(A,E,I,O,U) in the file.

A

```
def displaywords():
    f = open('data.txt','r')
    s = f.read()
    lst = s.split()
    for x in lst:
        if len(x)>3:
            print(x, end=" ")
    f.close()
```

OR

```
def countvowels():
    f - open('info.txt', 'r')
    s = f.read()
    count = 0
    for x in s:
        if x in 'AEIOU':
            count+=1
    print(count)
    f.close()
```

Correct definition of function will fetch 3 marks. For each syntax error ½ mark may be deducted. No marks to be deducted for using a different logic.

28. Based on the given set of tables write answers to the following questions. 3

Table: flights

flightid	model	company
10	747	Boeing
12	320	Airbus
15	767	Boeing

Table: Booking

ticketno	passenger	source	destination	quantity	price	Flightid
10001	ARUN	BAN	DEL	2	7000	10
10002	ORAM	BAN	KOL	3	7500	12
10003	SUMITA	DEL	MUM	1	6000	15
10004	ALI	MUM	KOL	2	5600	12
10005	GAGAN	MUM	DEL	4	5000	10

a) Write a query to display the passenger, source, model and price for all bookings whose destination is KOL.

b) Identify the column acting as foreign key and the table name where it is present in the given example.

A	a) SELECT passenger, source, model, price FROM booking, flights WHERE bookings.flightid = flights.flightid AND destination='KOL'; 2 marks for correct answer. ½ mark to be deducted for each error. b) Flighted in the bookings table is the foreign key. (1 mark)	
29.	Write a function modilst(L) that accepts a list of numbers as argument and increases the value of the elements by 10 if the elements are divisible by 5. Also write a proper call statement for the function. For example: If list L contains [3,5,10,12,15] Then the modilist() should make the list L as [3,15,20,12,25]	3

A	def modilst(L):
	  for i in range(len(L)):
	  if L[i] % 5 == 0:
	  L[i]+=10
	
	L = [12,10,15,20,25]
	modilst(L)
	print(L)
	
	½ mark to deducted for each syntax error. Marks to be awarded for a different logic. 1 mark to be deducted if the function call is not written	

30.	A dictionary contains the names of some cities and their population in crore. Write a python function push(stack, data), that accepts an empty list, which is the stack and data, which is the dictionary and pushes the names of those countries onto the stack whose population is greater than 25 crores. For example : The data is having the contents {'India':140, 'USA':50, 'Russia':25, 'Japan':10} then the execution of the function push() should push India and USA on the stack. OR A list of numbers is used to populate the contents of a stack using a function push(stack, data) where stack is an empty list and data is the list of numbers. The function should push all the numbers that are even to the stack. Also write the function pop(stack) that removes the top element of the stack on its each call. Also write the function calls.	3

A	data={'India':140, 'USA':50, 'Russia':25, 'Japan':10}
	stack=[]
	def push(stack, data):
	  for x in data:
	  if data[x]>25:
	  stack.append(x)
	push(stack, data)
	print(stack)
	
	½ mark should be deducted for all incorrect syntax. Full marks to be awarded for any other logic that produces the correct result.
	
	OR
	
	data = [1,2,3,4,5,6,7,8]
	stack = []
	def push(stack, data):
	  for x in data:
	  if x % 2 == 0:
	  stack.append(x)
	def pop(stack):
	  if len(stack)==0:
	  return "stack empty"
	  else:
	  return stack.pop()
	
	push(stack, data)
	print(pop(stack))
	
	½ mark should be deducted for all incorrect syntax. Full marks to be awarded for any other logic that produces the correct result.	

SECTION D		
31.	Magnolia Infotech wants to set up their computer network in the Bangalore based campus having four buildings. Each block has a number of computers that are required to be connected for ease of communication, resource sharing and data security. You are required to suggest the best answers to the questions i) to v) keeping in mind the building layout on the campus.	5

Number of Computers.

Block	Number of computers
Development	100
HR	120
Admin	200
Logistics	110

Distance Between the various blocks

Block	Distance
Development to HR	50m
Development to Admin	75m
Development to Logistics	120m
HR to Admin	110m
HR to Logistics	50m
Admin to Logistics	140m

i) Suggest the most appropriate block to host the Server. Also justify your choice.

ii) Suggest the device that should should be placed in the Server building so that they can connect to Internet Service Provider to avail Internet Services.

iii) Suggest the wired medium and draw the cable block to block layout to economically connect the various blocks.

iv) Suggest the placement of Switches and Repeaters in the network with justification.

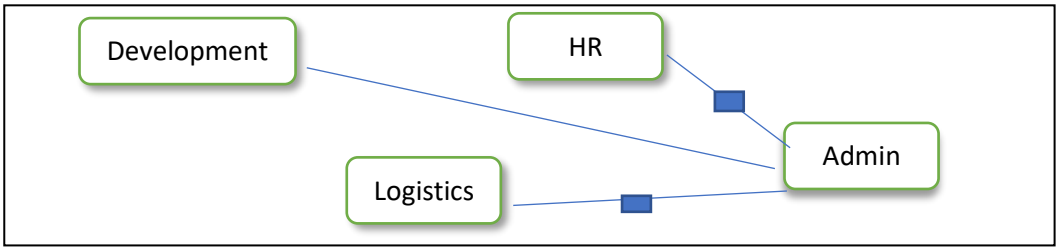
v) Suggest the high-speed wired communication medium between Bangalore Campus and Mysore campus to establish a data network.

A

i) Admin Block since it has maximum number of computers.

ii) Modem should be placed in the Server building

iii) The wired medium is UTP/STP cables.



	iv) Switches in all the blocks since the computers need to be connected to the network. Repeaters between Admin and HR block & Admin and Logistics block. The reason being the distance is more than 100m. v) Optical Fiber cable connection.	

32.	a) Write the output of the following code:
	
	def change(m, n=10):
	  global x
	  x+=m
	  n+=x
	  m=n+x
	  print(m,n,x)
	x=20
	change(10)
	change(20)
	
	OR (only in a part)
	
	What will be the output of the following python program?
	str = ""
	name = "9@Days"
	for x in name:
	  if x in "aeiou":
	  str+=x.upper()
	  elif not x.isalnum():
	  str+="**"
	  elif x.isdigit():
	  pass
	  else:
	  str+=x.lower()
	print(str)
	
	b) Sumitra wants to write a program to connect to MySQL database using python and increase the age of all the students who are studying in class 11 by 2 years.
	Since she had little understanding of the coding, she left a few blank spaces in her code. Now help her to complete the code by suggesting correct coding for statements 1, 2 and 3.
		2+3

	import _____ as myc # Statement 1
	
	con = myc.connect(host="locahost", user="root", passwd="", database="mydb")
	mycursor = _____ #Statement 2
	sql = "UPDATE student SET age=age+2 WHERE class='XI'"
	mycursor.execute(sql)
	sql = "SELECT * FROM student"
	mycursor=con.execute(sql)
	result = _____ #Statement 3
	for row in result:
	print(row)
	
	Statement 1 : The required module to be imported
	Statement 2: To initialize the cursor object.
	Statement 3: To read all the rows from the cursor object	

A	a) 70 40 30 110 60 50 1 mark for each correct row of answer. Partial marks to be given if partial correct answers are there. OR **dAys 2 marks for correct answer. Partial marks may be given for partially correct answer. b) mysql.connector c) con.cursor() d) mycursor.fetchall() 1 mark for each correct answer	
33.	A binary file data.dat needs to be created with following data written it in the form of Dictionaries. Rollno | Name | Age 1001 | TOM | 17 1002 | BOB | 16 1003 | KAY | 16 Write the following functions in python accommodate the data and manipulate it. a) A function insert() that creates the data.dat file in your system and writes the three dictionaries.	2+3

b) A function read() that reads the data from the binary file and displays the dictionaries whose age is 16.

A

```
import pickle
def insert():
   d1 = {'Rollno':1001, 'Name':'TOM', 'Age':17}
   d2 = {'Rollno':1002, 'Name':'BOB', 'Age':16}
   d3 = {'Rollno':1003, 'Name':'KAY', 'Age':16}
   f = open("data.dat","wb")
   pickle.dump(d1,f)
   pickle.dump(d2,f)
   pickle.dump(d3,f)
   f.close()

def read():
   f = open("data.dat", "rb")
   while True:
      try:
         d = pickle.load(f)
         if d['Age']==16:
            print(d)
      except EOFError:
         break
   f.close()
```

The insert() function has 2 marks. Deduct ½ mark for each syntax error
The read() function carries 3 marks. Deduct ½ marks for each syntax error

34. Tarun created the following table in MySQL to maintain stock for the items he has. 1+1+2

Table : Inventory

Productid	pname	company	stock	price	rating
10001	Biscuit	Parley	1000	15	C
10002	Toffee	Parley	500	5	B
10003	Eclairs	Cadbury	800	10	A
10004	Cold Drink	Coca Cola	500	25	NULL
10005	Biscuit	Britania	500	30	NULL
10006	Chocolate	Cadbury	700	50	C

Based on the above table answer the following questions.

	a) Identify the primary key in the table with valid justification. b) What is the degree and cardinality of the given table. c) Write a query to increase the stock for all products by 20 whose company is Parley. OR (only for part c) Write a query to delete all the rows from the table which are not having any rating.	
A	a) The Primary Key should be Productid since it uniquely identifies each row. (1) b) Degree – 6 Cardinality – 6 (½ + ½) c) UPDATE inventory SET stock=stock+10 WHERE company = 'Parley'; OR DELETE FROM inventory WHERE RATING IS NULL; (2)	

35.	Sudheer has written a program to read and write using a csv file. He has written the following code but failed to write completely, leaving some blanks. Help him to complete the program by writing the missing lines by following the questions a) to d)
	
	_____ #Statement 1
	headings = ['Country','Capital','Population']
	data = [['India', 'Delhi',130],['USA','Washington DC',50],[Japan,Tokyo,2]]
	f = open('country.csv','w', newline="")
	csvwriter = csv.writer(f)
	csvwriter.writerow(headings)
	_____ #Statement 2
	f.close()
	f = open('country.csv','r')
	csvreader = csv.reader(f)
	head = _____ #Statement 3
	print(head)
	for x in _____: #Statement 4
	if int(x[2])>50:
	print(x)
	
	a) Statement 1 – Write the python statement that will allow Sudheer work with csv files.
	b) Statement 2 – Write a python statement that will write the list containing the data available as a nested list in the csv file
	c) Statement 3 – Write a python statement to read the header row in to the head object.
	d) Statement 4 – Write the object that contains the data that has been read from the file.	

A	a) import csv b) csvwriter.writerows(data) c) next(csvreader) d) csvreader 1 mark for each correct answer.	

****End****

KENDRIYA VIDYALAYA SANGATHAN, CHANDIGARH REGION 2022-23
PREBOARD-I

CLASS – XII **COMPUTER SCIENCE (083)**
TIME ALLOWED: 03 HOURS **M.M.: 70**

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A have 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each. One internal choice is given in Q35 against part c only.
8. All programming questions are to be answered using Python Language only.

	SECTION A	
1.	Fill in the Blank The explicit conversion of an operand to a specific type is called _____ (a)Type casting (b) coercion (c) translation (d) None of these	1
2.	Which of the following is not a core data type in Python? (a)Lists (b) Dictionaries (c)Tuple (d) Class	1

3.	What will the following code do?
	`dict={"Exam":"AISSCE", "Year":2022}`
	`dict.update({"Year”:2023})`
	
	a. It will create new dictionary dict={” Year”:2023}and old dictionary will be deleted
	b. It will throw an error and dictionary cannot updated
	c. It will make the content of dictionary as dict={"Exam":"AISSCE", "Year":2023}
	d. It will throw an error and dictionary and do nothing
		1

4.	What will be the value of the expression :14+13%15	1

5	Select the correct output of the code:
	`a= "Year 2022 at All the best" a = a.split('2')`
	`a = a[0] + ". " + a[1] + ". " + a[3] print (b)`
	(a) Year . 0. at All the best (b) Year 0. at All the best
	(c) Year . 022. at All the best (d) Year . 0. at all the best
		1

6.	Which of the following mode will refer to binary data? (a)`r` (b) `w` (c) `+` (d) b	1
7.	Fill in the blank: _____ command is used to remove a column from a table in SQL. (a) `update` (b)`remove` (c) `alter` (d)`drop`	1
8.	Which of the following commands will delete the rows of table? (a) DELETE command (b) DROP Command (c) REMOVE Command (d) ALTER Command	1

9.	Which of the following statement(s) would give an error after executing the following code?
	`S="Welcome to class XII" # Statement 1print(S) #`
	`Statement 2 S="Thank you" # Statement 3`
	`S[0]= '@' # Statement 4`
	`S=S+"Thank you" # Statement 5`
	
	(a) Statement 3 (b) Statement 4
	(b) Statement 5 (d) Statement 4 and 5
		1

10.	Logical Operators used in SQL are? (a) AND,OR,NOT (b) &&,||,! (c) $,|,! (d) None of these	1

11	The correct syntax of `seek()` is: (a) file_object.seek(offset [, reference_point]) (b) seek(offset [, reference_point]) (c) seek(offset, file_object) (d) seek.file_object(offset)	
12.	Fill in the blank: All tuples in the relation are assigned NULL as the value for the new Attribute,with the _____ Command (a) `MODIFY` (b) `TAILOR` (c) ELIMINATE (d) `ALTER`	1
13.	What is the size of IPv4 address? (a)32 bits (b) 64 bits (c) 64 bytes (d) 32 bytes	1
14.	What will be the output of the following expression? 24//6%3 , 24//4//2 , 48//3//4 a)(1,3,4) b)(0,3,4) c)(1,12,Error) d)(1,3,#error)	1
15.	Which of the following ignores the NULL values inSQL? a) Count(*) b) count() c)total(*) d)None of these	1
16.	Which of the following is not a legal method for fetching records from a database from within a Python program? (a) `fetchone()` b)`fetchtwo()` (c) `fetchall()` (d) `fetchmany()`	1
Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as (a) Both A and R are true and R is the correct explanation for A (b) Both A and R are true and R is not the correct explanation for A (c) A is True but R is False (d) A is false but R is True		
17.	Assertion (A):- If the arguments in a function call statement match the number and order of arguments as defined in the function definition, such arguments are called positional arguments. Reasoning (R):- During a function call, the argument list first contains default argument(s) followed by positional argument(s).	1
18.	Assertion (A): CSV (Comma Separated Values) is a file format for data storage which looks like a text file. Reason (R): The information is organized with one record on each line and each field is separated by comma.	1
SECTION B		

19.	Preety has written a code to add two numbers .Her code is having errors. Rewrite the correct code and underline the corrections made.
	`def sum(arg1,arg2):`
	`  total=arg1+arg2;`
	`  print(”Total:”,total)`
	`return total;`
	`sum(10,20)`
	`print(”Total:”,total)`
		2

20.	Write two points of difference between Hub and Switch. **OR** Write two points of difference between Web PageL and Web site.	2
21.	Write the output of following code and explain the difference between a*3 and (a,a,a) a=(1,2,3) print(a*3) print(a,a,a)	2
22	Differentiate between DDL and DML with one Example each.	2
23	(a) Write the full forms of the following: **(i) SMTP (ii) PPP** (b) What is the use of TELNET?	2
24	What do you understand the default argument in function? Which function parameter must be given default argument if it is used? Give example of function header to illustrate default argument **OR** Ravi a python programmer is working on a project, for some requirement, he has to define a function with name CalculateInterest(), he defined it as: def CalculateInterest (Principal, Rate=.06,Time): # code But this code is not working, Can you help Ravi to identify the error in the above function and what is the solution.	2

25 Write the output of the queries (a) to (d) based on the table 2

TABLE: COUNTRY

Code	CName	Continent	Surface Area	Population	Life Expectancy
AFG	Afghanistan	Asia	652090	22720000	46
AGO	Angola	Africa	1246700	12878000	39
AIA	Anguilla	North America	NULL	8000	76
ALB	Albania	Europe	28748	3401200	72
ARG	Argentina	South America	2780400	37032000	75
ARM	Armenia	Asia	29800	3520000	NULL

(a) SELECT min(Population) FROM country;
(b) SELECT max(SurfaceArea) FROM country Where Lifeexpectancy <50;
(c) SELECT avg(LifeExpectancy) FROM country Where CName Like "%G%";
(d) SELECT Count(Distinct Continent) FROM country;

OR

(a) Identify the candidate key(s) from the table Country.
(b) Consider the table CAPITAL given below:

TABLE: CAPITAL

Capital_Code	Country_Code	Capital_Name	Area
KAB	AFG	Kabul	1028
LUA	AGO	Luanda	113
BUE	ARG	Buenos Aires	203
YER	ARM	YEREVAN	223

Which field will be considered as the foreign key if the tables COUNTRY and CAPITAL are related in a database?

SECTION-C

26 Write the outputs of the SQL queries (i) to (iii) based on the relations Teacher and Posting given below: 3

Table: Stationary

S_ID	StationaryName	Company	Price
DP01	Dot Pen	ABC	10
PL02	Pencil	XYZ	6
ER05	Eraser	XYZ	7
PL01	Pencil	CAM	5
GP02	Gel Pen	ABC	15

Table: Consumer

C_ID	ConsumerName	Address	S_ID
1	Good Learner	Delhi	PL01
6	Write Well	Mumbai	GP02
12	Topper	Delhi	DP01
15	Write & Draw	Delhi	PL02

1. SELECT count(DISTINCT Address) FROM Consumer;
2. 2. SELECT Company, MAX(Price), MIN(Price), COUNT(*) from Stationary GROUP BY Company;

SELECT Consumer.ConsumerName, Stationary.StationaryName, Stationary.Price FROM Stationary, Consumer WHERE Consumer.S_ID = Stationary.S_ID;

27. Write a function COUNT_AND( ) in Python to read the text file "STORY.TXT" and count the number of times "AND" occurs in the file. (include AND/and/And in the counting) 3

OR

Write a function DISPLAYWORDS( ) in python to display the count of words starting with "t" or "T" in a text file 'STORY.TXT'.

28 (Write a output for SQL queries (i) to (iii), which are based on the table: SCHOOL and ADMIN given below: 3

TABLE: SCHOOL

CODE	TEACHERNAME	SUBJECT	DOJ	PERIODS	EXPERIENCE
1001	RAVI SHANKAR	ENGLISH	12/03/2000	24	10
1009	PRIYA RAI	PHYSICS	03/09/1998	26	12
1203	LISA ANAND	ENGLISH	09/04/2000	27	5
1045	YASHRAJ	MATHS	24/08/2000	24	15
1123	GANAN	PHYSICS	16/07/1999	28	3
1167	HARISH B	CHEMISTRY	19/10/1999	27	5
1215	UMESH	PHYSICS	11/05/1998	22	16

TABLE: ADMIN

CODE	GENDER	DESIGNATION
1001	MALE	VICE PRINCIPAL
1009	FEMALE	COORDINATOR
1203	FEMALE	COORDINATOR
1045	MALE	HOD
1123	MALE	SENIOR TEACHER
1167	MALE	SENIOR TEACHER
1215	MALE	HOD

SELECT SUM (PERIODS), SUBJECT FROM SCHOOL GROUP BY SUBJECT;
ii) SELECT TEACHERNAME, GENDER FROM SCHOOL, ADMIN WHERE DESIGNATION = 'COORDINATOR' AND SCHOOL.CODE=ADMIN.CODE;
iii) SELECT COUNT (DISTINCT SUBJECT) FROM SCHOOL;

29. Write a function INDEX_LIST(L), where L is the list of elements passed as argument to the function. The function returns another list named 'indexList' that stores the indices of all Non-Zero Elements of L. 3

For example:
If L contains [12,4,0,11,0,56]
The indexList will have - [0,1,3,5]

30. Write a program to perform push operations on a Stack containing Student details as given in the following definition of student node: 3

RNo integer
Name String
Age integer

```
def isEmpty(stk):
    if stk == [ ]:
        return True
    else:
        return False
def stk_push(stk, item):
# Write the code to push student details using stack.
```

OR

Write a program to perform pop operations on a Stack containing Student details as given in the following definition of student node:

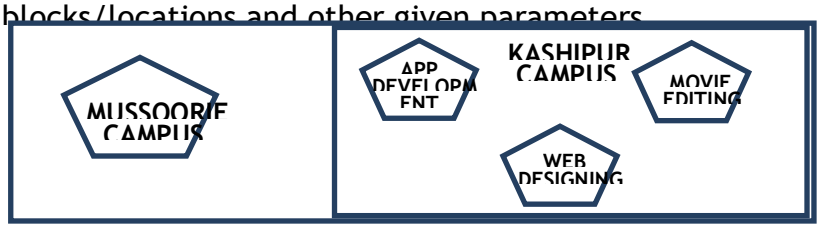
RNo integer
Name String
Age integer

```
def isEmpty(stk):
    if stk == [ ]:
        return True
    else:
        return False
def stk_pop(stk):
# Write the code to pop a student using stack
```

SECTION D

31. MakeInIndia Corporation, an Uttarakhand based IT training company, is planning to set up training centres in various cities in next 2 years. Their first campus is coming up in Kashipur district. At Kashipur campus, they are planning to have 3 different blocks for App development, Web designing and Movie editing. Each block has number of computers, which are required to be connected in a network for communication, data and resource sharing. As a network consultant of this company, you have to suggest the best network related solutions for them for issues/problems raised in question nos. (i) to (v), keeping in mind the distances between various blocks/locations and other given parameters.

Distance between various blocks/locations:



Block	Distance
App development to Web designing	28 m
App development to Movie editing	55 m
Web designing to Movie editing	32 m
Kashipur Campus to Mussoorie Campus	232 km

Number of computers

Block	Number of Computers
App development	75
Web designing	50
Movie editing	80

(i) Suggest the most appropriate block/location to house the SERVER in the Kashipur campus (out of the 3 blocks) to get the best and effective connectivity. Justify your answer. 1

(ii) Suggest a device/software to be installed in the Kashipur Campus to take care of data security. 1

(iii) Suggest the best wired medium and draw the cable layout (Block to Block) to economically connect various blocks within the Kashipur Campus. 1

(iv) Suggest the placement of the following devices with appropriate reasons:

a Switch / Hub 1

b Repeater

(v) Suggest a protocol that shall be needed to provide Video Conferencing solution between Kashipur Campus and Mussoorie Campus. 1

32. (a) What will be the output of following program: 2+3

```
s="welcome2kv"
n = len(s)
m=""
for i in range(0, n):
if (s[i] >= 'a' and s[i] <= 'm'):
m = m +s[i].upper()
elif (s[i] >= 'n' and s[i] <= 'z'):
m = m +s[i-1]
elif (s[i].isupper()):
m = m + s[i].lower()
else:
m = m +'#'
print(m)
```

(b)The code given below reads the following record from the table named `student`**and displays only those records who have marks greater than 75:**

RollNo – integer
Name – string
Clas – integer
Marks – integer

Note the following to establish connectivity between Python and MYSQL:

- **Username is root**
- **Password is tiger**
- **The table exists in a MYSQL database named** `school`**.**

Write the following missing statements to complete the code:
Statement 1 – to form the cursor object
Statement 2 – to execute the query that extracts records of those students whose marks are greater than 75.
Statement 3- to read the complete result of the query (records whose marks are greater than 75) into the object named `data`, from the table `student` in the database.

```
import mysql.connector as mysql def sql_data():
con1=mysql.connect(host="localhost",user="root", password="tiger",
 database="school")
    mycursor=_____________                #Statement 1      print("Students
 with marks greater than 75 are :
")
    _____________________                                    #Statement   2
 data=_________________              #Statement 3       for i in data:
 print(i)
    print()
```

33. What is the advantage of using a csv file for permanent storage? Write a Program in Python that defines and calls the following user defined functions: 5

(i) ADD() – To accept and add data of an employee to a CSV file 'record.csv'. Each record consists of a list with field elements as `empid`, `name` and `mobile` to store employee id, employee name and employee salary respectively.
(ii) COUNTR() – To count the number of records present in the CSV file named 'record.csv'.

OR

Give any one point of difference between a binary file and a csv file. Write a Program in Python that defines and calls the following user defined functions:

(i) add() – To accept and add data of an employee to a CSV file 'furdata.csv'. Each record consists of a list with field elements as `fid`, `fname` and `fprice` to store furniture id, furniture name and furniture price respectively.
(ii) search()- To display the records of the furniture whose price is more than 10000.

SECTION E

34 Write SQL commands for the following queries (i) to (v) based on the relation 4

Trainer and Course given below:

(i) Display the Trainer Name, City & Salary in descending order of their Hiredate.

(ii) To display the TNAME and CITY of Trainer who joined the Institute in the month of December 2001.

(iii) To display TNAME, HIREDATE, CNAME, STARTDATE from tables TRAINER and COURSE of all those courses whose FEES is less than or equal to 10000.

(iv) To display number of Trainers from each city.

OR

(iv) To display the Trainer ID and Name of the trainer who are not belongs to 'Mumbai' and 'DELHI'

TRAINER

TID	TNAME	CITY	HIREDATE	SALARY
101	SUNAINA	MUMBAI	1998-10-15	90000
102	ANAMIKA	DELHI	1994-12-24	80000
103	DEEPTI	CHANDIGARG	2001-12-21	82000
104	MEENAKSHI	DELHI	2002-12-25	78000
105	RICHA	MUMBAI	1996-01-12	95000
106	MANIPRABHA	CHENNAI	2001-12-12	69000

COURSE

CID	CNAME	FEES	STARTDATE	TID
C201	AGDCA	12000	2018-07-02	101
C202	ADCA	15000	2018-07-15	103
C203	DCA	10000	2018-10-01	102
C204	DDTP	9000	2018-09-15	104
C205	DHN	20000	2018-08-01	101
C206	O LEVEL	18000	2018-07-25	105

35. Anuj Kumar of class 12 is writing a program to create a CSV file "user.csv" which will contain user name and password for some entries. He has written thefollowing code. As a programmer, help him to successfully execute the giventask. 4

```
import _____ # Line 1
def addCsvFile(UserName,PassWord): # to write / add data into the CSV file
f=open(' user.csv','_____') # Line 2
newFileWriter = csv.writer(f)
newFileWriter.writerow([UserName,PassWord])
f.close()
                                    #csv file reading code
def readCsvFile(): # to read data from CSV file
with open(' user.csv','r') as newFile:
newFileReader = csv._____(newFile) # Line 3
for row in newFileReader:
print (row[0],row[1])
newFile._____ # Line 4
addCsvFile("Arjun","123@456")
addCsvFile("Arunima","aru@nima")
addCsvFile("Frieda","myname@FRD")
```

(a) Name the module he should import in Line 1.

(b) In which mode, Anuj should open the file to add data into the file

(c) Fill in the blank in Line 3 to read the data from a csv file.

(d) Fill in the blank in Line 4 to close the file.

********** End of the Paper **********

Class: XII Session: 2022-23
Computer Science (083)
PreBoard -1 (Theory)

Maximum Marks: 70 **Time Allowed: 3 hours**

	SECTION A ***(1 mark to be awarded for every correct answer)***	
1.	**Ans. (a)Type casting** *(1 Mark for correct Answer)*	1
2.	**Ans: (d) Class** *(1 Mark for correct Answer)*	1
3.	**Ans: (c) It will make the content of dictionary as dict={"Exam":"AISSCE", "Year":2023}** *(1 Mark for correct Answer)*	1
4.	Ans: 27 *(1 Mark for correct Answer)*	1
5	**Ans: (a) Year . 0. at All the best** *(1 Mark for correct Answer)*	
5.	*(1 Mark for correct Answer)*	1
6.	**Ans: (d) b** *(1 Mark for correct Answer)*	1
7.	**Ans: (c) `alter`** *(1 Mark for correct Answer)*	1
8.	Ans: (a) DELETE command *(1 Mark for correct Answer)*	1
9.	Ans: (b) – Statement 4 *(1 Mark for correct Answer)*	1
10.	**Ans: (a)** AND,OR,NOT *(1 Mark for correct Answer)*	1
11.	**Ans: (a) `file_object.seek(offset [, reference_point])`** *(1 Mark for correct Answer)*	
12.	**Ans: (d)** ALTER *(1 Mark for correct Answer)*	1
13.	**Ans: (a) 32 bits** *(1 Mark for correct Answer)*	1
14	**Ans: (a) (1,3,4)** *(1 Mark for correct Answer)*	

15.	**Ans: b)**	1
16.	Ans: (b) - `Fetchtwo()` *(1 Mark for correct Answer)*	1
17.	**Ans: (c) A is True but R is False** *(1 Mark for correct Answer)*	**1**
18.	**Ans: (a) Both A and R are true and R is the correct explanation for A** *(1 Mark for correct Answer)*	1
	SECTION B	

19	Ans:
	`def sum(arg1,arg2):`
	`  total=arg1+arg2  #` **No need of semicolon at two places**
	`  print("Total:",total)`
	`  return total  #` **wrong indentation for return statement**
	`a=sum(10,20)` **#Value returned from function is not received**
	`print("Total:",total)`
	
	(½ mark for each correct correction made and underlined.)	

20.	Ans: *(1 mark for each correct point of difference)*	2
21	*(1 mark for each correct answer)*	2
22	DDL- Data definition language. Consists of commands used to modify the metadata of a table. For Example- create table, alter table, drop table DML-Data manipulation language. Consist of commands used to modify the data of a table. For Example- insert, delete, update	2
23.	**Ans: (i)SMTP: Simple Mail Transfer Protocol** **(ii) PPP: Point to Point Protocol** *(½ mark for every correct full form)* **Ans: TELNET is used to access a remote computer / network.** *(1 mark for correct answer)*	2

24.	Default argument in function- value provided in the formal arguments in the definition header of a function is called as default argument in function. They should always be from right side argument to the left in sequence. For example: def func(a, b=2, c=5): # definition of function func( ) here b and c are default arguments OR In the function CalculateInterest (Principal, Rate=.06,Time) parameters should be default parameters from right to left hence either Time should be provided with some default value or default value of Rate should be removed *(½ mark for the correct digit with a #)*	2
25	TABLE: COUNTRY (a) 8000 (b) 1246700 (c) 59 d) 5 OR (a) Candidate keys:- Code, CName, Population (b) Country_Code	
	Section -C	
26	Ans 1. count(DISTINCT Address Delhi Mumbai 2. Company MAX(Price) MIN(Price) COUNT(*) ABC 15 10 2 XYZ 7 6 2 CAM 5 5 1 (1 Mark for each correct answer)	3

27.	def COUNT_AND( ):
	count=0
	file=open('STORY.TXT','r')
	line = file.read()
	word = line.split()
	for w in word:
	if w in ['AND','and','And']:
	count=count+1
	file.close()
	print(count)
	(1⁄2 Mark for opening the file)
	(1⁄2 Mark for reading word)
	(1⁄2 Mark for checking condition)
	(1⁄2 Mark for printing word)
	OR
	def DISPLAYWORDS( ):
	count=0
	file=open('STORY.TXT','r')
	line = file.read()
	word = line.split()
	for w in word:
	if w[0]=="T" or w[0]=="t":
	count=count+1
	file.close()
	print(count)
	(1⁄2 Mark for opening the file)
	(1⁄2 Mark for reading word)
	(1⁄2 Mark for checking condition)
		3

28	ENGLISH 51 PHYSICS 76 MATHS 24 CHEMISTRY 27 ii) PRIYA RAI FEMALE LISA ANAND FEMALE iii) 4 (1 mark for each correct answer)	3

29	`def INDEX_LIST(L):`
	`  indexList=[]`
	`  for i in range(len(L)):`
	`  if L[i]!=0:`
	`  indexList.append(i)`
	`  return indexList`
	
	(½ mark for correct function header
	1 mark for correct loop
	1 mark for correct if statement
	½ mark for return statement)
	
	Note: Any other relevant and correct code may be marked
		3

30	def stkpush(stk, item):
	stk.append(item)
	top=len(stk)-1
	
	OR
	
	def stkpop(stk):
	if isEmpty( ):
	print("Underflow")
		3

	SECTION D	
31	**(i) Movie editing block is the most appropriate to house the server as it has the maximum number of computers.** **(1/2 mark for naming the server block and ½ mark for correct reason.)** **(ii) Firewall (1 mark for the correct answer)** **(iii) Ethernet Cable** **(iv)Repeater is not required between the blocks as the distances are less than 100 mts. (1 mark for the correct answer)** (v)**Ans: Protocol: VoIP** **(1 mark for the correct answer)**	5

32.	(a) Output: vELCcME#Kk
	(1 mark for vELC *and 1 mark for* cME#Kk*)*
	(b) Statement 1:
	`con1.cursor()`
	Statement 2:
	`mycursor.execute("select * from student where Marks>75")`
	Statement 3:
	`mycursor.fetchall()`
	(1 mark for each correct statement)
		2+3

33	**(1 mark for advantage** **½ mark for importing csv module** **1 ½ marks each for correct definition of ADD() and COUNTR()** **½ mark for function call statements)** OR **(1 mark for difference** **½ mark for importing csv module** **1 ½ marks each for correct definition of add() and search()** **½ mark for function call statements)**	
	SECTION E	

34. Write SQL Commands for the following queries based on the relations PRODUCT and CLIENT given below. 1+1+ 1+1

Table: Product

P_ID	ProductName	Manufacturer	Price	ExpiryDate
TP01	Talcum Powder	LAK	40	2011-06-26
FW05	Face Wash	ABC	45	2010-12-01
BS01	Bath Soap	ABC	55	2010-09-10
SH06	Shampoo	XYZ	120	2012-04-09
FW12	Face Wash	XYZ	95	2010-08-15

Table: Client

C_ID	ClientName	City	P_ID
1	Cosmetic Shop	Delhi	FW05
6	Total Health	Mumbai	BS01
12	Live Life	Delhi	SH06
15	Pretty One	Delhi	FW05
16	Dreams	Bengaluru	TP01
14	Expressions	Delhi	NULL

i. To display the ClientName and City of all Mumbai- and Delhi-based clients in Client table.

ii. Increase the price of all the products in Product table by 10%.

iii. To display the ProductName, Manufacturer, ExpiryDate of all the products that expired on or before '2010-12-31'.

iv To display C_ID, ClientName, City of all the clients (including the ones that have not purchased a product) and their corresponding ProductName sold.

(1 mark for each correct Answer)

35. 1 mark for each correct answer (ANY FOUR)

(a) Line 1 : csv

(b) Line 2 : a

(c) Line 3 : reader

(d) Line 4 : close()

Arunima aru@nima

Frieda myname@FRD

********** End Of Paper **********

KENDRIYA VIDYALAYA SANGATHAN, CHENNAI REGION
PRE-BOARD EXAM 2022-23

Class :XII

Computer Science – (083)

Time : 3 hrs
Max Marks : 70

General Instructions:

1. This question paper contains five sections,Section A to E.
2. All questions are compulsory.
3. SectionAhave18questionscarrying01markeach.
4. SectionBhas07VeryShortAnswertypequestionscarrying02markseach.
5. SectionChas05ShortAnswertypequestionscarrying03markseach.
6. SectionDhas03LongAnswertypequestionscarrying05markseach.
7. SectionEhas02questionscarrying04markseach.Oneinternalchoicei sgivenin Q34against part c only.
8. All programming questions are to be answered using Python Language only.

	SECTION A	
1.	State True or False: "A dictionary key must be of a data type that is mutable." false	1
2.	What will be the data type of d, if **d = (15)** ? (a) int (b) tuple (c) list (d) string	1
3.	Which of the following is a valid identifier in Python: (a) else if (b) for (c) pass (d) 2count	1
4.	Consider the given expression: **not 5 or 4 and 10 and 'bye'** Which of the following will be correct output if the given expression is evaluated? (a)True (b) False (c)10 (d)'bye'	1
5.	Select the correct output of the code: for i in "QUITE": print([i.lower()], end= "#") (a) q#u#i#t#e#(b) ['quite#'] (c) ['q']#['u']#['i']#['t']#['e']#(d) ['quite'] #	1
6.	Which file mode can be used to open a binary file in both append and read mode? a) w+ b) wb+ c) ab+ d) a+	1
7.	Fill in the blank:	1

	The SQL built-in function _____ calculates the average of values in numeric columns. (a)MEAN() (b)AVG() (c) AVERAGE() (d) COUNT()	
8.	Which of the following commands will be used to select a particular database named "Student" from MYSQL Database? (a) SELECT Student; (b) DESCRIBE Student; (c) USE Student; (d) CONNECT Student;	1

9.	Which of the following statement(s) would give an error after executing the following code?
	
	d = {"A" : 1, "B": 2, "C": 3, "D":4} #statement 1
	sum_keys = 0 #statement 2
	for val in d.keys(): #statement 3
	sum_keys = sum_keys + val #statement 4
	print(sum_keys)
	
	(a) Statement 1 (b) Statement 2
	(c) Statement 3 (d) Statement4
		1

10.	Fill in the blank: An attribute in a relation is a foreign key if it is the _____ key in any other relation. (a) Candidate Key (b) Foreign Key (c) Primary Key (d) Unique Key	1
11.	Which option correctly explains tell () method? (a) tells the current position within the file. (b) tells the name of file. (c) moves the current file position to a different location. (d) it changes the file position only if allowed to do so else returns an error.	1
12.	Fill in the blank: When two conditions must both be true for the rows to be selected, the conditions are separated by the SQL keyword _____ (a)ALL (b)IN (c)AND (d)OR	1
13.	Fill in the blank: _____ protocol provides access to command line interface on a remote computer. (a) FTP (b) PPP (c) Telnet (d) SMTP	1
14.	What will the following expression be evaluated to in Python? print(25 // 4 + 3**1**2 * 2) (a)24 (b) 18 (c) 6 (d) 12	1
15.	Which statement in SQL allows to change the definition of a table is	1

	(a) ALTER (b) UPDATE(c) CREATE(d) SELECT	
16.	The statement which is used to get the number of rows fetched by execute() method of cursor: (a) cursor.rowcount (b) cursor.rowscount() (c) cursor.allrows() (d) cursor.countrows()	1
	Q17and18areASSERTIONANDREASONINGbasedquestions.Markthecorrect choice as (a) Both Aand R are true and R is the correct explanation for A (b) Both A and R are true and R is not the correct explanation for A (c) A isTrue but R is False (d) A is false but R is True	
17.	Assertion(A):- In Python, statement return [expression] exits a function. Reasoning(R):- Return statement passes back an expression to the caller. A return statement with no arguments is the same as return None.	1
18.	Assertion(A):CSV module allows to write a single record into each row in CSV file using write row() function. Reason(R):The write row() function creates header row in csv file by default.	1
	SECTION B	
19.	Rewrite the following code in python after removing all the syntax errors. Underline each correction done in the code. num1,num2 = 10 While num1 % num2 = 0 num1+= 20 num2+= 30 Else: print('hello')	2
20.	Write two advantages and two disadvantages of circuit switching. **OR** Differentiate between Web server and web browser. Write any two popular web browsers.	2
21.	Write two points of difference between ALTER and UPDATE command in SQL.	2
22.	(a) Given is a Python List declaration: lst1=[39,45,23,15,25, 60].	2

12 Dec

	What will be the output of : print(lst1.index(23)) ? (b) Write the output of the code given below: x =["rahul",5, "B",20,30] x.insert(1, 3) x.insert(3, "akon") print(x[2])	
23.	(a) Write the full forms of the following: (i) FTP (ii) HTTPS (b)Name the protocols which are used for sending and receiving emails?	2

24.	Predict the output of the Python code given below:
	st = "python programming"
	count = 4
	while True:
	if st[0]== "p":
	st = st[2:]
	elifst[-2]=="n":
	st = st[:4]
	else:
	count+=1
	break
	print(st)
	print(count)
	OR
	Predict the output of the Python code given below:
	
	myvalue = ["A", 40, "B", 60, "C", 20]
	alpha = 0
	beta = ""
	gama = 0
	for i in range(1,6,2):
	alpha += i
	beta += myvalue[i-1]+ "#"
	gama += myvalue[i]
	print(alpha, beta, gama)
		2

25.	What do you understand by the terms PRIMARY KEY and UNIQUE KEY of a relation in relational database? **OR**	2

	Categorize the following commands as DDLorDML: DROP, DELETE, SELECT, ALTER	

SECTIONC

26. (a)Consider the following tables– Applicants and Centre — 1+2

Table: Applicants

Appno	Name	Subject
C01	Mohan	English
C02	Raju	Hindi

Table : Centre

Appno	City
C02	Madurai
C03	Chennai
C02	Jaipur

What will be the output of the following statement?
SELECT * FROM Applicants NATURAL JOIN Centre;

(b) Write the output of the queries (i) to (iv) based on the table, Car given below:

CCODE	CNAME	MAKE	COLOUR	CAPACITY	CHARGES
105	Fortuner	Toyota	White	7	1500
245	Nexon	Tata	Black	5	1000
130	Duster	Renault	Green	6	2000
225	Kwid	Renault	Grey	5	2500
120	Baleno	Suzuki	Red	5	4000
207	Nano	Tata	Blue	4	3500

(i) SELECT DISTINCT MAKE FROM CAR;
(ii) SELECT MAKE, COUNT(*) FROM CAR GROUP BY MAKE;
(iii)SELECT CNAME FROM CAR WHERE CAPACITY>5 ORDER BY CNAME;
(iv) SELECT CNAME, MAKE FROM CAR WHERE CHARGES>2500;

27. Write a function in Phyton to read lines from a text file 'visiors.txt', and display only those lines, which are starting with an alphabet 'P'. — 3
If the content of file is :

12 CBC

Visitors from various cities are coming here.
Particularly, they want to visit the museum.
Looking to learn more history about countries with their cultures.

The output should be:

Particularly, they want to visit the museum.

OR

Write a method in Python to read lines from a text file 'book.txt', to find and display the occurrence of the word 'are'. For example, if the content of the file is:

Books are referred to as a man's best friend. They are very beneficial for mankind and have helped it evolve. Books leave a deep impact on us and are responsible for uplifting our mood.

The output should be 3.

28. (a)Consider the following tables EMPLOYEE and SALARY. 3

Table : EMPLOYEE

ECODE	NAME	DESIG	SGRADE	DOJ	DOB
101	Akash	Executive	S03	2003-03-23	1980-01-13
102	Rajiv	Manager	S02	2010-02-12	1987-07-22
103	Jonny	RO	S03	2009-06-24	1983-02-24
104	Naziya	GM	S02	2006-08-11	1984-03-03
105	Pritam	CEO	S01	2004-12-29	1982-01-19

Table: SAL

SGRADE	SALARY	HRA
S01	56000	18000
S02	32000	12000
S03	24000	8000

Give the output of the following SQL queries:

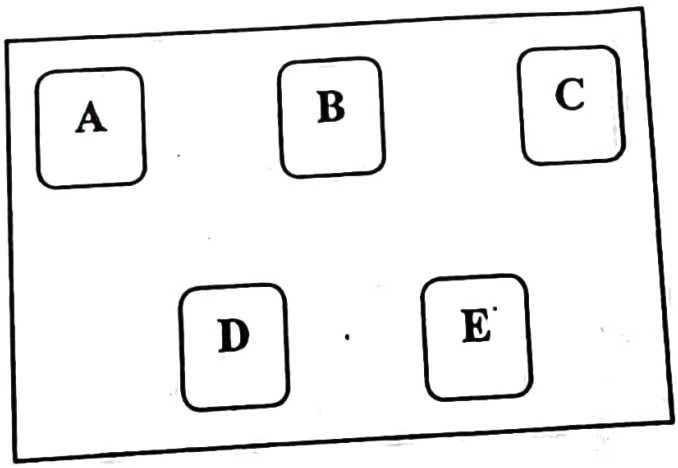
(i) SELECT COUNT(SGRADE), SGRADE FROM EMPLOYEE GROUP BY SGRADE;
(ii) SELECT MIN(DOB), MAX(DOJ) FROM EMPLOYEE;
(iii) SELECT NAME, SALARY FROM EMPLOYEE E, SAL S WHERE E.SGRADE=S.SGRADE AND E.ECODE<103;
(iv) SELECT SGRADE, SALARY+HRA FROM SAL WHERE SGRADE= 'S02';

(b)Write the command to view structure of table FOOD in a database.

29.	Write a function LeftShift(Numlist, n) in Python, which accepts a list Numlist of numbers and n is a numeric value by which all elements of the list are shifted to left. Sample input data of the list Numlist = [10, 20, 30, 40, 50, 60, 70], n=2 Output Numlist = [30, 40, 50, 60, 70, 10, 20]	3
30.	Write a function in Python **PUSH(Num)**, where Num is a list of numbers. From this list push all numbers divisible by 5 into a stack implemented by using a list. Display the stack if it has atleast one element, otherwise display appropriate error message. For example: If the list Num is: [66, 75, 40, 32, 10, 54] The stack should contain: [75, 40, 10] **OR** Write functions in Python, **MakePush(Package)** and **MakePop(Package)** to add a new Package and delete a Package from a List of Package Description, considering them to act as push and pop operations of the Stack data structure.	3

SECTION D

31.	An International Bank has to set up its new data center in Delhi, India. It has five blocks of buildings – A, B, C, D and E.	5



Distance between the blocks and number of computers in each block are as given below:

Distance Between Blocks	
Block B to Block C	30m
Block C to Block D	30m
Block D to Block E	35m

No of Computers	
Block A	55
Block B	180
Block C	60

12CSC

Block E to Block C	40m
Block D to Block A	120m
Block D to Block B	45m
Block E to Block B	65m

Block D	55
Block E	70

(i) Suggest the most suitable block to host the server. Justify your answer.
(ii) Draw the cable layout (Block to Block) to economically connect various blocks within the Delhi campus of International Bank.
(iii) Suggest the placement of the following devices with justification:
(a) Repeater (b) Hub/Switch
(iv)The bank is planning to connect its head office in London. Which type of network out of LAN, MAN, or WAN will be formed? Justify your answer.
(v) Suggest a device/software to be installed in the Delhi Campus to take care of data security.

32. (a) Consider the code below and answer the questions that follow:

```
def multiply(number1, number2) :
    answer = number1 * number2
    return(answer)
    print(number1, 'times', number2, '=', answer)
output = multiply(5, 5)
```

(i) When the code above is executed, what gets printed?
(ii) What is variable output equal to after the code is executed?

(b) The code given below inserts the following record in the table Student:
Rollno – integer
Name – string
Age – integer
Note the following to establish connectivity between Python and MYSQL:

- Username is root
- Password issys
- The table exists in a MYSQL data base named school.
- The details (Roll no, Name and Age) are to be accepted from the user.

Writethefollowingmissingstatementstocompletethecode:Statement1– to form the cursor object
Statement2–toexecutethecommandthatinsertstherecordinthetable Student.
Statement3-toaddtherecordpermanentlyinthedatabase

```
import mysql.connector
mydb= mysql.connector.connect(host="localhost",user="root",passwd="sys",
```


(2c8c

```
database = "myschool")
mycursor = _____                                    #statement 1
while True:
ch=int(input("enter -1 to exit , any other number to insert record"))
   if ch==-1:
      break
rollno = int(input("enter Roll no:"))
   name = input("enter Name:")
   age = int(input("enter Age:"))
qry = "insert into student values({},'{}',{})".format(rollno,name,age)
_____                                               #statement 2
_____                                               #statement 3
   print("Data added successfully")
```

OR

(a)Write the output of the following python code.

```
def convert(line):
  n = len(line)
new_line = ''
  for i in range(0,n):
    if not line[i].isalpha():
new_line = new_line + '@'
    else:
      if line[i].isupper():
new_line = new_line + line[i]*2
      else:
new_line = new_line + line[i]
  return new_line
new_line = convert("Be 180 HuMan")
print(new_line)
```

(b) Thecodegivenbelowadds a new column inthetable Student, updates the data into it and displays the content of the table.

Student table details are as follows:

Rollno – integer

Name – string

Age – integer

NotethefollowingtoestablishconnectivitybetweenPythonandMYSQL:

- Usernameisroot and Passwordis sys
- ThetableexistsinaMYSQLdatabasenamedschool.

Writethefollowingmissingstatementstocompletethecode:Statement1– to formthecursor object

Statement2–toexecutea query that adds a column named "MARKS" of type integer inthetableStudent.

12csc

Statement3-toupdatetherecordpermanentlyinthedatabase

```
import mysql.connector
mydb=mysql.connector.connect(host="localhost",user="root",passwd="sys",
database="myschool")
mycursor = _____                    #statement1
_____                               #statement2
mycursor.execute("update student set  MARKS=9  where Rollno = 1")
_____                               #statement3
mycursor.execute("select * from student")
for x in mycursor:
   print(x)
```

33. Write the full form of 'CSV'. What is the default delimiter of csv files? The scores and ranks of three students of a school level programming competition is given as: 5

['Name', 'Marks', 'Rank']
['Sheela', 450, 1]
['Rohan', 300, 2]
['Akash', 260, 3]

Write a program to do the following:
(i)Create a csv file (results.csv) and write the above data into it.
(ii)To display all the records present in the CSV file named 'results.csv'

OR

What does csv.writer object do?
Rohan is making a software on "Countries & their Capitals" in which various records are to be stored/retrieved in CAPITAL.CSV data file. It consists some records(Country & Capital). Help him to define and call the following user defined functions:
(i) AddNewRec(Country,Capital) – To accept and add the records to a CSV file "CAPITAL.CSV". Each record consists of a list with field elements as Country and Capital to store country name and capital name respectively.

(ii) ShowRec() – To display all the records present in the CSV file named 'CAPITAL.CSV'

SECTION E

34. A company stores the records of motorbikes sold in January, February, March 1+1

Co 12esc

and April months in MOTOR table as shown below:

Bcode	Bname	January	February	March	April
156	Honda	200	310	140	250
234	Pegasus	100	430	120	170
432	Ebony	250	100	280	340
876	Raven	300	150	240	430
970	Hero	250	130	190	100

Based on the data given above answer the following questions:

(i)Identify the most appropriate column, which can be considered as Primary key.
(ii)If 3 more columns are added and 2 rows are deleted from the table MOTOR, what will be the new degree and cardinality?
(iii)Write the query to:
(a) Insert the following record into the table
Bcode- 207, Bname- TVS, January- 500, February- 450,
March- 480, April - 350.
(b) Display the names of motor bikes which are sold more than 200 in January month.
OR (Option for part iii only)

(iii) Write the query to:
(a) Add a new column MAY in MOTOR table with datatype as integer.
(b) Display total number of Motorbikes sold in March Month.

+2

35. Sheela is a Python programmer. She has written a code and created a binary file "book.dat" that has structure [BookNo, Book_Name, Author, Price]. The following user defined function CreateFile() is created to take input data for a record and add to book.dat and another user defined function CountRec(Author) which accepts the Author name as parameter and count and return number of books by the given Author.
As a Python expert, help her to complete the following code based on the requirement given above:

```
import _____                                  #statement1
def createFile():
fobj = open("book.dat","_____")               #statement2
BookNo = int(input("Book number:"))
Book_Name = input("Book Name:")
  Author = input("Author:")
```

1+1
+2

[2c8c

```
    Price = int(input("Price:"))
    rec = [BookNo, Book_Name, Author, Price]
    pickle._____                                    #statement3
fobj.close()
def Count_Rec(Author):
fobj = open("book.dat","rb")
    num = 0
    try:
        while True:
            rec = pickle._____                      #statement4
            if Author == rec[2]:
                num=num+1
    except:
fobj.close()
    return num
```

(i) Which module should be imported in the program? (Statement 1)
(ii) Write the correct statement required to open a file named book.dat. (Statement 2)
(iii) Which statement should be filled in Statement 3 to write the data into the binary file, book.dat and in Statement 4 to read the data from the file, book.dat?

KENDRIYA VIDYALAYA SANGATHAN, CHENNAI REGION
PRE-BOARD EXAM 2022-23
MARKING SCHEME

Class :XII **Time : 3 hrs**

Computer Science – (083) **Max Marks : 70**

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A have 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each. One internal choice is given in Q34 against part c only.
8. All programming questions are to be answered using Python Language only.

	SECTION A	
1.	State True or False: "A dictionary key must be of a data type that is mutable." Ans: False	1
2.	What will be the datatype of d, if **d = (15)** ? (a) int (b) tuple (c) list (d) string Ans: (a) int	1
3.	Which of the following is a valid identifier in Python: (a) elseif (b) for (c) pass (d) 2count Ans: (a) elseif	1
4.	Consider the given expression: **not 5 or 4 and 10 and 'bye'** Which of the following will be correct output if the given expression is evaluated? (a) True (b) False (c) 10 (d) 'bye' Ans: (d) 'bye'	1

5.	Select the correct output of the code: for i in "QUITE": print([i.lower()], end= "#") (a) q#u#i#t#e# (b) [‘quite#’] (c) ['q']#['u']#['i']#['t']#['e']# (d) [‘quite’] # Ans : ['q']#['u']#['i']#['t']#['e']#	1
6.	Which file mode can be used to open a binary file in both append and read mode? a) w+ b) wb+ c) ab+ d) a+ Ans: (c) ab+	1
7.	Fill in the blank: The SQL built-in function _____ calculates the average of values in numeric columns. (a) MEAN() (b)AVG() (c) AVERAGE() (d) COUNT() Ans: (b) AVG()	1
8.	Which of the following commands will be used to select a particular database named “Student” from MYSQL Database? (a) SELECT Student; (b) DESCRIBE Student; (c) USE Student; (d) CONNECT Student; Ans: (c) USE Student;	1

9.	Which of the following statement(s) would give an error after executing the following code?
	d = {"A" : 1, "B": 2, "C": 3, "D":4} #statement 1
	sum_keys = 0 #statement 2
	for val in d.keys(): #statement 3
	  sum_keys = sum_keys + val #statement 4
	print(sum_keys)
	
	(a) Statement 1
	(b) Statement 2
	(c) Statement 3
	(d) Statement 4
	
	Ans: (d) Statement 4
		1

10.	Fill in the blank: An attribute in a relation is a foreign key if it is the _____ key in any other relation. (a) Candidate Key (b) Foreign Key (c) Primary Key (d) Unique Key Ans: (c) Primary Key	1
11.	Which option correctly explains tell () method? a) tells the current position within the file. b) tells the name of file. c) moves the current file position to a different location. d) it changes the file position only if allowed to do so else returns an error. Ans: (a) tells the current position within the file.	1
12.	Fill in the blank: When two conditions must both be true for the rows to be selected, the conditions are separated by the SQL keyword _____ (a)ALL (b)IN (c)AND (d)OR Ans: (a) AND	1
13.	Fill in the blank: _____ protocol provides access to command line interface on a remote computer. (a) FTP (b) PPP (c) Telnet (d) SMTP Ans: (c) Telnet	1
14.	What will the following expression be evaluated to in Python? print(25 // 4 + 3**1**2 * 2) (a) 24 (b) 18 (c) 6 (d) 12 Ans: (d) 12	1
15.	Which statement in SQL allows to change the definition of a table is (a) Alter (b) Update. (c) Create (d) select Ans: (a) Alter	1

16.	The statement which is used to get the number of rows fetched by execute() method of cursor: (a) cursor.rowcount (b) cursor.rowscount() (c) cursor.allrows() (d) cursor.countrows() Ans: (a)cursor.rowcount	1
	Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as (a) Both A and R are true and R is the correct explanation for A (b) Both A and R are true and R is not the correct explanation for A (c) A is True but R is False (d) A is false but R is True	
17.	Assertion (A):- In Python, statement return [expression] exits a function. Reasoning (R):- Return statement passes back an expression to the caller. A return statement with no arguments is the same as return None. Ans: (a) Both A and R are true and R is the correct explanation for A	1
18.	Assertion (A): CSV module allows to write a single record into each row in CSV file using writerow() function. Reason (R): The writerow() function creates header row in csv file by default. Ans: (c) A is True but R is False	1
	SECTION B	
19.	Rewrite the following code in python after removing all the syntax errors. Underline each correction done in the code. num1, num2 = 10 While num1 % num2 = 0 num1+= 20 num2+= 30 Else: print(‘hello’) **Ans:** num1, num2 = 10, 45 **while** num1 % num2 == 0**:** num1+= 20 num2+= 30 **else:** print(‘hello’) **(½ Mark for each correction up to any 4 corrections)**	2
20.	Write two advantages and two disadvantages of circuit switching.	2

OR

Differentiate between Web server and web browser. Write any two popular web browsers.

Ans:

Advantages:

1)A dedicated communication channel increases the quality of communication.

2)Suitable for long continuous communication.

Disadvantages:

1)Resources are not utilized fully.

2)The time required to establish the physical link between the two stations is too long.

½ mark for each advantage and disadvantage

OR

Web browser	**Web server**
It is a type of software that we use for browsing and displaying web pages that might be available over the internet.	It is a type of software that searches, finds, and provides documents to the browsers, as requested by them.
A web browser acts as a link/ interface between a client and a server. Its primary function is to display various web documents to the clients requesting them.	A web server functions to accept browser requests, generate responses, maintain the web apps, and accept the client data

Web browsers: Google Chrome, Mozilla Firefox

1 mark for difference and 1 mark for examples

21. Write two points of difference between ALTER and UPDATE command in SQL. 2

Ans:

ALTER	UPDATE
ALTER Command is used to add, delete, modify the attributes of the relations (tables) in the database.	UPDATE Command is used to update existing records in a database.
ALTER Command by default initializes values of all the tuple as NULL. This command make changes with table structure.	UPDATE Command sets specified values in the command to the tuples. This command makes changes with data inside the table.

1 mark for each correct difference

22.	(a) Given is a Python List declaration: lst1= [39, 45, 23, 15, 25, 60]. What will be the output of : print(lst1.index(23)) ? (b) Write the output of the code given below: x = [“rahul”, 5, “B”, 20, 30] x.insert(1, 3) x.insert(3, “akon”) print(x[2]) Ans: (a) 2 (b) 5 1 mark for each correct answer	2
23.	(a) Write the full forms of the following: (i) FTP (ii) HTTPS (b)Name the protocols which are used for sending and receiving emails? Ans: (a) (i) FTP: File Transfer Protocol - ½ mark (ii) HTTPS : Hyper Text Transfer Protocol Secure – ½ mark (b)for sending emails – SMTP (Simple Mail Transfer Protocol)- ½ mark For receiving emails- POP3 (Post Office Protocol Version 3) - ½ mark	2

24.	Predict the output of the Python code given below:
	st = "python programming"
	count = 4
	while True:
	if st[0]== "p":
	st = st[2:]
	elif st[-2]=="n":
	st = st[:4]
	else:
	count+=1
	break
	print(st)
	print(count)
		2

	OR
	
	Predict the output of the Python code given below:
	
	myvalue = ["A", 40, "B", 60, "C", 20]
	alpha = 0
	beta = ""
	gama = 0
	for i in range(1,6,2):
	  alpha += i
	  beta += myvalue[i-1]+ "#"
	  gama += myvalue[i]
	print(alpha, beta, gama)
	
	Ans:
	thon
	5
	
	OR
	9 A#B#C# 120	

25.	What do you understand by the terms PRIMARY KEY and UNIQUE KEY of a relation in relational database? **OR** Categorize the following commands as DDL or DML: DROP, DELETE, SELECT, ALTER Ans: PRIMARY KEY: The PRIMARY KEY uniquely identifies each record in a table. Primary keys contain UNIQUE values, and cannot contain NULL values. A table can have only ONE primary key; and in the table, this primary key can consist of single or multiple columns (fields). UNIQUE KEY: It Uniquely determines a row which isn't primary key. It can accept NULL values. More than one Unique keys can be defined in one table. 1 mark for each correct explanation **OR** DDL – DROP , ALTER DML- DELETE, SELECT ½ mark for each correct command	2

SECTION C

26. (a) Consider the following tables – Applicants and Centre 1+2

Table: Applicants

Appno	Name	Subject
C01	Mohan	English
C02	Raju	Hindi

Table : Centre

Appno	City
C02	Madurai
C03	Chennai
C02	Jaipur

What will be the output of the following statement?

SELECT * FROM Applicants NATURAL JOIN Centre;

(b) Write the output of the queries (i) to (iv) based on the table, Car given below:

CCODE	CNAME	MAKE	COLOUR	CAPACITY	CHARGES
105	Fortuner	Toyota	White	7	1500
245	Nexon	Tata	Black	5	1000
130	Duster	Renault	Green	6	2000
225	Kwid	Renault	Grey	5	2500
120	Baleno	Suzuki	Red	5	4000
207	Nano	Tata	Blue	4	3500

(i) SELECT DISTINCT MAKE FROM CAR;
(ii) SELECT MAKE, COUNT(*) FROM CAR GROUP BY MAKE;
(iii) SELECT CNAME FROM CAR WHERE CAPACITY>5 ORDER BY CNAME;
(iv) SELECT CNAME, MAKE FROM CAR WHERE CHARGES>2500;

Ans:

(a) 1 mark

Appno	Name	Subject	City
C02	Raju	Hindi	Madurai
C02	Raju	Hindi	Jaipur

(b) ½ mark for each correct output

(i)

MAKE
Toyota
Tata
Renault
Suzuki

(ii)

MAKE	COUNT(*)
Toyota	1
Tata	2
Renault	2
Suzuki	1

(iii)

CNAME
Duster
Fortuner

(iv)

CNAME	MAKE
Baleno	Suzuki
Nano	Tata

27. Write a function in Phyton to read lines from a text file visiors.txt, and display only those lines, which are starting with an alphabet 'P'. 3

If the contents of file is :

Visitors from various cities are coming here.
Particularly, they want to visit the museum.
Looking to learn more history about countries with their cultures.

The output should be:

Particularly, they want to visit the museum.

OR

Write a method in Python to read lines from a text file book.txt, to find and display the occurrence of the word 'are'. For example, if the content of the file is:

Books are referred to as a man's best friend. They are very beneficial for mankind and have helped it evolve. Books leave a deep impact on us and are responsible for uplifting our mood.

The output should be 3.

Ans:

```
def rdlines():
    file = open('visitors.txt','r')
    for line in file:
        if line[0] == 'P':
            print(line)
    file.close()

# Call the rdlines function.
rdlines()
```

½ mark for function header
1 mark for opening file
1 mark for correct for loop and condition
½ mark for closing file

OR

```
def count_word():
    file = open('india.txt','r')
    count = 0
    for line in file:
        words = line.split()
        for word in words:
            if word == 'India':
                count += 1
        print(count)
    file.close()
# call the function count_word().
count_word()
```

½ mark for function header
1 mark for opening file
1 mark for correct for loop and condition
½ mark for closing file

28. (a) Consider the following tables EMPLOYEE and SALARY. 3

Table : EMPLOYEE

ECODE	NAME	DESIG	SGRADE	DOJ	DOB
101	Akash	Executive	S03	2003-03-23	1980-01-13
102	Rajiv	Manager	S02	2010-02-12	1987-07-22
103	Jonny	RO	S03	2009-06-24	1983-02-24
104	Naziya	GM	S02	2006-08-11	1984-03-03
105	Pritam	CEO	S01	2004-12-29	1982-01-19

Table: SAL

SGRADE	SALARY	HRA
S01	56000	18000
S02	32000	12000
S03	24000	8000

Give the output of the following SQL queries:

(i) SELECT COUNT(SGRADE), SGRADE FROM EMPLOYEE GROUP BY SGRADE;

(ii) SELECT MIN(DOB), MAX(DOJ) FROM EMPLOYEE;

(iii) SELECT NAME, SALARY FROM EMPLOYEE E, SAL S WHERE E.SGRADE=S.SGRADE AND E.ECODE<103;

(iv) SELECT SGRADE, SALARY+HRA FROM SAL WHERE SGRADE= 'S02';

(b) Write the command to view structure of table FOOD in a database.

Ans:

(i)

COUNT	SGRADE
2	S03
2	S02
1	S01

(ii)

MIN(DOB)	MAX(DOJ)
1980-01-13	2010-02-12

(iii)

NAME	SALARY
Akash	24000
Rajiv	32000

(iv)

SGRADE	SALARY+HRA
S02	44000

(b) DESCRIBE FOOD;

OR

DESC FOOD;

29.	Write a function LeftShift(Numlist, n) in Python, which accepts a list Numlist of numbers and n is a numeric value by which all elements of the list are shifted to left.
	
	Sample input data of the list
	Numlist = [10, 20, 30, 40, 50, 60, 70], n=2
	
	Output
	Numlist = [30, 40, 50, 60, 70, 10, 20]
	Ans:
	def LeftShift(numlist, n):
	L = len(numlist)
	for x in range(0,n):
	y = numlist[0]
	for i in range(0,L-1):
	numlist[i] = numlist[i+1]
	numlist[L-1] = y
	print(numlist)
	
	or any other correct logic
		3

30.	Write a function in Python **PUSH(Num)**, where Num is a list of numbers. From this list push all numbers divisible by 5 into a stack implemented by using a list. Display the stack if it has atleast one element, otherwise display appropriate error message. For example: If the list Num is: [66, 75, 40, 32, 10, 54] The stack should contain: [75, 40, 10] **OR** Write functions in Python, **MakePush(Package)** and **MakePop(Package)** to add a new Package and delete a Package from a List of Package Description, considering them to act as push and pop operations of the Stack data structure. Ans: def PUSH(num): ½ mark s=[] for x in range(0, len(num)): 1 ½ mark if num[x]%5 ==0:	3

```
            s.append(num[x])
    if len(s) == 0:                                    1 mark
        print("Empty Stack")
    else:
        print(s)

PUSH([66,75,40,32,10,54])
```

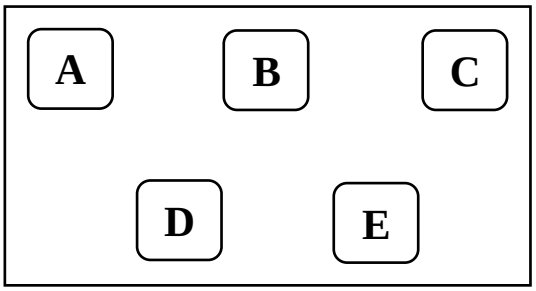
OR

```
def MakePush(Package):
    a= int(input("Enter package title:"))
    Package.append(a)
def MakePop(Package):
    if(Package ==[]):
        print("Stack empty")
    else:
        print("deleted element:", Package.pop())
```

1 ½ for each function

SECTION D

31. An International Bank has to set up its new data center in Delhi, India. It has five blocks of buildings – A, B, C, D and E. 5

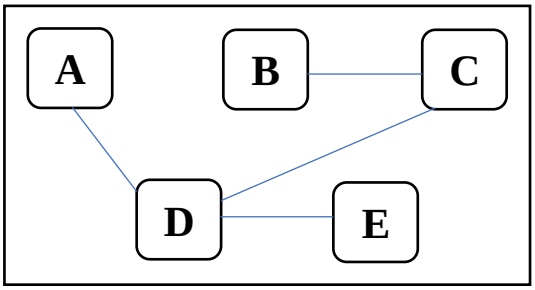


Distance between the blocks and number of computers in each block are as given below:

Distance Between Blocks	
Block B to Block C	30m
Block C to Block D	30m
Block D to Block E	35m
Block E to Block C	40m
Block D to Block A	120m
Block D to Block B	45m
Block E to Block B	65m

No of Computers	
Block A	55
Block B	180
Block C	60
Block D	55
Block E	70

(i) Suggest the most suitable block to host the server. Justify your answer.

	(ii) Draw the cable layout (Block to Block) to economically connect various blocks within the Delhi campus of International Bank. (iii) Suggest the placement of the following devices with justification: (a) Repeater (b) Hub/Switch (iv)The bank is planning to connect its head office in London. Which type of network out of LAN, MAN, or WAN will be formed? Justify your answer. (v) Suggest a device/software to be installed in the Delhi Campus to take care of data security. Ans: (i) Block B Justification- Block B has maximum number of computers. Reduce traffic. (ii)  (iii) (a) between D and A blocks (b) in all the blocks (iv) WAN (v) Firewall	
32.	(a) Consider the code below and answer the questions that follow: def multiply(number1, number2) : answer = number1 * number2 return(answer) print(number1, 'times', number2, '=', answer) output = multiply(5, 5) (i) When the code above is executed, what gets printed? (ii) What is variable output equal to after the code is executed? (b) The code given below inserts the following record in the table Student: Rollno – integer	

Name – string
Age – integer

Note the following to establish connectivity between Python and MYSQL:

- Username is root
- Password is sys
- The table exists in a MYSQL database named school.
- The details (Rollno, Name and Age) are to be accepted from the user.

Write the following missing statements to complete the code:
Statement 1 – to form the cursor object
Statement 2 – to execute the command that inserts the record in the table Student.
Statement 3- to add the record permanently in the database

```
import mysql.connector
mydb=
mysql.connector.connect(host="localhost",user="root",passwd="sys",
database = “myschool”)
mycursor = _____                    #statement 1

while True:
   ch=int(input("enter -1 to exit , any other number to insert record"))
   if ch==-1:
      break
   rollno = int(input("enter Roll no:"))
   name = input("enter Name:")
   age = int(input("enter Age:"))
   qry = "insert into student values
({},'{}',{})".format(rollno,name,age)
   _____                    #statement 2
   _____                    #statement 3
   print(“Data added successfully”)
```

OR

(a)Write the output of the following python code.

```
def convert(line):
  n = len(line)
  new_line = ‘’
  for i in range(0,n):
    if not line[i].isalpha():
```

```
        new_line = new_line + '@'
      else:
        if line[i].isupper():
          new_line = new_line + line[i]*2
        else:
          new_line = new_line + line[i]
  return new_line
new_line = convert("Be 180 HuMan")
print(new_line)
```

(b) The code given below adds a new column in the table Student, updates the data into it and displays the content of the table.
Student table details are as follows:

Rollno – integer
Name – string
Age – integer

Note the following to establish connectivity between Python and MYSQL:

- Username is root
- Password is sys
- The table exists in a MYSQL database named school.

Write the following missing statements to complete the code:
Statement 1 – to form the cursor object
Statement 2 – to execute a query that adds a column named "MARKS" of type integer in the table Student.
Statement 3- to update the record permanently in the database

```
import mysql.connector
mydb=
mysql.connector.connect(host="localhost",user="root",passwd="sys",
database="myschool")
mycursor = _____                    #statement1
_____                               #statement2
mycursor.execute("update student set  MARKS=9  where Rollno = 1")
_____                               #statement3
mycursor.execute("select * from student")
for x in mycursor:
   print(x)
```

Ans:
(a)

	(i) Nothing gets printed (as print( ) is after the return statement) (ii) 25 (b) Statement 1 : mydb.cursor() Statement 2: mycursor.execute(qry) Statement 3: mydb.commit() (1mark for each correct answer) **OR** **(a)** BBe@@@@@HHuMMan **(b)** Statement 1 : mydb.cursor() Statement 2: mycursor.execute("alter table student add column MARKS int") Statement 3: mydb.commit() (1mark for each correct answer)	
33.	Write the full form of 'CSV'. What is the default delimiter of csv files? The scores and ranks of three students of a school level programming competition is given as: ['Name', 'Marks', 'Rank'] ['Sheela', 450, 1] ['Rohan', 300, 2] ['Akash', 260, 3] Write a program to do the following: (i) Create a csv file (results.csv) and write the above data into it. (ii)To display all the records present in the CSV file named 'results.csv' **OR**	5

What does csv.writer object do?

Rohan is making a software on "Countries & their Capitals" in which various records are to be stored/retrieved in CAPITAL.CSV data file. It consists some records(Country & Capital). Help him to define and call the following user defined functions:

(i) AddNewRec(Country,Capital) – To accept and add the records to a CSV file "CAPITAL.CSV". Each record consists of a list with field elements as Country and Capital to store country name and capital name respectively.

(ii) ShowRec() – To display all the records present in the CSV file named 'CAPITAL.CSV'

Ans:

(a) CSV- Comma Seperated Values , default delimiter- comma (,)

1 mark

(b)

```
import csv
f = open("results.csv", "w")
cwriter = csv.writer(f)                                    2 marks
examdata = [["Name", "Marks", "Rank"],["Sheela", 450, 1],["Rohan", 300, 2],["Akash", 260, 3]]
cwriter.writerows(examdata)
f.close()

with open("results.csv","r") as NF:
    NewReader=csv.reader(NF)                               2 marks
    for rec in NewReader:
            print(rec[0], rec[1], rec[2])
```

OR

The csv.writer object adds delimitation to the user data prior to storing data in the csv file on storage disk. –1 mark

```
import csv                                                 ½ mark
def AddNewRec(Country,Capital):
    f=open("CAPITAL.CSV", "a")
    fwriter=csv.writer(f)                                  1½ marks
    fwriter.writerow([Country,Capital])
    f.close()
def ShowRec():
```

```
    with open("CAPITAL.CSV","r") as NF:
        NewReader=csv.reader(NF)                    1 ½ marks
        for rec in NewReader:
                print(rec[0],rec[1])
AddNewRec("INDIA","NEW DELHI")    ½ mark for calling both functions
AddNewRec("JAPAN","TOKYO")
ShowRec()
```

SECTION E

34. A company stores the records of motorbikes sold in January, February, March and April months in MOTOR table as shown below: 1+1+2

Bcode	Bname	January	February	March	April
156	Honda	200	310	140	250
234	Pegasus	100	430	120	170
432	Ebony	250	100	280	340
876	Raven	300	150	240	430
970	Hero	250	130	190	100

Based on the data given above answer the following questions:

(i) Identify the most appropriate column, which can be considered as Primary key.
(ii) If 3 more columns are added and 2 rows are deleted from the table MOTOR, what will be the new degree and cardinality?
(iii)Write the query to:
(a) Insert the following record into the table
Bcode- 207, Bname- TVS, January- 500, February- 450, March- 480, April - 350.
(b) Display the names of motor bikes which are sold more than 200 in January month.

OR (Option for part iii only)

(iii) Write the query to:
(a) Add a new column MAY in MOTOR table with datatype as integer.
(b) Display total number of Motorbikes sold in March Month.

Ans:
(i) Bcode
(ii) degree =9, cardinality =3
(iii) 1 mark for each
(a)INSERT INTO MOTOR VALUES(207, 'TVS', 500, 450, 480, 350);

	(b) SELECT BNAME FROM MOTOR WHERE JANUARY>200; OR (iii) 1 mark for each (a)ALTER TABLE MOTOR ADD MAY INT; (b)SELECT SUM(MARCH) FROM MOTOR;	

35.	Sheela is a Python programmer. She has written a code and created a binary file "book.dat" that has structure [BookNo, Book_Name, Author, Price]. The following user defined function CreateFile() is created to take input data for a record and add to book.dat and another user defined function CountRec(Author) which accepts the Author name as parameter and count and return number of books by the given Author.
	As a Python expert, help her to complete the following code based on the requirement given above:
	
	import _____ #statement1
	def createFile():
	fobj = open("book.dat","_____") #statement2
	BookNo = int(input("Book number:"))
	Book_Name = input("Book Name:")
	Author = input("Author:")
	Price = int(input("Price:"))
	rec = [BookNo, Book_Name, Author, Price]
	pickle._____ #statement3
	fobj.close()
	def Count_Rec(Author):
	fobj = open("book.dat","rb")
	num = 0
	try:
	while True:
	rec = pickle._____ #statement4
	if Author == rec[2]:
	num=num+1
	except:
	fobj.close()
	return num
	
	(i) Which module should be imported in the program? (Statement 1)
	(ii) Write the correct statement required to open a file named book.dat. (Statement 2)
		1+1
		+2

	(iii) Which statement should be filled in Statement 3 to write the data into the binary file, book.dat and in Statement 4 to read the data from the file, book.dat? Ans: (i) pickle 1 mark (ii) ab 1mark (iii) dump(rec, fobj) 1mark load(fobj) 1 mark	

KENDRIYA VIDYALAYA SANGATHAN
GUWHATI REGION
Pre – Board Examination: 2022-23
SET – I
Class: XII
SUBJECT: COMPUTER SCIENCE (083)

TIME: 03:00 HRS. ***MM: 70***

General Instructions –

1. ***This question paper contains five sections, Section A to E.***
2. ***All questions are compulsory.***
3. ***Section A have 18 questions carrying 01 mark each.***
4. ***Section B has 07 Very Short Answer type questions carrying 02 marks each.***
5. ***Section C has 05 Short Answer type questions carrying 03 marks each.***
6. ***Section D has 03 Long Answer type questions carrying 05 marks each.***
7. ***Section E has 02 questions carrying 04 marks each. One internal choice is given in Q34 against part 3 only.***
8. ***All programming questions are to be answered using Python Language only.***

	SECTION – A	
1.	State True or False "Python language is Cross platform language."	1
2.	Which of the following is an invalid identifier in Python? (a) Max_marks (b) Max-marks (c) Maxmarks (d) _Max_Marks	1
3.	Predict the output. marks = {"Ashok":98.6, "Ramesh":95.5} print(list(marks.keys())) (a) 'Ashok', 'Ramesh' (b) 98.6, 95.5 (c) ['Ashok','Ramesh'] (d) ('Ashok','Ramesh')	1
4.	Consider the given expression: **not True and False or not True** Which of the following will be correct output if the given expression is evaluated? (a) True (b) False (c) NONE (d) NULL	1
5.	Write the output:- myTuple = ("John", "Peter", "Vicky") x = "#".join(myTuple) print(x) (a) #John#Peter#Vicky (b) John#Peter#Vicky (c) John#Peter#Vicky# (d) #John#Peter#Vicky#	1
6.	Which of the following mode in file opening statement results or generates an error if the file does not exist? (a) r+ (b) a+ (c) w+ (d) None of the above	1
7.	Fill in the blank: _____ command is used to ADD a column in a table in SQL. (a) update (b)remove (c) alter (d)drop	1
8.	Which of the following is a DML command? (a) CREATE (b) ALTER (c) INSERT (d) DROP	1

9.	Which of the following statement(s) would give an error after executing the following code?
	S="Welcome to my python program" # Statement 1
	print(S) # Statement 2
	S="Python is Object Oriented programming" # Statement 3
	S= S * "5" # Statement 4
	S=S+"Thank you" # Statement 5
	(a) Statement 3
	(b) Statement 4
	(c) Statement 5
	(d) Statement 4 and 5
		1

10.	Fill in the blank: _____ is a non-key attribute, whose values are derived from the primary key of some other table. (a) Foreign Key (b) Primary Key (c) Candidate Key (d) Alternate Key	1
11.	Which SQL keyword is used to retrieve only unique values? (a) DISTINCTIVE (b) UNIQUE (c) DISTINCT (d) DIFFEREN	1
12.	The correct syntax of seek() is: (a) file_object.seek(offset [, reference_point]) (b) seek(offset [, reference_point]) (c) seek(offset, file_object) (d) seek.file_object(offset)	1
13.	Fill in the blank: _____is a communication methodology designed to deliver electronic mail (E-mail) over the internet. . (a) VoIP (b) HTTP (c) PPP (d) SMTP	1
14.	What will the following expression be evaluated to in Python? print(2**3 + (5 + 6)**(1 + 1)) (a) 129 (b)8 (c) 121 (d) None	1
15.	Which function is used to display the total number of records from a table in a database? (a) sum(*) (b) total(*) (c) count(*) (d) return(*)	1
16.	Which of the following function is used to established connection between Python and MySQL database – (a) connection() (b) connect() (c) Connect() (d) None	1
Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as (a) Both A and R are true and R is the correct explanation for A (b) Both A and R are true and R is not the correct explanation for A (c) A is True but R is False (d) A is false but R is True		
17.	Assertion (A): A binary file stores the data in the same way as as stored in the memory. Reason (R): Binary file in python does not have line delimiter.	1
18.	Assertion (A):- If the arguments in a function call statement match the number and order of arguments as defined in the function definition, such arguments are called positional arguments. Reasoning (R):- During a function call, the argument list first contains default argument(s) followed by positional argument(s).	1

	SECTION – B	

19.	Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.
	`Num=int(rawinput("Number:"))`
	`sum=0`
	`for i in range(10,Num,3)`
	`sum+=1`
	`if i%2=0:`
	`print(i*2)`
	`else:`
	`print(i*3)`
	`print (Sum)`
		2

20.	Write two points of difference between LAN & WAN. OR Write two points of difference between XML and HTML.	2

21.	(a) Given is a Python string declaration:
	`str="CBSE Examination@2022"`
	Write the output of: `print(str[-1:-15:-2])`
	
	(b) Write the output of the code given below:
	`d = {"name": "Akash", "age": 16}`
	`d['age'] = 27`
	`d['city'] = "New Delhi"`
	`print(d.items())`
		2

22.	Explain the use of 'Primary Key' in a Relational Database Management System. Give example to support your answer.	2
23.	(a) Expand the following terms: SMTP, FTP (b) What do you mean by MODEM?	2

24.	Predict output of the following code fragment –
	`def Change(P ,Q=30):`
	`P=P+Q`
	`Q=P-Q`
	`print(P,"#",Q)`
	`return(P)`
	`R=150`
	`S=100`
	`R=Change(R,S)`
	`print(R,"#",S)`
	`S=Change(S)`
	OR
	Predict output of the following code fragment –
	`tuple1 = (11, 22, 33, 44, 55 ,66)`
	`list1 =list(tuple1)`
	`new_list = []`
	`for i in list1:`
	`if i%2==0:`
	`new_list.append(i)`
	`new_tuple = tuple(new_list)`
	`print(new_tuple)`
		2

25.	Differentiate between count(column_name) and count(*) functions in SQL with appropriate example. OR Categorize the following commands as DDL or DML: SELECT, UPDATE, ALTER, DROP	2

SECTION – C

26. (a) Consider the following tables – Sales and Item: **1+2=3**

Table: Sales

SCode	SName	SCITY
S01	HITESH	DELHI
S02	SANDEEP	MUMBAI
S03	MAHESH	BANGALORE

Table: Item

SCode	IPRICE	ICity
S01	1200	Delhi
S02	2500	Mumbai
S01	3200	Maharashtra

What will be the output of the following statement?

SELECT SNAME,SCITY,IPRICE FROM sales, Item where SCITY=”Delhi” and Sales.SCode =Item.SCode;

(b) Write the output of the queries (i) to (iv) based on the table, TABLE: EMPLOYEE

TABLE: EMPLOYEE

EMPNO	NAME	DATE_OF_ JOINING	SALARY	CITY
5001	SUMIT SINGH	2012-05-24	55000	JAIPUR
5002	ASHOK SHARMA	2015-10-25	65000	DELHI
5003	VIJAY SINGH	2009-09-09	85000	JAIPUR
5004	RAKESH VERMA	2020-12-21	60000	AGRA
5006	RAMESH KUMAR	2011-01-22	72000	DELHI

(i) SELECT AVG(SALARY) FROM EMPLOYEE WHERE CITY LIKE ‘%R’;

(ii) SELECT COUNT(*) FROM EMPLOYEE

WHERE DATE_OF_JOINING BETWEEN ‘2011-01-01’ AND ‘2020-12-21’;

(iii) SELECT DISTINCT CITY FROM EMPLOYEE WHERE SALARY >65000;

(iv) SELECT CITY, SUM(SALARY) FROM EMPLOYEE GROUP BY CITY;

27. Write a method/function DISPLAYWORDS() in python to read lines from a text file STORY.TXT, and display those words, which are less than 4 characters. **3**

OR

Write a function RevText() to read a text file "Story.txt" and Print only word starting with 'I' in reverse order.
Example:
If value in text file is:
INDIA IS MY COUNTRY
Output will be: AIDNI SI MY COUNTRY.

28. **(a) Consider the following tables ACTIVITY and COACH.** **2+1=3**

Write SQL commands for the statements (i) to (iv) and give the The outputs for the SQL queries (v) to (viii) –

Table: ACTIVITY

ACode	ActivityName	ParticipantsNum	PrizeMoney	ScheduleDate
1001	Relay 100X4	16	10000	23-Jan-2004
1002	High Jump	10	12000	12-Dec-2003
1003	Shot Put	12	8000	14-Feb-2004
1005	Long Jump	12	9000	01-Jan-2004
1008	Discuss Throw	10	15000	19-Mar-2004

Table: COACH

PCode	Name	ACode
1	Ahmed Hussain	1001
2	Ravinder	1008
3	Janila	1001
4	Naaz	1003

(i) To display the name of all activities with their Acodes in descending order.
(ii) To display sum of prizemoney for each of the number of participants groupings (as shown in column ParticipantsNum 10,12,16)
(iii) To display the coach's name and ACodes in acending order of ACode from the table COACH.
(iv) To display the content of the Activity table whose ScheduleDate is earlier than 01/01/2004 in ascending order of ParticipantsNum.

(b) Write the command to view all tables in a database.

29. Write a function SQUARE_LIST(L), where L is the list of elements passed as argument to the function. The function returns another list named 'SList' that stores the Squares of all Non-Zero Elements of L.
For example:
If L contains [9,4,0,11,0,6,0]
The SList will have - [81,16,121,36] — 3

30. A list contains following record of a customer:
[Customer_name, Phone_number, City]

Write the following user defined functions to perform given operations on the stack named 'status':
(i) Push_element() - To Push an object containing name and Phone number of customers who live in Goa to the stack
(ii) Pop_element() - To Pop the objects from the stack and display them. Also, display "Stack Empty" when there are no elements in the stack.

For example:
If the lists of customer details are: — 3

["Ashok", "9999999999","Goa"]
["Avinash", "8888888888","Mumbai"]
["Mahesh","77777777777","Cochin"]
["Rakesh", "66666666666","Goa"]

The stack should contain:
["Rakesh","66666666666"]
["Ashok"," 99999999999"]
The output should be:

["Rakesh","66666666666"]
["Ashok","99999999999"]
Stack Empty

OR

Vedika has created a dictionary containing names and marks as key-value pairs of 5 students. Write a program, with separate user-defined functions to perform the following operations:

(i) Push the keys (name of the student) of the dictionary into a stack, where the corresponding value (marks) is greater than 70.
(ii) Pop and display the content of the stack.

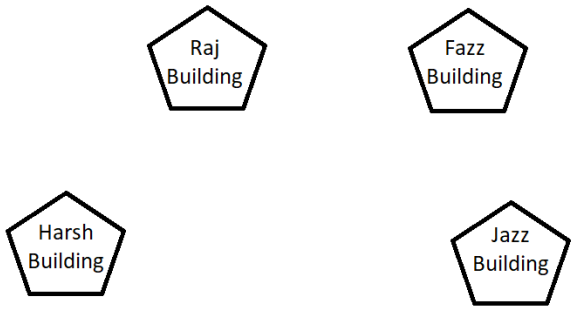
The dictionary should be as follows:

d={"Ramesh":58, "Umesh":78, "Vishal":90, "Khushi":60, "Ishika":95}

Then the output will be:
Umesh Vishal Ishika

SECTION – D

31. Ravya Industries has set up its new center at Kaka Nagar for its office and web based activities. The company compound has 4 buildings as shown in the diagram below:



Distance between various blocks/locations:

Harsh to Raj Building	50m
Raj to Fazz Building	60m
Fazz to Jazz Building	25m
Jazz to Harsh Building	170m
Harsh to Fazz Building	125m
Raj to Jazz Building	90m

Number of computers in each building are -
Harsh – 15
Raj - 150
Fazz - 15
Jazz - 25

(i) Suggest a cable layout of connections between the buildings. 1
(ii) Suggest the most suitable place (i.e. building) to house the server of this organisation with a suitable reason. 1
(iii) Suggest the placement of the following devices with appropriate reasons: 1
a. Hub / Switch
b. Repeater

	(iv) The organisation is planning to link its sale counter situated in various parts of the same city, which type of network out of LAN, MAN or WAN will be formed? Justify your answer. (v) Suggest a device/software to be installed in the Campus to take care of data security.	1 1

32.	(a) Write the output of the code given below:
	
	`def fun(s):`
	`  k=len(s)`
	`  m=" "`
	`  for i in range(0,k):`
	`  if s[i].isupper():`
	`  m=m+s[i].lower()`
	`  elif s[i].islower():`
	`  m=m+s[i].upper()`
	`  elif s[i].isdigit():`
	`  m=m+"O"`
	`  else:`
	`  m=m+'#'`
	`  print(m)`
	`fun('CBSE@12@Exam')`
	
	(b) The code given below inserts the following record in the table EMP:
	EmpID – integer
	Name – string
	Salary – integer
	Note the following to establish connectivity between Python and MYSQL:
	▫ Username is root
	▫ Password is kvs
	▫ The table exists in a MYSQL database named KVS.
	▫ The details (EmpID, Name, Salary) are to be accepted from the user.
	
	Write the following missing statements to complete the code:
	Statement 1 – to form the cursor object
	Statement 2 – to execute the command that inserts the record in the table EMP.
	Statement 3- to add the record permanently in the database
	
	`import mysql.connector as mysql`
	`def sql_data():`
	`  con1=mysql.connect(host="localhost",user="root",password="kvs", database="KVS")`
	`  mycursor=_____ #Statement 1`
	`  eno=int(input("Enter Employee ID : "))`
	`  name=input("Enter name : ")`
	`  sal=int(input("Enter Salary : "))`
	`  querry="insert into EMP values({},'{}',{})".format(eno,name,sal)`
	`  _____ # Statement 2`
	`  _____ # Statement 3`
	`  print("Data Added successfully")`
	
	OR
		2+
		3

	(a) Study the following program and select the possible output(s) from the options (i) to (iv) following it.
	Also, write the maximum and the minimum values that can be assigned to the variable Y
	`import random`
	`X= random.random()`
	`Y= random.randint(0,4)`
	`print(int(X),":",Y+int(X))`
	(i) 0 : 0
	(ii) 1 : 6
	(iii) 2 : 4
	(iv) 0 : 3
	
	(b) The code given below reads the following record from the table named student and displays only those records who have marks greater than 75:
	RollNo – integer
	Name – string
	Clas – integer
	Marks – integer
	Note the following to establish connectivity between Python and MYSQL:
	▫ Username is root
	▫ Password is tiger
	▫ The table exists in a MYSQL database named school.
	
	Write the following missing statements to complete the code:
	Statement 1 – to form the cursor object
	Statement 2 – to execute the query that extracts records of those students whose marks are greater than 75.
	Statement 3- to read the complete result of the query (records whose marks are greater than 75) into the object named data, from the table student in the database.
	
	`import mysql.connector as mysql`
	`def sql_data():`
	`con1=mysql.connect(host="localhost",user="root",password="tiger",`
	`database="school")`
	`mycursor=_____ #Statement 1`
	`print("Students with marks greater than 75 are : ")`
	`_____ #Statement 2`
	`data=_____ #Statement 3`
	`for i in data:`
	`print(i)`
	`print()`	

33.	What is the advantage of using a csv file for permanent storage? Write a Program in Python that defines and calls the following user defined functions: (i) ADDPROD() – To accept and add data of a product to a CSV file 'product.csv'. Each record consists of a list with field elements as prodid, name and price to store product id, employee name and product price respectively. (ii) COUNTPROD() – To count the number of records present in the CSV file named 'product.csv'. OR Give any one point of difference between a binary file and a csv file. Write a Program in Python that defines and calls the following user defined functions:	5

(i) add() – To accept and add data of a to a CSV file 'stud.csv'. Each record consists of a list with field elements as admno, sname and per to store admission number, student name and percentage marks respectively.

(ii) search()- To display the records of the students whose percentage is more than 75.

SECTION – D

34. Rashmi creates a table FURNITURE with a set of records to maintain the records of furniture purchased by her. She has entered the 6 records in the table. Help her to find the answers of following questions:- (1+1+2)

FID	NAME	DATE OF PURCHASE	COST	DISCOUNT
B001	Double Bed	03-Jan-2018	45000	10
T010	Dining Table	10-Mar-2020	51000	5
B004	Single Bed	19-Jul-2021	22000	0
C003	Long Back Chair 6	30-Dec-2016	12000	3
T006	Console Table	17-Nov2019	15000	12
B006	Bunk Bed	01-Jan-2021	28000	14

1. Identify the Primay Key from the given table with justification of your answer.
2. If three more records are added and 2 more columns are added, find the degree and cardinality of the table.
3. (i) Write SQL command to insert one more data/record to the table
   (ii) Increase the price of furniture by 1000, where discount is given more than 10.

OR (Option for part 3 only)

3. Write the statements to:
   (a) Delete the record of furniture whose price is less than 20000.
   (b) Add a column WOOD varchar with 20 characters.

35. Mr. Deepak is a Python programmer. He has written a code and created a binary file "MyFile.dat" with **empid, ename and salary**. The file contains 15 records. (4)

He now has to update a record based on the employee id entered by the user and update the salary. The updated record is then to be written in the file "temp.dat". The records which are not to be updated also have to be written to the file "temp.dat". If the employee id is not found, an appropriate message should to be displayed.

As a Python expert, help him to complete the following code based on the requirement given above:

```
import _______                                  #Statement 1
def update_rec():
    rec={}
    fin=open("MyFile.dat","rb")
    fout=open("_____________")                  #Statement 2
    found=False
    eid=int(input("Enter employee id to update salary : "))
    while True:
        try:
            rec=_____________                   #Statement 3
            if rec["empid"]==eid:
                found=True
                rec["salary"]=int(input("Enter new salary : "))
                pickle._____________            #Statement 4
            else:
```

```
                        pickle.dump(rec,fout)
            except:
                    break
    if found==True:
            print("The salary of employee id ",eid," has been updated.")
    else:
            print("No employee with such id is not found")
    fin.close()
    fout.close()
```

(i) Which module should be imported in the program? (Statement 1)
(ii) Write the correct statement required to open a temporary file named temp.dat. (Statement 2)
(iii) Which statement should Deepak fill in Statement 3 to read the data from the binary file, record.dat and in Statement 4 to write the updated data in the file, temp.dat?

######################

KENDRIYA VIDYALAYA SANGATHA
GUWHATI REGION

Pre – Board Examination: 2022-23

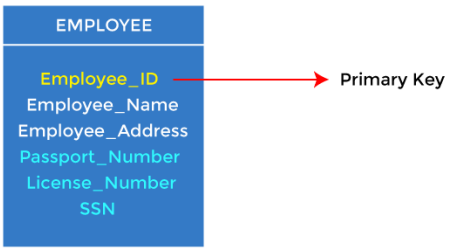
SET – I

Class: XII

SUBJECT: COMPUTER SCIENCE (083)

MARKING SCHEME

<table>
<tr><td>1.</td><td>True</td><td>1</td></tr>
<tr><td>2.</td><td>(b) Max-marks</td><td>1</td></tr>
<tr><td>3.</td><td>(c) ["Ashok", "Ramesh"]</td><td>1</td></tr>
<tr><td>4.</td><td>(b) False</td><td>1</td></tr>
<tr><td>5.</td><td>(b) John#Peter#Vicky</td><td>1</td></tr>
<tr><td>6.</td><td>(a) r+</td><td>1</td></tr>
<tr><td>7.</td><td>(c) alter</td><td>1</td></tr>
<tr><td>8.</td><td>(c) INSERT</td><td>1</td></tr>
<tr><td>9.</td><td>(b) Statement 4</td><td>1</td></tr>
<tr><td>10.</td><td>(a) Foreign Key</td><td>1</td></tr>
<tr><td>11.</td><td>(c) DISTINCT</td><td>1</td></tr>
<tr><td>12.</td><td>Ans: (a) file_object.seek(offset [, reference_point])</td><td>1</td></tr>
<tr><td>13.</td><td>(d) SMTP</td><td>1</td></tr>
<tr><td>14.</td><td>(a) 129</td><td>1</td></tr>
<tr><td>15.</td><td>(c) count(*)</td><td>1</td></tr>
<tr><td>16.</td><td>(b) connect()</td><td>1</td></tr>
<tr><td>17.</td><td>(a) Both A and R are true and R is the correct explanation for A</td><td>1</td></tr>
<tr><td>18.</td><td>(c) A is True but R is False</td><td>1</td></tr>
<tr><td>19.</td><td>Num=int(input("Number:"))
sum=0
for i in range(10, Num,3):
Sum+=1
if i%2==0:
print(i*2)
else:
print(i*3)
print(Sum)</td><td>2</td></tr>
<tr><td>20.</td><td><table><tr><th>LAN</th><th>WAN</th></tr><tr><td>LAN stands for Local Area Network.</td><td>Whereas WAN stands for Wide Area Network.</td></tr><tr><td>The speed of LAN is high(more than WAN).</td><td>While the speed of WAN is slower than LAN.</td></tr><tr><td>LAN covers small area i.e. within the building.</td><td>While WAN covers large geographical area.</td></tr><tr><td>LAN has a higher data transfer rate.</td><td>WAN has a lower data transfer rate as compared to LAN.</td></tr></table>2 marks for any two correct points
OR
XML (Extensible MarkupLangauge)
▫ XML tags are not predefined, they are user defined
▫ XML stores and transfers data.
▫ Dynamic in nature</td><td>2</td></tr>
</table>

	HTML (Hypertext Markup Langauge) ▫ HTML tags are pre-defined and it is a markup language ▫ HTML is about displaying data. ▫ Static in nature 1 mark for each correct definition	
21.	(a) 20@otnm (1 mark for the correct answer) (b) dict_items([('name', 'Akash'), ('age', 27), ('city', 'New Delhi')]) (1 mark for the correct answer)	2
22.	Primary Key: A set of one or more attributes that can be uniquely identifies a tuple in a relation / table.  (1 mark for the correct answer and 1 mark for example)	2
23.	(a) SMTP : Simple Mail Transfer Protocol FTP : File Transfer Protocol (1/2 mark for each correct answer) (b) Modem stands for Modulation Demodulation. It converts the digital signal to Analog and vice versa to communicate between devices. (1 mark for each correct answer)	2
24.	250 # 150 250 # 100 130 # 100 OR (22,44,66)	2
25.	COUNT(*) returns the count of all rows in the table, whereas COUNT () is used with Column_Name passed as argument and counts the number of non-NULL values in a column that is given as argument. **Example: Table : EMPL** **EMPNO / ENAME / JOB / SAL / DEPTNO** 8369 / SMITH / CLERK / 2985 / 10 8499 / ANYA / NULL / 9870 / 20 8566 / AMIR / SALESMAN / 8760 / 30 8698 / BINA / MANAGER / 5643 / 20 8912 / SUR / NULL / 3000 / 10 **e.g. SELECT COUNT(*) FROM EMPL;** **Output** COUNT(*) 5 **e.g.2 SELECT COUNT(JOB) FROM EMPL;** **Output** COUNT(JOB) 3 **Since JOB has 2 NULL values**	2

	(1 mark for the difference and 1 mark for appropriate example) OR DDL- ALTER, DROP DML – SELECT, UPDATE (½ mark for each correct categorization)	
26.	(a) SELECT SNAME,SCITY,IPRICE FROM sales, Item where SCITY=”Delhi” and Sales.SCode =Item.SCode; SNAME | SCITY | IPRICE HITESH | DELHI | 1200 (1 mark for correct output) (b) (i) SELECT AVG(SALARY) FROM EMPLOYEE WHERE CITY LIKE ‘%R’; Ans: 72000 (ii) SELECT COUNT(*) FROM EMPLOYEE WHERE DATE_OF_JOINING BETWEEN ‘2011-01-01’ AND ‘2020-12-21’; Ans: 4 (iii) SELECT DISTINCT CITY FROM EMPLOYEE WHERE SALARY >65000; Ans: Jaipur Delhi (iv) SELECT CITY, SUM(SALARY) FROM EMPLOYEE GROUP BY CITY; Ans: CITY | SALARY JAIPUR | 140000 DELHI | 137000 AGRA | 60000 (1/2 mark for each correct output)	3

27.	f = open("story.txt","r"):
	d = f.read()
	m = d.split()
	for i in m:
	if (len (i) <4):
	print (i)
	displaywords ()
	
	OR
	
	def revtext():
	f=open("sorty.txt","r")
	s=""
	while True:
	d=f.readline()
	if not d:
	break
	else:
	m=d.split()
		3

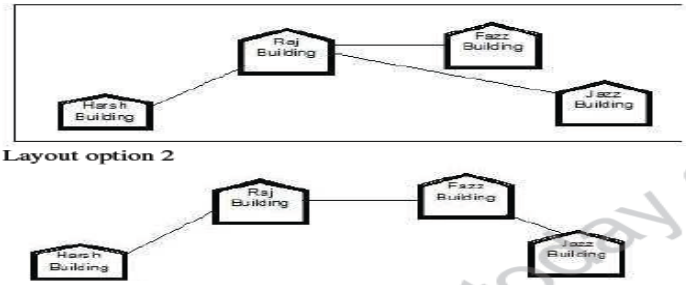
	for i in m:
	if i[0]=='i' or i[0]=='I':
	s=s+" "+(i[::-1])
	else:
	s=s+" "+i
	prinit(s)
	s=""
	revtext()
	(½ mark for correctly opening and closing the file
	½ for read()/readline()
	½ mark for correct loops
	½ for correct if statement
	½ mark for correct processing
	½ mark for displaying the correct output)
	Note: Any other relevant and correct code may be marked	

28.	(a) (i) SELECT ActivityName, Acode FROM activity ORDER BY Acode DESC; (ii) SELECT SUM(PrizeMoney), ParticipantsNum FROM activity GROUP BY ParticipantsNum; (iii) SELECT Name,ACode FROM coach ORDER BY ACode; (iv) SELECT * FROM activity WHERE ScheduleDate<{01/01/2004} ORDER BY ParticipantsNum; (1/2 mark for each correct answer) (b) SHOW TABLES; (I mark for correct answer)	2+1

29.	def SQUARE_LIST(L):
	SList=[]
	for i in L:
	if i!= 0:
	SList.append(i*i)
	return SList
	
	(½ mark for correct function header
	1 mark for correct loop
	1 mark for correct if statement
	½ mark for return statement)
	Note: Any other relevant and correct code may be marked
		3

30.	status=[]
	def Push_element(cust):
	if cust[2]=="Goa":
	L1=[cust[0],cust[1]]
	status.append(L1)
	
	def Pop_element ():
	num=len(status)
	while len(status)!=0:
	dele=status.pop()
	print(dele)
	num=num-1
	else:
	print("Stack Empty")
	(1.5 marks for correct Push_element() and 1.5 marks for correct Pop_element())
		3

	OR
	stk=[]
	d={"Ramesh":58, "Umesh":78, "Vishal":90, "Khushi":60, "Ishika":95}
	
	def push(stk,item):
	for i in item:
	if item[i]>70:
	stk.append(i)
	
	def Pop(stk):
	if stk==[]:
	return None
	else:
	return stk.pop()
	
	(1.5 marks for correct Push() and 1.5 marks for correct Pop())	

31.	(i) any one of the following  Layout option 2 (ii) The most suitable place / block to house the server of this organisation would be Raj Building, as this block contains the maximum number of computers, thus decreasing the cabling cost for most of the computers as well as increasing the efficiency of the maximum computers in the network. (iii) (a) Switch/hub will be placed in all blocks to have connectivity within the block. (b) Repeater is not required between the blocks as the distances are less than 100 mts. (iv) MAN, because MAN (Metropolitan Area Networks) are the networks that link computer facilities within a city. (v) Firewall	1 1 1 1 1
32.	(a) Write the output of the code given below: cbse#OO#eXAM (b) Statement 1: con1.cursor() Statement 2: mycursor.execute(querry) Statement 3: con1.commit() OR (a) (i) and (iv) are the possible outputs. Minimum value that can be assigned is – Y = 0. Maximum value that can be assigned is – Y = 3	2+3

	(b) Statement 1: con1.cursor() Statement 2: mycursor.execute("select * from student where Marks>75") Statement 3: mycursor.fetchall()	

33.	Advantage of a csv file:
	▫ It is human readable – can be opened in Excel and Notepad applications
	▫ It is just like text file
	
	import csv
	def ADDPROD():
	fout=open("product.csv","a",newline="\n")
	wr=csv.writer(fout)
	prodid=int(input("Enter Product id :: "))
	name=input("Enter Product name : ")
	price=int(input("Enter Product Price : "))
	lst=[prodid, name, price]
	wr.writerow(lst)
	fout.close()
	def COUNTPROD():
	fin=open("product.csv","r",newline="\n")
	data=csv.reader(fin)
	d=list(data)
	print(len(d))
	fin.close()
	
	ADD()
	COUNTR()
	
	(1 mark for advantage
	½ mark for importing csv module
	1 ½ marks each for correct definition of ADD() and COUNTR()
	½ mark for function call statements)
	OR
	Binary file:
	▫ Extension is .dat
	▫ Not human readable
	▫ Stores data in the form of 0s and 1s
	CSV file
	▫ Extension is .csv
	▫ Human readable
	▫ Stores data like a text file
	Program:
	
	import csv
	def add():
	fout=open("stud.csv","a",newline='\n')
	wr=csv.writer(fout)
	admno=int(input("Enter Admission No :: "))
	sname=input("Enter Student name :: ")	

	per=int(input("Enter percentage :: "))
	st=[fid,sname,per]
	wr.writerow(st)
	fout.close()
	def search():
	fin=open("stud.csv","r",newline='\n')
	data=csv.reader(fin)
	found=False
	print("The Details are")
	for i in data:
	if int(i[2])>75:
	found=True
	print(i[0],i[1],i[2])
	if found==False:
	print("Record not found")
	fin.close()
	add()
	print("Now displaying")
	search()
	(1 mark for difference
	½ mark for importing csv module
	1 ½ marks each for correct definition of add() and search()
	½ mark for function call statements)	

34.	1. FID because FID has unique values. 2. Cardinality : 9 , Degree : 7 3. (i) INSERT INTO FURNITURE VALUES('D001','Computer Table','01-Nov-2018',10000,10); (ii) UPDATE FURNITURE SET price=price+1000 WHERE discount > 10; OR (Option for part 3 only) 3. (a) DELETE FROM FURNITURE WHERE price <20000; (b) ALTER TABLE FURNITURE ADD WOOD VARCHAR(20);	1+1+2
35.	(i) Which module should be imported in the program? (Statement 1) Ans: pickle (1 mark for correct module) (ii)Write the correct statement required to open a temporary file named temp.dat for writing the updated data. (Statement 2) Ans: fout=open('temp.dat', 'wb') (1 mark for correct statement) (iii) Which statement should Aman fill in Statement 3 to read the data from the binary file, record.dat and in Statement 4 to write the updated data in the file, temp.dat? Ans: Statement 3: pickle.load(fin) Statement 4: pickle.dump(rec,fout) (1 mark for each correct statement)	4

****

KENDRIYA VIDYALAYA SANGATHAN, JAIPUR REGION

Class: XII Session: 2022-23 Computer Science (083)

PRE-BOARD EXAMINATION-I-2022-23 [S-1]

Maximum Marks: 70 **Time Allowed: 3 hours**

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A have 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each. One internal choice is given in Q35 against part c only.
8. All programming questions are to be answered using Python Language only.

QNo	SECTION-A	Marks
1	Which command comes under TCL(Transaction Control Language)? (a)alter (b)update (c) grant (d) create	1
2	Which of the following is an invalid datatype in Python? (a) list (b) Dictionary (c)Tuple (d)Class	1
3	Given the following dictionaries dict_fruit={"Kiwi":"Brown", "Cherry":"Red"} dict_vegetable={"Tomato":"Red", "Brinjal":"Purple"} Which statement will merge the contents of both dictionaries? (a) dict_fruit.update(dict_vegetable) (b) dict_fruit + dict_vegetable (c) dict_fruit.add(dict_vegetable) (d) dict_fruit.merge(dict_vegetable)	1
4	Consider the given expression: not False and False or True Which of the following will be correct output if the given expression is evaluated? True b.False c. NONE d. NULL	1

5	Select the correct output of the code:
	
	`count = 0`
	`while(True):`
	`  if count % 3 == 0:`
	`  print(count, end = " ")`
	`  if(count > 15):`
	`  break;`
	`  count += 1`
	
	(a) 0 1 2 ….. 15 (b)Infinite loop
	(c) 0 3 6 9 12 15 (d) 0 3 6 9 12
		1

6	Which of the following is not a valid mode to open a file? (a) ab (b) r+ (c) w+ (d) rw	1

7	Fill in the blank: _____command is used to delete the table from the database of SQL. (a) update (b)remove (c) alter (d) drop	1
8	Which of the following commands will use to change the structure of table in MYSQL database? (a)DELETE TABLE (b)DROP TABLE (c)REMOVE TABLE (d)ALTER TABLE	1
9	What possible output(s) are expected to be displayed on screen at the time of execution of the program from the following code? import random points=[20,40,10,30,15] points=[30,50,20,40,45] begin=random.randint(1,3) last=random.randint(2,4) for c in range(begin,last+1): print(points[c],"#") (a) 20#50#30# (b) 20#40#45 (c) 50#20#40# (d) both (b) and (c)	1
10	Fill in the blank: _____is an attribute whose value is derived from the primary key of some other table. (a) Primary Key (b) Foreign Key (c) Candidate Key (d) Alternate Key	1
11	The **tell()** function returns: (a) Number of bytes remaining to be read from the file (b) Number of bytes already read from the file (c) Number of the byte written to the file (d) Total number of bytes in the file	1
12	Fill in the blank: The SELECT statement when combined with_____function, returns number of rows present in the table. (a) DISTINCT (b) UNIQUE (c) COUNT (d) AVG	1
13	Which switching technique follows the store and forward mechanism? (a) Circuit switching (b) message switching (c) packet switching (d) All of these	1
14	What will the following expression be evaluated to in Python? **print(16-(3+2)*5+2**3*4)** (a) 54 (b) 46 (c) 23 (d) 32	1
15	Which function is used to display the unique values of a column of a table? (a) sum() (b) unique() (c)distinct() (d)return()	1

16	To establish a connection between Python and SQL database, connect() is used. Which of the following value can be given to the keyword argument – host, while calling connect ()? (a) localhost (b) 127.0.0.1 (c) any one of (a) or (b) (d) localmachine	1
	Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as- (a) Both A and R are true and R is the correct explanation for A (b) Both A and R are true and R is not the correct explanation for A (c) A is True but R is False (d) A is false but R is True	1
17	**Assertion (A):-** key word arguments are related to the function calls. **Reasoning (R):-** when you use keyword arguments in a function call, the caller identifies the arguments by parameter name.	1
18	**Assertion (A):** CSV stands for Comma Separated Values **Reason (R):** CSV files are a common file format for transferring and storing data.	1
	SECTION-B	

19	Observe the following Python code very carefully and rewrite it after removing all syntactical errors with each correction underlined.
	DEF execmain():
	x = input("Enter a number:")
	if (abs(x)== x)
	print("You entered a positive number")
	else:
	x=*1
	print("Number made positive:" x)
		2

20	Write two differences between Coaxial and Fiber transmission media. **OR** Write components of data communication.	2
21	(a) Given is a Python string declaration: message="Bring it on!!!" Write the output of: print(message[::-2]) (b) Write the output of the code given below: book_dict = {"title": "You can win", “copies”:15} book_dict['author'] = “Shiv Khera” book_dict['genre'] = "Motivation" print(book_dict.items())	1+1 =2
22	How many candidate key and primary key a table can have? Can we declare combination of fields as a primary key?	2
23	(a) Write the full forms of the following: (i) FTP (ii) MAC (b) What is the use of TELNET?	1+1=2

24 Predict the output of the Python code given below: 2

```
def Swap (a,b ) :
    if a>b:
        print("changed ",end="")
        return b,a
    else:
        print("unchanged ",end="")
        return a,b
data=[11,22,16,50,30]
for i in range (4,0,-1):
    print(Swap(data[i],data[i-1]))
```

OR

Predict the output of the Python code given below:

```
P = (10, 20, 30, 40, 50 ,60,70,80,90)
Q =list(P)
R = []
for i in Q:
   if i%3==0:
     R.append(i)
R = tuple(R)
print(R)
```

25 Differentiate between DDL and DML commands with suitable example. 2

OR

What is the difference between WHERE and HAVING clause of SQL statement?

SECTION – C

26 (a)Consider the following tables – Bank_Account and Branch: 1+2=3

Bank_Account:

ACode	Name	Type
A01	Amit	Savings
A02	Parth	Current
A03	Mira	Current

Branch:

ACode	City
A01	Delhi
A02	Jaipur
A01	Ajmer

What will be the output of the following statement?

SELECT * FROM Bank_Account NATURAL JOIN Branch;

(b) Give the output of the following sql statements as per table given above.

Table : SPORTS

StudentNo	Class	Name	Game1	Grade1	Game2	Grade2
10	7	Sammer	Cricket	B	Swimming	A
11	8	Sujit	Tennis	A	Skating	C
12	7	Kamal	Swimming	B	Football	B
13	7	Venna	Tennis	C	Tennis	A
14	9	Archana	Basketball	A	Cricket	A
15	10	Arpit	Cricket	A	Athletics	C

i. SELECT COUNT(*) FROM SPORTS.
ii. SELECT DISTINCT Class FROM SPORTS.
iii. SELECT MAX(Class) FROM SPORTS;
iv. SELECT COUNT(*) FROM SPORTS GROUP BY Game1;

27 Write a method COUNTLINES() in Python to read lines from text file 'TESTFILE.TXT' and display the lines which are starting with any article (a, an, the) insensitive of the case. 1+2

Example:
If the file content is as follows:
Give what you want to get.
We all pray for everyone's safety.
A marked difference will come in our country.
The Prime Minister is doing amazing things.

The COUNTLINES() function should display the output as:
The number of lines starting with any article are : 2

OR

Write a function GPCount() in Python, which should read each character of a text file "STORY.TXT" and then count and display the count of occurrenceof alphabets G and P individually (including small cases g and p too).
Example:
If the file content is as follows:

God helps those who help themselves.
Great way to be happy is to remain positive.
Punctuality is a great virtue.
The GPCount() function should display the output as:
The number of G or g: 3
The number of P or p : 6

28 (a) consider the following tables School and Admin and answer the following questions: 2+1=3

TABLE: SCHOOL

CODE	TEACHER	SUBJECT	DOJ	PERIODS	EXPERIENCE
1001	RAVI	ENGLISH	12/03/2000	24	10
1009	PRIYA	PHYSICS	03/09/1998	26	12
1203	LISA	ENGLISH	09/04/2000	27	5
1045	YASH RAJ	MATHS	24/08/2000	24	15
1123	GAGAN	PHYSICS	16/07/1999	28	3
1167	HARISH	CHEMISTRY	19/10/1999	27	5
1215	UMESH	PHYSICS	11/05/1998	22	16

TABLE : ADMIN

CODE	GENDER	DESIGNATION
1001	MALE	VICE PRINCIPAL
1009	FEMALE	COORDINATOR

1203	FEMALE	COORDINATOR
1045	MALE	HOD
1123	MALE	SENIOR TEACHER
1167	MALE	SENIOR TEACHER
1215	MALE	HOD

Give the output of the following SQL queries:

i. Select Designation, count(*) from Admin Group by Designation having count(*)<2;

ii. Select max(experience) from school;

iii. Select teacher from school where experience >12 order by teacher;

iv. Select count(*), gender from admin group by gender;

(b) Write SQL command to delete a table from database.

29 — Write a function Lshift(L), where L is the list of elements passes as an argument to the function. The function shifts all the elements by one place to the left and then print it. — 3

For example:
If L contains [9,4,0,3,11,56]

The function will print - [4,0,3,11,56,9]

30 — Write Add_New(Book) and Remove(Book) methods in Python to Add a new Book and Remove a Book from a List of Books, considering them to act as PUSH and POP operations of the data structure stack. — 1+2

OR

Aalia has a list containing 10 integers. You need to help him create a program with separate user defined functions to perform the following operations based on this list.

- Traverse the content of the list and push the even numbers into a stack.
- Pop and display the content of the stack.

For example:

If the sample content of the list is as follows:

N=[12,13,34,56,21,79,98,22,35,38]

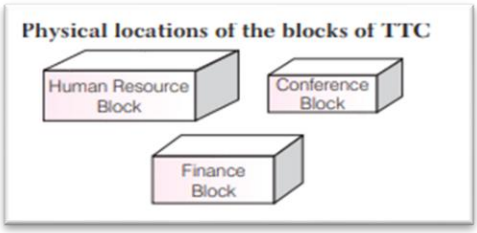
Sample output of the code should be:

38 22 98 56 34 12

SECTION – D

31 — Trine Tech Corporation (TTC) is a professional consultancy company. The company is planning to set up their new offices in India with its hub at Hyderabad. As a network adviser, you have to understand their requirement and suggest them the best available solutions. Their queries are mentioned — 5

as (i) to (v) below.



Block to block distance (in m)

Block (From)	Block (To)	Distance
Human Resource	Conference	110
Human Resource	Finance	40
Conference	Finance	80

Expected number of computers

Block	Computers
Human Resource	25
Finance	120
Conference	90

a) Which will be the most appropriate block, where TTC should plan to install their server?

b) Draw a block to block cable layout to connect all the buildings in the most appropriate manner for efficient communication.

c) What will be the best possible connectivity out of the following, you will suggest to connect the new setup of offices in Bengalore with its London based office.

- Satellite Link
- Infrared
- Ethernet

d) Which of the following device will be suggested by you to connect each computer in each of the buildings?

- Switch
- Modem
- Gateway

e) Company is planning to connect its offices in Hyderabad which is less than 1 km. Which type of network will be formed?

32

(a) Write the output of the code given below: 2+3=5

```
p=25
def sum(q,r=3):
    global p
    p=r+q**2
    print(p, end= '#')
a=6
b=4
sum(a,b)
sum(r=5,q=1)
```

(b) The code given below inserts the following record in the table mobile:

```
import mysql.connector
mycon = mysql.connector.connect (host = “localhost”, user = “Admin”,
```

passwd = “Admin@123”, database = “connect”)
cursor = mycon._____ ( ) **# Statement 1**
sql = “INSERT INTO Mobile (Name, Model, Price, Qty) VALUES (%s, %s, %s, %s)” val = (“Samsung”, “Galaxy Pro”, 28000, 3)
cursor…_____ (sql,val) **#Statement 2**
mycon._____ **#Statement 3**
Write the missing statement: Statement1 , Statement2 and Statement3

OR

(a) Predict the output of the code given below:

```
L1 = [100,900,300,400,500]
START = 1
SUM = 0
for C in range (START,4):
    SUM = SUM + L1[C]
    print (C,":",SUM)
    SUM = SUM + L1[0]*10
print (SUM)
```

(b) The code given below reads the following record from the tablenamed student and displays only those records who have marks greater than 80:

RollNo – integer
Name – string
Clas – integer
Marks – integer

Note the following to establish connectivity between Python andMYSQL:

- Username is root
- Password is tiger
- The table exists in a MYSQL database named kvs.

Write the following missing statements to complete the code:
Statement 1 – to form the cursor object

Statement 2 – to execute the query that extracts records of thosestudents whose marks are greater than 80.

Statement 3- to read the complete result of the query (records whose marks are greater than 80) into the object named data, from thetable studentin the database.

```
import mysql.connector as mysql
def sql_data():
    con1=mysql.connect(host="localhost",user="root",passwo rd="tiger",
    database="school")
    mycursor=_____ #Statement 1
    print("Students with marks greater than 75 are : ")
    _____ #Statement 2
    data=_____ #Statement 3
    for i in data:
        print(i)
```

33	(a) What does CSV stand for?
	(b) Write a Program in Python that defines and calls the following user defined functions:
	(i) InsertRow() – To accept and insert data of an student to a CSV file 'class.csv'. Each record consists of a list with field elements as rollno, name and marks to store roll number, student's name and marks respectively.
	(ii) COUNTD() – To count and return the number of students who scored marks greater than 75 in the CSV file named 'class.csv'.
	OR
	
	Dhirendra is a programmer, who has recently been given a task to write a python code to perform the following CSV file operations with the help of two user defined functions/modules:
	
	a. CSVOpen() : to create a CSV file called BOOKS.CSV in append mode containing information of books – Title, Author and Price.
	b. CSVRead() : to display the records from the CSV file called BOOKS.CSV where the field title starts with 'R'.
	He has succeeded in writing partial code and has missed out certain statements, so he has left certain queries in comment lines.
	
	`import csv`
	`def CSVOpen():`
	`with open('books.csv','____',newline='') as csvf: #Statement-1`
	`cw=_____#Statement-2`
	`_____#Statement-3`
	`cw.writerow(['Rapunzel','Jack',300])`
	`cw.writerow(['Barbie','Doll',900])`
	`cw.writerow(['Johnny','Jane',280])`
	`def CSVRead():`
	`try:`
	`with open('books.csv','r') as csvf:`
	`cr=_____#Statement-4`
	`for r in cr:`
	`if _____: #Statement-5 print(r)`
	`except:`
	`print('File Not Found')`
	`CSVOpen()`
	`CSVRead()`
	
	You as an expert of Python have to provide the missing statements and other related queries based on the following code of Raman.
	
	(i) Choose the appropriate mode in which the file is to be opened in append mode (Statement 1)
	(ii) Which statement will be used to create a csv writer object in Statement 2.
	(iii) Choose the correct option for Statement 3 to write the names of the column headings in the CSV file, BOOKS.CSV.
	(iv)
	(iv) Which statement will be used to read a csv file in Statement 4.
	
	(v) Fill in the appropriate statement to check the field Title starting with 'R' for Statement 5 in the above program.
		1+2+2= 5

SECTION -E

34 Mayank creates a table RESULT with a set of records to maintain the marks secured by students in sub1, sub2, sub3 and their GRADE. After creation of the table, he has entered data of 7 students in the table. 4

Table : RESULT

ROLL_NO	SNAME	sub1	sub2	sub3	GRADE
101	KIRAN	366	410	402	I
102	NAYAN	300	350	325	I
103	ISHIKA	400	410	415	I
104	RENU	350	357	415	I
105	ARPITA	100	75	178	IV
106	SABRINA	100	205	217	II
107	NEELIMA	470	450	471	I
103	ISHIKA	400	410	415	I

Based on the data given above answer the following questions:

(i) Identify the most appropriate column, which can be considered as Primary key.

(ii) If two columns are added and 2 rows are deleted from the table result, what will be the new degree and cardinality of the above table?

(iii) Write the statements to:

a. Insert the following record into the table
Roll No- 108, Name- Aaditi, sub1- 470, sub2-444, sub3-475, Grade– I.

b. Increase the sub2 marks of the students by 3% whose name begins with 'N'.

OR (Option for part iii only)

(iii) Write the statements to:

a. Delete the record of students securing Grade-IV.

b. Add a column REMARKS in the table with datatype as varcharwith 50 characters.

35 Reshabh is a programmer, who has recently been given a task to write a python code to perform the following binary file operations with the help of two user defined functions/modules: 4

a. AddStudents() to create a binary file called STUDENT.DAT containing student information – roll number, name and marks (out of 100) of each student.

b. GetStudents() to display the name and percentage of those students who have a percentage greater than 75. In case there is no student having percentage > 75 the function displays an appropriate message. The function should also display the average percent.

He has succeeded in writing partial code and has missed out certain statements, so he has left certain queries in comment lines. You as an expert of Python have to provide the missing statements and other related queries based on the following code of Reshabh.

```
import pickle
def AddStudents():
        _____# statement 1 to open the binary file to write data
        while True:
                Rno = int(input("Rno :"))
```

```
            Name = input("Name : ")
            Percent = float(input("Percent :"))
            L = [Rno, Name, Percent]
             _____#statement 2  to write the list L into the file
           Choice = input("enter more (y/n): ")
           if Choice in "nN":
                 break
     F.close()
def GetStudents():
     Total=0
     Countrec=0
     Countabove75=0
     with open("STUDENT.DAT","rb") as F:
           while True:
                 try:
                 _____ #statement 3 to read from the file
                       Countrec+=1
                       Total+=R[2]
                       if R[2] > 75:
                             print(R[1], " has percent =",R[2])
                             Countabove75+=1
                 except:
                       break
           if Countabove75==0:
                 print("No student has percentage more than 75")
           print("average percent of class = ",_____) #statement 4
AddStudents()
GetStudents()
```

(i) Which of the following commands is used to open the file "STUDENT.DAT" for writing only in binary format? (marked as #1 in the Python code)
(ii) Which of the following commands is used to write the list L into the binary file, STUDENT.DAT? (marked as #2 in the Python code)

(iii) Which of the following commands is used to read each record from the binary file STUDENT.DAT? (marked as #3 in the Python code)

(iv) What expression will be placed in statement 4 to print the average percent of the class.

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KENDRIYA VIDYALAYA SANGATHAN, JAIPUR REGION
PREBOARD EXAMINATION 2022-23
Class: XII Session: 2022-23 Computer Science (083)
Answer Key [S-1]

<table>
<tr><th>Q.No.</th><th>Answer</th><th>Marks</th></tr>
<tr><td>1</td><td>Grant</td><td>1</td></tr>
<tr><td>2</td><td>Class</td><td>1</td></tr>
<tr><td>3</td><td>Ans: (a) dict_fruit.update(dict_vegetable)</td><td>1</td></tr>
<tr><td>4</td><td>Ans. (a) True</td><td>1</td></tr>
<tr><td>5</td><td>0 3 6 9 12 15</td><td>1</td></tr>
<tr><td>6</td><td>Rw</td><td>1</td></tr>
<tr><td>7</td><td>Ans. (d) drop</td><td>1</td></tr>
<tr><td>8</td><td>Ans. (d) ALTER TABLE</td><td>1</td></tr>
<tr><td>9</td><td>(d) both b and c</td><td>1</td></tr>
<tr><td>10</td><td>(b)Foreign Key</td><td>1</td></tr>
<tr><td>11</td><td>Ans: (b) Number of bytes already read from the file</td><td>1</td></tr>
<tr><td>12</td><td>Ans. Count</td><td>1</td></tr>
<tr><td>13</td><td>(b) message switching</td><td>1</td></tr>
<tr><td>14</td><td>(c) 23</td><td>1</td></tr>
<tr><td>15</td><td>Ans. (c) distinct( )</td><td>1</td></tr>
<tr><td>16</td><td>(c) any one of (a) or (b)</td><td>1</td></tr>
<tr><td>17</td><td>Option (a) is correct</td><td>1</td></tr>
<tr><td>18</td><td>Option (b) is correct</td><td>1</td></tr>
<tr><td>19</td><td>Ans: def execmain():
x = input("Enter a number:")
if (abs(x)== x):
print("You entered a positive number")
else:
x*=-1
print("Number made positive:",x)
½ mark for each error correction</td><td>2</td></tr>
<tr><td>20</td><td><table><tr><th>Coaxial</th><th>Fiber</th></tr><tr><td>1. Relatively cheaper</td><td>1. Relatively costly</td></tr><tr><td>2. less reliable</td><td>2. More reliable</td></tr></table>OR
Sender, Receiver, transmission media, protocol, message</td><td>2</td></tr>
<tr><td>21</td><td>(a) !!ot nr
(b) dict_items((‘title’,‘you can win’),(‘copies’,15),(‘author’,‘Shiv Khera’),(‘genre’,‘Motivation’))</td><td>2</td></tr>
<tr><td>22</td><td>2 marks for correct answer</td><td>2</td></tr>
<tr><td>23</td><td>Ans. (a) (i) File Transfer Protocol (ii) Media Access Control
(a) Telnet is a network protocol used to virtually access a computer and to provide a two-way, collaborative and text-based communication</td><td>2</td></tr>
</table>

<table>
<tr><td></td><td>channel between two machines.</td><td></td></tr>
<tr><td>24</td><td>unchanged (30, 50)
changed (16, 50)
unchanged (16, 22)
changed (11, 22)
OR
(30,60,90)</td><td>2</td></tr>
<tr><td>25</td><td>Ans: DDL provides statements for creation and deletion of the database tables, views, etc. The DDL provides a set of definitions to specify the storage structure in a database system. Some DDL statements are as follows
(i) CREATE used to create new table in the database.
(ii) DROP used to delete tables from the database.
(iii) ALTER used to change the structure of the database table. This statement can add up additional column, drop existing, and even change the data type of columns involved in a database table.
(iv) RENAME used to rename a table.
DML provides statements for manipulating the database objects. It is used to query the databases for information retrieval. Some DML statements are as follows-
(i) INSERT used to insert data into a table.
(ii) SELECT used to retrieve data from a database.
(iii) UPDATE used to update existing data within a table.
(iv) DELETE used to delete all records from a table
OR
Ans: The difference between WHERE and HAVING clause is that WHERE condition are applicable on individual rows whereas HAVING condition are applicable on groups as formed by GROUP BY clause.</td><td>2</td></tr>
<tr><td>26</td><td>26. (a) Ans:
<table>
<tr><td>ACode</td><td>Name</td><td>Type</td><td>City</td></tr>
<tr><td>A01</td><td>Amit</td><td>Savings</td><td>Delhi</td></tr>
<tr><td>A01</td><td>Amit</td><td>Savings</td><td>Ajmer</td></tr>
<tr><td>A02</td><td>Parth</td><td>Current</td><td>Jaipur</td></tr>
</table>
(b) Ans:
i. 6
ii.
<table>
<tr><td>Class</td></tr>
<tr><td>7</td></tr>
<tr><td>8</td></tr>
<tr><td>9</td></tr>
<tr><td>10</td></tr>
</table>
ii. 10
iii.
<table>
<tr><td>Game1</td><td>Count(*)</td></tr>
<tr><td>Cricket</td><td>2</td></tr>
<tr><td>Tennis</td><td>2</td></tr>
<tr><td>Swimming</td><td>1</td></tr>
</table></td><td>1

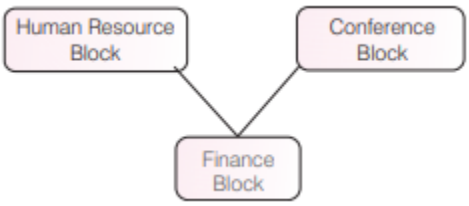
½ x4 =2</td></tr>
</table>

	Basketball | 1	

27	Ans:
	def COUNTLINES() :
	file = open ('TESTFILE.TXT', 'r')
	List = file.readlines()
	count=0
	for line in List:
	words=line.split()
	if words[0].lower() in ('a','an,'the'):
	count = count + 1
	print("The number of lines starting with any article are :", count)
	file.close()
	
	OR
	Ans:
	def GPCount() :
	file = open ('STORY.TXT', 'r')
	content = file.read()
	for i in content:
	if i.lower()== 'g':
	countG = countG + 1
	if i.lower()== 'p':
	countP = countP + 1
	print ("The number of G or g : ", countG)
	print ("The number of P or p : ", countP)
	file.close()
	Note: Any other relevant and correct code may be marked
		3

28	i. Vice principal | 01 ii. 16 iii. UMESH YASHRAJ iv. 5 | Male 2 | Female (b) drop table <table name.>;	**3**
29	def Lshift(L): L = L[1:]+L[0] print(L)	**3**
30	Books=[] Def Addnew (books,name): Books.append(name) Print("book1:",name,"inserted") Def remove(books): If books==[]: Print("stack is empty") Else:	**3**

	Print("book:",books.pop(), "deleted")
	1 marks for each correct definition
	1 marks for each statement
	OR
	
	N=[12,12,34,56,21,79,98,22,35,38]
	def PUSH(S,N):
	S.append()
	def POP(S):
	If S!=[]:
	return S.pop()
	else:
	return None
	ST=[]
	for k in N:
	if k%2==0
	PUSH(ST,k)
	while True:
	If ST![]:
	print(POP(ST),end=" ")
	else:
	break	

31	(i) TTC should install its server in finance block as it is having maximum number of computers. (ii) The layout is based on minimum cable length required, which is 120 metres in the above case.  (iii) Satellite Link. (iv) Switch. (v) LAN	**5**
32.	a) 40#6# (b) 1 mark for each correct statement OR (a)Ans: : 1600 2600 (b) 1 mark for each correct statement Statement 1: con1.cursor() Statement 2: mycursor.execute("select * from student where Marks>80") Statement 3: mycursor.fetchall()	**5**
33	(a) Comma separated value (b) (i) def InsertRow(): import csv	**1+2+2**

	f=open("class.csv","a+",newline="")
	rno=int(input("Enter roll no. :"))
	name=int(input("Enter name :"))
	marks=int(input("Enter marks :"))
	wo=csv.writer(f)
	wo.writerow([rno, name, marks])
	f.close()
	(b)(ii)
	def COUNTD():
	import csv
	count=0
	f=open("class.csv","r")
	ro=csv.reader(f)
	for i in ro:
	if i[2]>75:
	count+=1
	return count
	
	OR
	Which statement will be used to create a csv writer object in Statement 2.
	(i) Choose the correct option for Statement 3 to write the names of the column headings in the CSV file, BOOKS.CSV.
	(ii) Which statement will be used to read a csv file in Statement 4.
	(iii) Fill in the appropriate statement to check the field Title starting with 'R' for Statement 5 in the above program.
	(i) a
	(ii) csv.writer(csvf)
	(iii) cw.writerow(['Title','Author','Price'])
	(iv) csv.reader(csvf)
	(v) r[0][0]=='R'	

34	(i) Ans: ROLL_NO (ii) Ans: New Degree: 8 New Cardinality: 5 (iii) a. INSERT INTO RESULT VALUES (108, 'Aadit', 470, 444, 475, 'I'); b. UPDATE RESULT SET SEM2=SEM2+ (SEM2*0.03) WHERE SNAME LIKE "N%"; **OR (Option for part iii only)** a. DELETE FROM RESULT WHERE DIV='IV'; b. ALTER TABLE RESULT ADD (REMARKS VARCHAR(50));	4
35	(i) F= open("STUDENT.DAT",'wb') (ii) pickle.dump(L,F) (iii) R = pickle.load(F) (iv) Total / Countabove75	4

KENDRIYA VIDYALAYA SANGATHAN LUCKNOW REGION

Class: XII Session: 2022-23

Computer Science (083)

PRE BOARD -1 (Theory)

Maximum Marks: 70 **Time Allowed: 3 hours**

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A has 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each. Internal choice is given in Q34 for part c only.
8. All programming questions are to be answered using Python Language only.

	SECTION A	
1.	Assign a tuple containing an Integer?	1
2.	Which of the following is valid identifier? a) Serial_no. b) total-Marks c) _Percentage d) Hundred$	1
3.	Add a pair of parentheses to each expression so that it evaluates to True. a) 2+3==4+5==7 b) 0==1==2	1
4.	What will be the output of following expressions: a) 2**3**2 b) (2**3)**2	1

5.	Consider the following program and predict the output:
	num1 = input("Enter a number and I'll triple it: ") #num1=8
	num1 = num1 *3
	print(num1)
		1

6.	Which of the following is used to read n characters from a file object " f1" . a)f1.read(n) b)f1(2) c)f1(read,2) d) all of the above	1
7.	Name DDL command from following. a) drop b)select c) insert d)update	1
8.	What is the default date format of Mysql. a)' dd-mm-yy' b)' d-m-y' c)' yyyy-mm-dd' d) None	1
9.	Which of the following statement(s) would give an error after executing the following code?	1

	S="Lucknow is the Capital of UP" #Statement 1
	print(S) #Statement 2
	S[4]= '$' #Statement 3
	S="Thank you" #Statement 4
	S=S + "Thank you" #Statement 5
	
	(a) Statement 3 (b) Statement 4 (c) Statement 5 (d) Statement 4 and 5	

10.	_____ is an attribute, whose values are Unique and not null. (a) Primary Key (b) Foreign Key (c) Candidate Key (d) Alternate Key	1
11.	Which of the following statements correctly explain the function of seek() method? a. tells the current position within the file. b. determines if you can move the file position or not. c. indicates that the next read or write occurs from that position in a file. d. moves the current file position to a given specified position.	1
12.	What is break statement in the context of flow of control in the python programming.	1
13.	SMTP stands for_____.	1
14.	What will be the output of this code >>>L1=[8,11,20] >>>L1*3	1
15.	Write command to view table structure.	1
16.	Name any two RDBMS software.	1
	Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as (a) Both A and R are true and R is the correct explanation for A (b) Both A and R are true and R is not the correct explanation for A (c) A is True but R is False (d) A is False but R is True	
17.	Assertion(A): Function is defined as a set of statements written under a specific name in the python code Reason(R): The complete block (set of statements) is used at different instances in the program as and when required, referring the function name. It is a common code to	1

	execute for different values(arguments), provided to a function.	
18.	Assertion(A): DBMS is an application package which arranges the data in orderly manner in a tabular form. Reason(R): It is an interface between database and the user. It allows the users to access and perform various operations on stored data using some tools.	1
	SECTION B	
19.	Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code. 30=n for i in range(0,n) IF i%4==0: print (i*4) Else: print (i+4)	2
20.	Write two points of difference between hub and switch. **OR** Differentiate Bus and Star topology	2
21.	(a) Given is a Python string declaration: Str1 ="##NEET Examination 2023##" Write the output of: print(Str1[::-1]) (b) Write the output of the code given below: D1 ={"sname": "Aman", "age": 26} D1['age'] = 27 D1['address'] = "Delhi" print(D1.items())	2
22.	Define Tuple and Attribute with appropriate example.	2
23.	Name two top level domain names with their area of application.	2
24.	What possible outputs(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the maximum values that can be assigned to each of the variables FROM and TO.	2

```
import random
AR=[20,30,40,50,60,70]
FROM=random.randint(1,3)
TO=random.randint(2,4)
for K in range(FROM,TO+1):
      print (AR[K],end=" #" )
```

(i) 10#40#70# (ii) 30#40#50# (iii) 50#60#70# (iv) 40#50#70#

OR

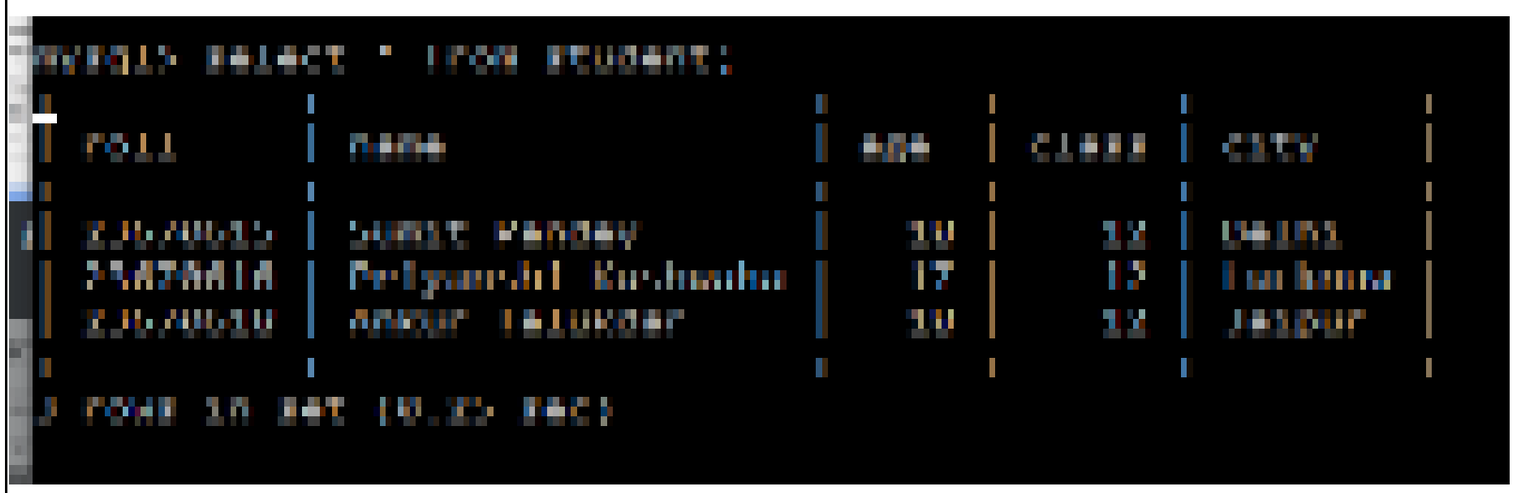
What will be the output of the following code?

```
def my_func(var1 =100, var2=200):
    var1+=10
    var2 = var2 - 10
    return var1+var2
print(my_func(50),my_func())
```

25. Differentiate between char(n) and varchar(n) data types with respect to databases. 2

OR

Consider the table, student given below:



(a) Identify the degree and cardinality of the table.

(b) Which field should be made the primary key? Justify your answer.

SECTION C

26. Meera has to create a database named MYEARTH in MYSQL. She now needs to create a table named CITY in the database to store the records of various cities across the globe. The table CITY has the following structure: 3

Table: CITY

FIELD NAME	DATA TYPE	REMARKS

	CITYCODE	CHAR(5)	PrimaryKey	
	CITYNAME	CHAR(30)		
	SIZE	INTEGER(3)		
	AVGTEMP	INTEGER		
	POLLUTIONRATE	INTEGER		
	POPULATION	INTEGER		
	Help her to complete the task by suggesting appropriate SQL commands.			
27.	Suppose content of 'Myfile.txt' is Humpty Dumpty sat on a wall Humpty Dumpty had a great fall All the king's horses and all the king's men Couldn't put Humpty together again Write a python function named RECORD to calculate total number of characters in ‘ Myfile.txt’ **OR** Write a python function named CLRECORD to calculate total number of lines in ‘ Myfile.txt’			3
28.	Write SQL Command for the following. a) Command used to view the list of tables in a database? b) Command used to add column in a database? c) Command used to delete column from a database?			3
29.	Write a function in Python Convert() to replaces elements having even values with its half and elements having odd values with twice its value in a list. eg: if the list contains 3, 4, 5, 16, 9 then rearranged list as 6, 2, 10, 8, 18			3
30.	Write a function in Python PUSH_IN(L), where L is a list of numbers. From this list, push all numbers which are multiple of 3 into a stack which is implemented by using another list. **OR** Write a function in Python POP(Arr), where Arr is a stack implemented by a list of			3

	numbers. The function returns the value deleted from the stack.	
	SECTION D	
31.	A company ABC Enterprises has four blocks of buildings as shown: B1 B2 B3 B4 **Centre to center distance between various blocks:** B3 TO B1 50 M B1 TO B2 60 M B2 TO B4 25 M B4 TO B3 170 M B3 TO B2 125 M B1 TO B4 90 M **Number of computers in each block:** B1 150 B2 15 B3 15 B4 25 Computers in each block are networked but blocks are not networked. The company has now decided to connect the blocks also. (i) Suggest the most appropriate topology for the connections between the blocks. (ii) The company wants internet accessibility in all the blocks. The suitable and cost-effective technology for that would be? (iii) Which devices will you suggest for connecting all the computers with in each of their blocks. (iv) The company is planning to link its head office situated in New Delhi with the offices in hilly areas. Suggest a way to connect it economically. (v) Suggest the most appropriate location of the server, to get the best connectivity for maximum number of computers.	5

32.	a) What will be the output of following code:
	def ChangeVal(M,N):
	for i in range(N):
	if M[i]%5 == 0:
	M[i]//=5
	if M[i]%3 == 0:
	M[i]//=3
	L = [25,8,75,12]
	ChangeVal(L,4)
	for i in L:
	print(i,end="#")
	b) Differentiate between Selection and Projection operations in context of a Relational Database. Also, illustrate the difference with one supporting example of each.
	OR
	a)Find and write the output of the following Python code :
	def Call(P=40,Q=20):
	P=P+Q
	Q=P– Q
	print(P,'@',Q)
	return P
	R=200
	S=100
	R=Call(R,S)
	print (R,'@',S)
	S=Call(S)
	print(R,'@',S)
	b) Differentiate domain and attribute? Explain with appropriate example?
		2+3

33.	What is the full form of csv? Which applications are used to read/edit these files?	5

Write a Program in Python that defines and calls the following user defined functions:

(i) ADDR() – To accept and add data of a student to a CSV file ' record.csv' . Each record consists of a list with field elements as rollno, name and mobile to store roll number name and mobileno of student respectively.

(ii)COUNTR() – To count the number of records present in the CSV file named ' record.csv' .

OR

Give any one point of difference between a text file and a csv file.

Write a Program in Python that defines and calls the following user defined functions:

(i) add() – To accept and add data of an employee' s furniture detail to a CSV file ' abc.csv' . Each record consists of a list with field elements as fid, fname and fprice to store furniture id, furniture name and furniture price respectively.

(ii) search()- To display the records of the furniture whose price is more than 5000.

Section E

34. Write SQL commands for the following questions (i) to (iv) based on the relations Teacher and Posting given below(assume no constraint is added to the table): 1+1+2

Table : Teacher

T_ID	Name	Age	Department	Date_of_join	Salary	Gender
1	Jugal	34	Computer Sc	10/01/2017	12000	M
2	Sharmila	31	History	24/03/2008	20000	F
3	Sandeep	32	Mathematics	12/12/2016	30000	M
4	Sangeeta	35	History	01/07/2015	40000	F
5	Rakesh	42	Mathematics	05/09/2007	25000	M
6	Shyam	50	History	27/06/2008	30000	M
7	Shiv Om	44	Computer Sc	25/02/2017	21000	M
8	Shalakha	33	Mathematics	31/07/2018	20000	F

Table : Posting

P_ID	Department	Place
1	History	Agra

2	Mathematics	Raipur
3	Computer Science	Delhi

a) To add primary key in Teacher(T_ID)

b) To add new attribute named P_ID to Teacher table.

c) To add foreign key to newly created column P_ID in Teacher Table assuming that whose values are referred from P_ID column of posting table.

OR (option for part c) only)

c) To change data type of place column of posting table from char to varchar.

35. Sumit is a Python programmer. He has written a code and created a binary file record.dat with employeeid, ename and salary. The file contains 10 records. He now has to update a record based on the employee id entered by the user and update the salary. The updated record is then to be written in the file temp.dat. The records which are not to be updated also have to be written to the file temp.dat. If the employee id is not found, an appropriate message should to be displayed. As a Python expert, help him to complete the following code based on the requirement given above: 1+1+2

```
import_____#Statement 1
def update_data():
    rec={}
    fin=open("record.dat","rb")
    fout=open("_____") #Statement 2
    found=False
    eid=int(input("Enter employee id to update their 14 salary :: "))
    while True:
        try:
            rec=_____ #Statement 3
            if rec["Employee id"]==eid:
                found=True
                rec["Salary"]=int(input("Enter new salary :: "))
                pickle._____ #Statement 4
```

```
        else:
            pickle.dump(rec,fout)
    except:
        break
if found==True:
    print("The salary of employee id ",eid," has been updated.")
else:
    print("No employee with such id is not found")
fin.close()
fout.close()
```

(i) Which module should be imported in the program? (Statement 1)

(ii) Write the correct statement required to open a temporary file named temp.dat. (Statement 2)

(iii) Which statement should Aman fill in Statement 3 to read the data from the binary file, record.dat and in Statement 4 to write the updated data in the file, temp.dat?

	KENDRIYA VIDYALAYA SANGATHAN LUCKNOW REGION **Class: XII Session: 2022-23** **Computer Science (083)** **PRE-BOARD -1 (Theory)** **MARKING SCHEME**	
1.	T1=(10,)	1
2.	c) _Percentage	1
3.	a) (2+(3==4)+5)==7 b) 0 ==(1 == 2)	½+½
4.	a) 2**3**2= 512 b) (2**3)**2=64	½+½
5.	888	1
6.	a) f1.read(n)	1
7.	a) drop	1
8.	c)’ yyyy-mm-dd’	1
9.	a)Statement3	1
10.	a)Primary Key	1
11.	d)moves the current file position to a given specified position.	1
12.	The break statement enables a program to skip over a part of the code. The break statement can terminate the loop immediately and the contro passes over to the statement following the statement containing the break. In nested loops, a break statement terminates the very loop it lies within.	1
13.	“ SIMPLE MAIL TRANSFER PROTOCOL”	1
14.	[8,11,20,8,11,20,8,11,20]	1
15.	DESC <TABLENAME>	1

<table>
<tr><td>16.</td><td>MySQL, Oracle</td><td>1</td></tr>
<tr><td>17.</td><td>a</td><td>1</td></tr>
<tr><td>18.</td><td>a</td><td>1</td></tr>
<tr><td>19.</td><td><u>n=30</u>

for i in range(0,n)<u>:</u>

<u>if</u> i%4==0:

print(i*4)

<u>else:</u>

print(i+4)</td><td>½ + ½ + ½ + ½</td></tr>
<tr><td>20.</td><td><table>
<tr><td>Hub</td><td>Switch</td></tr>
<tr><td>Ports of hub do not have individual addresses assigned to them.</td><td>Switch is aware of the addresses assigned to each of its ports.</td></tr>
<tr><td>Hub sends all data it receives to all the connected ports.</td><td>Switch sends the incoming data it receives only to the correct port.</td></tr>
<tr><td>Performance of Hub is relatively lower than Switch.</td><td>Performance of Switch is relatively greater than Hub.</td></tr>
</table>
Or
<table>
<tr><td>Star Topology</td><td>Bus Topology</td></tr>
<tr><td>Star topology is a topology in which all devices are connected to a central hub.</td><td>Bus topology is a topology where each device is connected to a single cable which is known as the backbone.</td></tr>
<tr><td>In star topology, if the central hub fails then the whole network fails.</td><td>In a Bus topology, the failure of the network cable will cause the whole network to fail.</td></tr>
</table></td><td>1 mark for each valid difference</td></tr>
<tr><td>21.</td><td>a) '##3202 noitanimaxE TEEN##'

b) dict_items([('sname', 'Aman'), ('age', 27), ('address', 'Delhi')])</td><td>1+1</td></tr>
</table>

<table>
<tr><td>22.</td><td>Row in a Table is a tuple and column is an attribute.</td><td>1 mark for each correct definition and 1 mark for an example of each.</td></tr>
<tr><td>23.</td><td>Top-level domain (TLD) refers to the last segment of a domain name, or the part that follows immediately after the "dot" symbol.

.com — Commercial businesses.

.org — Organizations (generally charitable).</td><td>1 mark for stating correct application area of each TDL.</td></tr>
<tr><td>24.</td><td>Maximum values for FROM=3, TO=4

OUTPUT:ii) 30#40#50#

Or

250 300</td><td>½+½+1

Or

1+1</td></tr>
<tr><td>25.</td><td><table><tr><td>CHAR</td><td>VARCHAR</td></tr><tr><td>CHAR datatype is used to store character strings of fixed length</td><td>VARCHAR datatype is used to store character strings of variable length</td></tr><tr><td>In CHAR If the length of the string is less than set or fixed-length then it is padded with extra memory space.</td><td>In VARCHAR If the length of the string is less than the set or fixed-length then it will store as it is without padded with extra memory spaces.</td></tr></table>OR

a) Degree=5, cardinality=3

b) roll must be primary key because all values are unique and not null</td><td>1+1

Or

½+½+½+½</td></tr>
<tr><td>26.</td><td>Create database MYEARTH;

Use MYEARTH;

Create Table CITY (CITYCODE CHAR(5) PRIMARY KEY,

CITYNAME CHAR(30),</td><td>½+½+2</td></tr>
</table>

	SIZE INT(3), AVGTEMP INT, POLLUTIONRATE INT, POPULATION INT);	

27.	def RECORD():
	f1=open('Myfile.txt','r')
	str1=f1.read()
	print(len(str1))
	RECORD()
	OR
	def CLRECORD():
	f1=open('Myfile.txt','r')
	l1=f1.readlines()
	print(len(l1))
	CLRECORD()
		1 mark for function definition+1 mark for function body
		+1 mark for function calling

28.	a) SHOW TABLES; b) ALTER TABLE <TNAME> ADD COLUMN <CNAME> DATATYPE; c) ALTER TABLE <TNAME> DROP COLUMN <CNAME>	1+1+1

29.	def convert(l1):
	for i in range(0,len(l1)):
	if l1[i]%2==0:
	l1[i]=l1[i]//2
	else:
	l1[i]=l1[i]*2
		½ mark for function definition+1 mark for correct for loop +1 mark for correct logic
		+½mark for function calling

	print(l1) l1=[3,4,5,16,9] convert(l1)	

30.	def PUSH_IN(L):
	
	L1=[]
	
	for i in L:
	
	if i%3==0:
	
	L1.append(i)
	
	If len(L1)==0:
	
	print(" EmptyStack")
	
	else:
	
	print(L1)
	
	L=[4,6,9,12,5]
	
	PUSH_IN(L)
	
	Or
	
	def POP(Arr):
	
	if(len(Arr)=0):
	
	print(" Underflow, No element in stack")
	
	return
	
	else:
	
	return Arr.pop()
	
	A=[] #Implemented stack
	
	POP(A)
		½ mark for function definition+1 mark for correct for loop +1 mark for correct logic
		
		+½mark for function calling
		
		Or
		
		½mark for function definition+1 mark for mark for checking underflow condition +1 mark for returning delete value from stack
		
		+½mark for function calling

31.	(i) star (ii)Broadband (iii)Switch/Hub (iv)Radio Wave (v) Block B1	1+1+1+1+1

32.	a)5#8#5#4# b) Selection : This operation chooses the subset of tuples from the relation that satisfies the given condition mentioned in the syntax of selection. Projection : This operation selects certain required attributes, while discarding other attributes. OR a) 300@200 300@100 120@100 300@120 b) An attribute is a descriptive property which is owned by each entity of an entity set while a domain is the set of values allowed for an attribute. Thus, this is the main difference between Attribute and Domain. Attributes help to describe an entity while domains help to define the range of values that suit a specific attribute. Hence, this is another difference between Attribute and Domain. Example Name and age are two examples of attributes. Moreover, the name has to be alphabetic, and age has to be positive integer to explain the domain.	a) 2 marks for correct output. b)1 mark for correct definition of selection + 1 mark for correct definition of projection+1 mark for appropriate examples. a) 2 marks for correct output. b)1 mark for correct definition of selection + 1 mark for correct definition of projection+1 mark for appropriate examples.
33.	“ Comma Separated Values” , Text editor and spreadsheet program. Program:	1+1

	import csv
	def ADDR():
	fout=open("record.csv","a",newline="\n")
	wr=csv.writer(fout)
	rollno=int(input("Enter rollno :: "))
	name=input("Enter name :: ")
	mobile=int(input("Enter mobile number :: "))
	lst=[rollno,name,mobile]
	wr.writerow(lst)
	fout.close()
	def COUNTR():
	fin=open("record.csv","r",newline="\n")
	data=csv.reader(fin)
	d=list(data)
	print(len(d))
	fin.close()
	ADDR()
	COUNTR()
	Or
	Difference between text file and csv file: (Any one difference may be given) Text file:
	Extension is .txt
	human readable in text editor
	Stores data in the form of characters
		1½ for correct definition of ADDR+1½ for correct definition of COUNTR
		1

	CSV file
	
	Extension is .csv
	
	Human readable in text editor and spreadsheet both
	
	Stores data like a text file.
	
	Program:
	
	import csv
	
	def add():
	
	fout=open("abc.csv","a",newline='\n')
	
	wr=csv.writer(fout)
	
	fid=int(input("Enter Furniture Id :: "))
	
	fname=input("Enter Furniture name :: ")
	
	fprice=int(input("Enter price :: "))
	
	FD=[fid,fname,fprice]
	
	wr.writerow(FD)
	
	fout.close()
	
	def search():
	
	fin=open("abc.csv","r",newline='\n')
	
	data=csv.reader(fin)
	
	found=False
	
	print("The Details are")
	
	for i in data:
	
	if int(i[2])>5000:
	
	found=True
	
	print(i[0],i[1],i[2])
		2marks for correct definition of add() +2 marks for correct definition of search()

	if found==False: print("Record not found")	

34.	a) Alter table Teacher add primary key T_ID;
	
	b) Alter table Teacher add column P_ID int(1);
	
	c) Alter table Teacher add constraint (c1_01) foreign key (P_ID) references Teacher(P_ID);
	
	or
	
	Alter table Posting modify column Place varchar(10);
		1+1+2

35.	Statement1 :import pickle Statement2:fout=open(‘ temp.dat’ ,‘ wb’) Statement 3: pickle.load(fin) Statement 4: pickle.dump(rec,fout)	1+1+1+1

ALL ANSWERS IN MARKING SCHEME ARE SUGGESTIVE ANY OTHER CORRECT ANSWER MUST BE AWARDED APPROPRIATE MARKS.

Roll No. ……. **KVP/083/B**

KENDRIYA VIDYALAYA SANGATHAN, PATNA REGION
1st PRE BOARD EXAMINATION, 2022-23
CLASS – XII
COMPUTER SCIENCE

Max. Marks: 70 **Time: 3 hrs**

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A have 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each. One internal choice isgiven in Q35 against part c only.
8. All programming questions are to be answered using Python Language only.

	SECTION A	
1.	Identify the incorrect variable name: a) int b) float c) while d) true	(1)
2.	What will be the data type of of the expression 12/5==0? a) True b) False c) bool d) float	(1)
3.	What will be output of the following code: d1={1:2,3:4,5:6} d2=d1.get(3,5) print(d2) a) 3 b) 4 c) 5 d) Error	(1)
4.	Consider the given expression: 8 and 13 > 10 Which of the following is the correct value of the expression? a) True b) False c) None d) NULL	(1)
5.	Fill in the blank: _____command is used to remove a column from a table in SQL. a) update b) remove c) alter d)drop	(1)
6.	Which of the following mode in file opening statement generates an error ifthe file does not exist? a) a+ b) r+ c) w+ d) None of these	(1)
7.	Which of the following commands will delete a table from a MYSQL database? a) DELETE b) DROP c) REMOVE d) ALTER	(1)
8.	Fill in the blank: An alternate key is a_____, which is not the primary key of the table. a) Primary Key b) Foreign Key c) Candidate Key d) Alternate Key	(1)

9.	Select the correct output of the code: a = "assistance" a = a.partition('a') b = a[0] + "-" + a[1] + "-" + a[2] print (b) a) -a-ssistance b) -a-ssist-nce c) a-ssist-nce d) -a-ssist-ance	(1)

10.	Which of the following statement(s) would give an error during execution?
	S=("CBSE") # Statement 1
	S+="Delhi" # Statement 2
	S[0]= '@' # Statement 3
	S=S+"Thank you" # Statement 4
	a) Statement 1 b) Statement 2 c) Statement 3 d) Statement 4
		(1)

11.	tell() is a method of: a) pickle module b) csv module c) file object d) seek()	(1)
12.	Select the correct statement, with reference to RDBMS: a) NULL can be a value in a Primary Key column b) " (Empty string) can be a value in a Primary Key column c) A table with a Primary Key column cannot have an alternate key. d) A table with a Primary Key column must have an alternate key.	(1)
13.	Which protocol is used for transferring files over a TCP/IP network? a) FTP b) SMTP c) PPP d) HTTP	(1)
14.	What will the following expression be evaluated to in Python? 27 % 7 // (3 / 2) a) 2 b) 2.0 c) 4.0 d) 4	(1)
15.	Which function cannot be used with string type data? a) min() b) max() c) count() d) sum()	(1)
16.	In context of Python - Database connectivity, the function fetchmany()is amethod of which object? a) connection b) database c) cursor d) query	(1)
	Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as a) Both A and R are true and R is the correct explanation for A b) Both A and R are true and R is not the correct explanation for c) A is True but R is False d) A is false but R is True	
17.	Assertion (A):- print(f1())is a valid statement even if the function f1() has no return statement. Reasoning (R):- A function always returns a value even if it has no return statement.	(1)
18.	Assertion (A): If L is a list, then L+=range(5)is an invalid statement.Reason (R): Only a list can be concatenated to a list.	(1)
	SECTION B	

19.	Mohit has written a code to input a positive integer and display its factorial. His code is having errors. Rewrite the correct code and underline the corrections made. (*factorial of a number n is the product 1x2x3. . .n*) n=int(input("Enter a positive integer: ") f=0 for i in range(n): f*=i print(f)	(2)
20.	Write two points of difference between LAN and MAN. **OR** Write two points of difference between HTML and XML.	(2)
21.	(a) Write a Python statement to display alternate characters of a string, named my_exam. For example, if my_exam="Russia Ukraine" The statement should display **Rsi kan** (b) Write the output of the code given below: d1 = {"name": "Aman", "age": 26} d2 = d1.pop('name') print(d1, d2)	(1) (1)
22.	Can a table in an RDBMS have multiple candidate keys? Can it have multiplePrimary keys? Give an example to support your answer.	(2)
23.	(a) Write the full forms of the following: (i) VoIP (ii) IMAP (b) Name the communication medium which is used for WiFi.	(1) (1)
24.	Predict the output of the Python code given below: def Alpha(N1):while N1: a=N1.pop() if a%5>2: print(a,end='@')else: break NUM=[13,24,12,53,34] Alpha(NUM); print(NUM) **OR** Predict the output of the Python code given below: T1 = tuple("Amsterdam") T2, new_list = T1[1:-1], []for i in T2: if i in 'aeiou': j=T1.index(i) new_list+=[j] print(new_list)	(2)
25.	If a column score in a table match has five entries, viz. 30,65,NULL,40,NULL,then what will be the output of the following query? Select count(*), avg(score) from match; **OR** Write two differences between HAVING and WHERE clauses in SQL.	(2)

SECTION C

26. (a) Consider the following table: (1)

Table: Employee

EID	Name	DOB	DOJ	Salary	Project
E01	Ranjan	1990-07-12	2015-01-21	150000	P01
E02	Akhtar	1992-06-21	2015-02-01	125000	P04
E03	Muneera	1996-11-15	2018-08-19	135000	P01
E04	Alex	1991-10-25	2018-10-19	75000	P02
E05	Satyansh	1993-12-16	2018-10-19	85000	P04

What is the degree and cardinality of table Employee, if it contains only the given data? Which field fields is/are the most suitable to be the Primary key if the data shown above is only the partial data? (2)

(b) Write the output of the queries (i) to (iv) based on the table Employee:

(i) select name, project from employee order by project;

(ii) select name, salary from employee where doj like'2015%';

(iii) select name, salary from employee where salary between 100000 and 200000;

(iv) select min(doj), max(dob) from employee;

27. Write a method count_words_e()in Python to read the content of a textfile and count the number of words ending with 'e' in the file. (3)

Example: If the file content is as follows:

An apple a day keeps the doctor away.
We all pray for everyone's safety.
A marked difference will come in our country.

The count_words_e() function should display the output as:

No. of such words: 4

OR

Write a function reverseFile()in Python, which should read the content of a text file "TESTFILE.TXT" and display all its line in the reverse order.

Example: If the file content is as follows:

It rained yesterday.
It might rain today.
I wish it rains tomorrow too.
I love Rain.

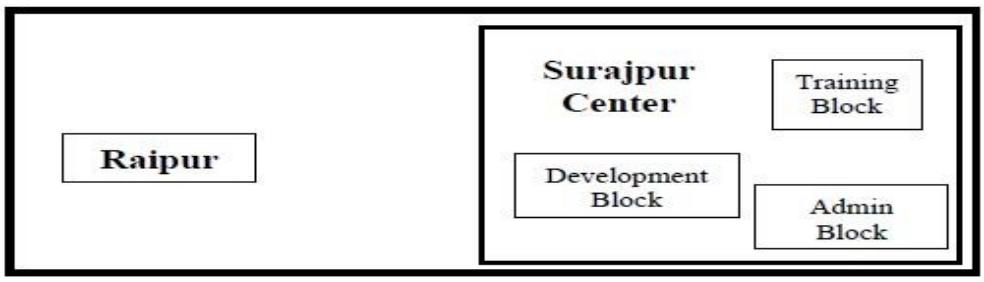
The RainCount()function should display the output as:

.yadretsey deniar tI
.yadot niar thgim tI
.oot worromot sniar ti hsiw I
.niaR evol I

28.	(a) Write the outputs of the SQL queries (i) to (iv) based on the relationsProjects and Employee given below: **Table: Projects** +-----+----------------------+------------+------------+ | PID | PName | Startdate | Enddate | +-----+----------------------+------------+------------+ | P01 | Road 102 Carpeting | 2022-01-28 | 2022-02-26 | | P02 | Civil Lines Parking | 2022-01-30 | 2023-01-29 | | P03 | T-3 Renovation | 2022-03-16 | 2022-12-15 | | P04 | Footover Bridge K-13 | 2022-03-19 | 2023-02-01 | +-----+----------------------+------------+------------+ **Table: Employee** +-----+----------+------------+------------+--------+---------+ | EID | Name | DOB | DOJ | Salary | Project | +-----+----------+------------+------------+--------+---------+ | E01 | Ranjan | 1990-07-12 | 2015-01-21 | 150000 | P01 | | E02 | Akhtar | 1992-06-21 | 2015-02-01 | 125000 | P04 | | E03 | Muneera | 1996-11-15 | 2018-08-19 | 135000 | P01 | | E04 | Alex | 1991-10-25 | 2018-10-19 | 75000 | P02 | | E05 | Satyansh | 1993-12-16 | 2018-10-19 | 85000 | P04 | +-----+----------+------------+------------+--------+---------+ (i) select project, count(*) from employee group by project; (ii) select pid, pname, eid, name from projects p,employee e where p.pid=e.project; (iii) select min(startdate), max(startdate) from projects; (iv) select avg(salary) from employee where doj between '2018-08-19' and '2018-08-31'; (b) Write the command to make Projects column of employee table aforeign key which refers to PID column of Projects table.	(2) (1)
29.	Write a function AdjustList(L), where L is a list of integers. The function should reverse the contents of the list without slicing the list and without using any second list. Example: If the list initially contains 2, 15, 3, 14, 7, 9, 19, 6, 1, 10, then after reversal the list should contain 10, 1, 6, 19, 9, 7, 14, 3, 15, 2	(3)

30.	A nested list contains the data of visitors in a museum. Each of the inner lists contains the following data of a visitor: [V_no (int), Date (string), Name (string), Gender (String M/F), Age (int)] Write the following user defined functions to perform given operations on the stack named "**status**": (i) Push_element(Visitors) - To Push an object containing Gender of visitor who are in the age range of 15 to 20. (ii) Pop_element() - To Pop the objects from the stack and count the display the number of Male and Female entries in the stack. Also, display "Done" when there are no elements in the stack. For example: If the list Visitors contains: [['305', "10/11/2022", "Geeta","F", 35], ['306', "10/11/2022", "Arham","M", 15], ['307', "11/11/2022", "David","M", 18], ['308', "11/11/2022", "Madhuri","F", 17], ['309', "11/11/2022", "Sikandar","M", 13]] The stack should contain F M M The output should be: Done Female: 1 Male: 2 **OR** Write the following functions in Python: (i) Push(st, expression), where expression is a string containing a valid arithmetic expression with +, -, *, and / operators, and st is a list representing a stack. The function should push all the operators appearing in this expression into the stack st. (ii) Pop(st) to pop all the elements from the stack st and display them.It should also display the message 'Stack Empty' when the stack becomes empty. For example: If the expression is: 42*5.8*16/24-8+2 Then st should contain + - / * * The output should be: + - / * * Stack Empty	(3)

31.	FutureTech Corporation, a Bihar based IT training and development company, is planning to set up training centers in various cities in the coming year. Their first center is coming up in Surajpur district. At Surajpur center, they are planning to have 3 different blocks - one for Admin, one for Training and one for Development. Each block has number of computers, which are required to be connected in a network for communication, data and resource sharing. As a network consultant of this company, you have to suggest the best network related solutions for them for issues/problems raised in question nos. (i) to (v), keeping in mind the distances between various blocks/locations and other given parameters.	



Distance between various blocks/locations:

Block	Distance
Development to Admin	28 m
Development to Training	105 m
Admin to Training	32 m
Surajpur Campus to Coimbatore Campus	340 km

Number of computers:

Block	Number of Computers
Development	90
Admin	40
Training	50

(i) Suggest the most appropriate block/location to house the SERVER in the Surajpur center (out of the 3 blocks) to get the best and effective connectivity. Justify your answer. (1)

(ii) Suggest why should a firewall be installed at the Surajpur Center? (1)

(iii) Suggest the best wired medium and draw the cable layout (Block to Block) to most efficiently connect various blocks within the Surajpur Center. (1)

(iv) Suggest the placement of the following devices with appropriate reasons: (1)

a) Switch/Hub b) Router

(v) Suggest the best possible way to provide wireless connectivity between Surajpur Center and Raipur Center. (1)

32.	(a) Write the output of the code given below: p,q=8, [8] def sum(r,s=5): p=r+s q=[r,s] print(p, q, sep='@') sum(3,4) print(p, q, sep='@')	(2)

(b) The code given below accepts the increments the value of Clas by 1 foreach student. The structure of a record of table Student is: (3)

RollNo – integer; Name – string; Clas – integer; Marks – integer

Note the following to establish connectivity between Python and MYSQL:

- Username is root, Password is abc
- The table exists in a MYSQL database named **school**.

Write the following missing statements to complete the code:

```
import mysql.connector as mysql def sql_data():
con1=mysql.connect(host="localhost",user="root",password="abc")
_____ #Statement 1
crsr.execute("use school")
_____#Statement 2
crsr.execute(querry)
_____# Statement 3
print("Data updated successfully")
```

Statement 1 – to create the cursor object.
Statement 2 – to create the query to update the table.
Statement 3- to make the updation in the database permanent

OR

(a) Predict the output of the code given below:

```
s="Rs.12"
n, m = len(s), ""
for i in range(0, n):
    if s[i].islower():
        m =    m +s[i]
    elif s[i].isupper():
        m = m +s[i+1]
    elif s[i].isdigit():
        m = m*int(s[i])
    else: m = '@'+m
print(m)
```

(b) The code given below reads records from the table named Vehicle and displays only those records which have model later than 2010. The structure of a record of table Vehicle is:

V_ID – integer; Name – string; Model – integer; Price – integer

Note the following to establish connectivity between Python and MYSQL:

- Username is root
- Password is abc
- The table exists in a MYSQL database named **Transport**.
- The details (RollNo, Name, Clas and Marks) are to be accepted from the user.

Write the following missing statements to complete the code:

Statement 1 – to create the cursor object

Statement 2 – to execute the query that extracts records of those vehicles whose model is greater than 2010.

Statement 3 - to read the complete result of the query into the object tnamed data.

	import mysql.connector as mysql
	def display():
	con1=mysql.connect(host="localhost",user="root",password="abc",
	database="Transport")
	_____ #Statement 1
	print("Students with marks greater than 75 are : ")
	q="Select * from vehicle where model>2010"
	_____ #Statement 2
	data=_____ #Statement 3
	for rec in data:
	print(rec)	

33.	(a) What one advantage and one disadvantage of using a binary file for permanent storage? (b) Write a Program in Python that defines and calls the following user defined functions: (i) ADD() – To accept and add data of an item to a CSV file 'events.csv'. Each record consists of Event_id, Description, Venue, Guests, and Cost. (ii) COUNTR() – To read the data from the file events.csv, calculate and display the average number of guests and average cost. **OR** (a) Give any one point of difference between a binary file and a text file. (b) Write a Program in Python that defines and calls the following user definedfunctions: (i) ADD() – To accept and add data of an item to a binary file 'events.dat'. Each record of the file is a list [Event_id, Description, Venue, Guests, Cost]. Event_Id, Description, and venue are of str type, Guests and Cost are of int type. (ii) COUNTR() – To read the data from the file events.dat, calculate and display the average number of guests and average cost.	(5)
	SECTION E	
34.	Ifrah is a class XII student. She has created her Computer Science project in Python and saved the file with the name 'CarAgency.py'. Her code contains many blank lines. Now she has written another Python script to remove all the bank lines from 'CarAgency.py' and to precede each line with a line number. For example, if CarAgency.py originally contains: import random, pickle cars=[] def estimate(): cost=0 Then after the program execution, the file 'CarAgency.py' should contain: 1. import random, pickle 2. cars=[] 3. def estimate(): 4. cost=0	(4)

As a Python expert, help her to complete the following code (by completing statements 1, 2, 3, and 4) based on the requirement given above.

(i) Statement-1 to import required functions.
(ii) Statement-2 to open temp.py in suitable mode.
(iii) Statement-3 to write line into temp.py
(iv) To delete CarAgency.py

```
from os_____#Statement 1
f1=open("CarAgency.py")
f2=open(_____,___)     #Statement 2
i=1
for line in f1:
    line=line.rstrip()
    if len(line)>0:
            line=str(i)+'.\t'+line+'\n'
            i+=1
            _____      #Statement 3
f1.close()
f2.close()

                                    #Statement 4
 rename("temp.py","CarAgency.py")
```

35. Raghav has been assigned the task to create a database, named Projects. Healso has to create following two tables in the database: (4)

Table: Projects;

Field	Data Type	Remarks
PID	Char(5)	Primary Key
PName	Varchar(20)	
Startdate	Satrtdate	
Enddate	Enddate	

Table: Employee;

Field	Data Type	Remarks
EID	Char(4)	Primary Key
Name	Varchar(20)	
DOB	Startdate	Cannot be NULL
DOJ	Enddate	Cannot be NULL
Salary	Integer	
Project	Char(5)	Foreign Key. References PID of Projects table

Based on the given scenario, answer the following questions:

(i) Which table should he create first – Projects or Employee? Justify your answer.
(ii) What will be the degree of the Cartesian product of these two tables?
(iii) Write the SQL statement to create the table Employee.
(iv) Write the SQL statement to add a column Gender of type char(1) to the table Employee, assuming that table Employee has already been created.

----------**XXXXXXXXXX**----------

KENDRIYA VIDYALAYA SANGATHAN, PATNA REGION
CLASS XII PB-1 2022-23
COMPUTER SCIENCE (Theory) CODE : 083
MARKING SCHEME

Section –A

1. c) while
2. b) False
3. b) 4
4. a) True
5. c) alter
6. b) r+
7. b) drop
8. c) candidate key
9. a) -a-ssistance
10. c) Statement 3
11. c) file-object
12. c) A table with a Primary Key column cannot have an alternate key.
13. a) FTP
14. c) 4.0
15. d) sum()
16. c) cursor
17. a) Both A and R are true and R is the correct explanation for A
18. d) A is False R is True

Section –B

19. **Errors:**

```
n=int(input("Enter a positive integer: "))# bracket is missing
f=1 # It should be 1 not 0
for i in range(1,n+1):#It must starts with 1 otherwise give 0 result
    f*=i
print(f)#Indentation to print the factorial value
```

20. LAN vs MAN

	LAN	MAN
Full Form	Local Area Network	Metropolitan AreaNetwork
Used in	Schools, Homes, Hospitalswithin 1 km area etc.	Telecom companies, Government Agencies
Speed	High	Moderate
Design	Very easy	Difficult then LAN
Coverage	Covers short distance likeoffice, building or campus	Cover large area such astown, cities etc.

HTML vs XML

	HTML	XML
Full Form	Hyper Text MarkupLanguage	eXtensible MarkupLanguage
Commands	Predefined	As per need of user
Functions	Display web page data	Creates structural data
Language	Predefined language withits own implications	Standard language candefine other computer languages

21. a) exam="Russia Ukraine"

print(exam[::2])

b) {age:26}Aman

22. A table can have multiple candidate key and primary keys as well. Because tablecan have more than one column with unique values. Multiple primary keys are known as composite primary keys.

23. a) i) VoIP – Voice over Internet Protocol

ii) IMAP – Internet Mail Access Protocol

b) Wireless or Unguided Media

24. 34@53@[13, 24] **OR**

[7]

25.

count(*)	avg(score)
5	**45**

OR

	Where	Having
Use	Apply filter to select clause	Apply filter to group by
Row/Column	Row functions	Column Functions
Commands	Select, delete, update	Only Group by
Group By	Before Group By	After Group By
Functions	Single Row	Multiple Row

26. a) Degree – 6, Cardinality – 5, EID is most suitable to be the primary key

b)

i)

name	project
Ranjan	**P01**
Muneera	**P01**
Alex	**P02**
Akhtar	**P04**
Styansh	**P04**

ii)

name	salary
Ranjan	**150000**
Akhtar	**125000**

iii)

name	salary
Ranjan	**150000**
Akhtar	**125000**
Muneera	**135000**

iv)

min(doj)	max(dob)
2015-01-21	**1993-12-16**

27.
```
def count_words_e():
    f1=open("MyFile.txt")
    data=f1.read()
    w=data.split()
    c=-1
    for i in w:
      if i[-1]=='e':
        c+=1
    print(c)
count_words_e()
```

OR

```
def reverseFile():
     f1=open("MyFile.txt")
    data=f1.readlines()
    for i in range(len(data)):
         print(data[i][::-1])
```

28. a) i) project count(*)

P01	2
P02	1
P04	2

ii)

pid	pname	eid	name
P01	**Road 102 Carpeting**	**E01**	**Ranjan**
P02	**Civil Lines Parking**	**E04**	**Alex**
P01	**Road 102 Carpeting**	**E03**	**Muneera**
P04	**Footover Bridge K-13**	**E02**	**Akhtar**
P04	**Footover Bridge K-13**	**E05**	**Satyansh**

iii)

min(startdate)	max(startdate)
2022-01-28	**2022-03-19**

iv)

avg(salary)
135000

29.
```
def AdjustList(l):
  print(list(reversed(l)))
```
l=[3,4,5,6,2,1]

30. a)
```
visitors=[['305', '10/11/2022', 'Geeta','F', 15],['306', '10/11/2022', 'Arham','M', 15],\
                    ['307', "11/11/2022", 'David','M', 18],['308', "11/11/2022", 'Madhuri','F', 17]]
status=[]
    def Push_Element(visitors):
      global status
      m_c=0
      f_c=0
      for i in visitors:
        if i[4]>=15 and i[4]<=20:
          status.append(i[3])
          if i[3]=='M':
            m_c+=1 if
          i[3]=='F':
            f_c+=1
      print("Males:",m_c)
      print("FeMales:",f_c)
    def Pop_Element():
      global status
      if status!=[]:
        return status.pop()
      else:
        return "Done"
    Push_Element(visitors)
    for i in range(len(status)+1):
      print(Pop_Element())
```

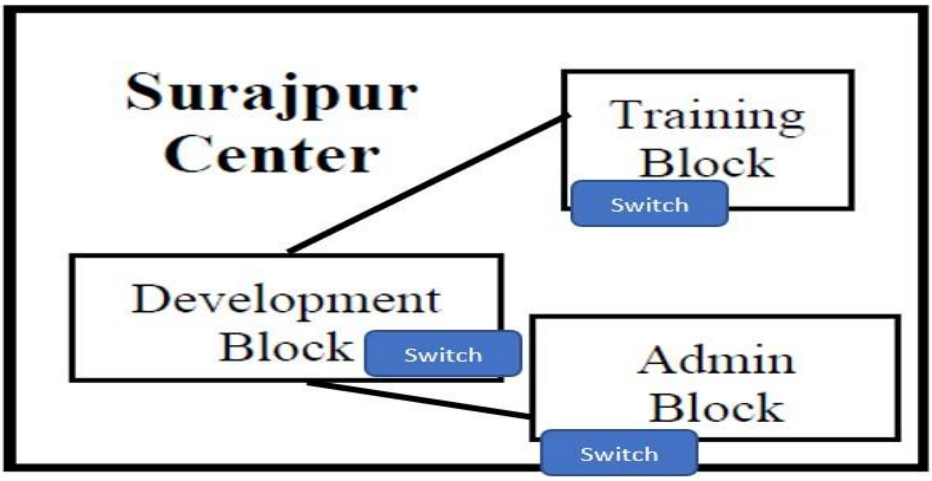
OR

```
exp=input("Enter expression:")st=[]
def Push(st,expression):
  st.append(expression)def
Pop(st):
  if st!=[]:
    return st.pop()
  else:
    return "Stack is empty"for
i in exp:
  if i.isdigit() or i=='.':
    pass
  else:
    Push(st,i)
while True:
  if st!=[]:
    print(Pop(st))
  else:
    break
```

31. i) Development because it contains more number of computers

ii) Surajpur centre has multiple blocks and firewall ensures security. So it isrequired. It allows or block unwanted attacks.

iii)



iv) a) Switch/Hub – In every block to interconnect the devices within every block

b) Router -In development block because server is going to be placed here

v) Satellite

32. a)7@[3, 4]
8@[8]

b) i) crsr=con1.cursor()
ii) querry=”update student set clas=clas+1”
iii) con1.commin()

OR

a) @ss@ss

b) i) cur=con1.cursor()
ii) cur.execute(q)
iii) cur.fetchall()

33. a) Advantage: Faster and no conversion required
Disadvantage: Can’t read by users directly

b)
```
import csv
def ADD():
  f=open('events.csv',"a",newline='')
  eventid=int(input("Enter eventid:"))
  description=input("Enter description")
  venue=input("Enter venue:")
  guests=int(input("Enter guests:"))
  cost=float(input("Enter cost:"))
  l=[eventid,description,venue,guests,cost]
  fw=csv.writer(f)
  fw.writerow(l)

def COUNTR():
  f=open('events.csv','r')
  fr=csv.reader(f)
  c=0
  sum_guest=0
  sum_cost=0
  for i in fr:
    c+=1
    sum_guest+=int(i[3])
    sum_cost=sum_cost+float(i[4])
  avg_cost=sum_cost/c
  avg_guest=sum_guest/c
   print("Average Cost:",avg_cost)
  print("Average Guest:",avg_guest)

#ADD()
COUNTR()
```

OR

a)

	Binary File	Text File
Bytes	Each data occupies same no. ofbytes	Each character occupies 1 bytein the memory
EndOfLine	No endline character	Newline ends a line
User	Not user friendly	User friendly
Function	Dump and load	write() and read()
Modes	wb,ab,rb,wb+,rb+,ab+	w,a,r,w+,r+,a+

b) Same as above

34. i) import getcwd()

ii) temp.py,"w"

iii) f2.write(line)

iv) os.remove("CarAgency.py")

35. i) He creates Projects table first because PID is primary key and project is foreign key referenced with PID for employee table.

ii) We need no. of rows and columns to compute degree and cardinality of any table which is not specified over here. Suppose we consider project table has 3 rows and employee table has five rows then cartesian products will be as follows:

no. of rows = 3 x 5 = 15

no. of columns = 4 + 6 = 10

Hence, Degree of cartesian product is 10.

iii) create table employee

(EID char(4) primary key,

name varchar(20),

DOB date not null,

DOJ date not null,

Salary integer,

Project char(5) references projects(PID));

iv) alter table employee add column gender char(1);

----------**XXXXXXXXXX**----------

KENDRIYA VIDYALAYA SANGATHAN, TINSUKIA REGION

Class: XII Session: 2022-23

Computer Science (083)

PREBOARD-I QUESTION PAPER (THEORY)

Maximum Marks: 70 **Time Allowed: 3 hours**

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A have 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each. One internal choice isgiven in Q35 against part c only.
8. All programming questions are to be answered using Python Language only.

SECTION A
(Each question carries one mark)

1.What will be the output of the following python statement? 1

```
L=[3,6,9,12]
L=L+15
print(L)
```

(a)[3,6,9,12,15] (b) [18,21,24,27] (c) [5,3,6,9,12,15] (d) error

2.Identify the output of the following python statements 1

```
import random
for n in range(2,5,2):
    print(random.randrange(1,n,end='*')
```

(a)1*3 (b) 2*3 (c) 1*3*4 (d)1*4

3.Which of the following is an invalid identifier? 1

(a)_123 (b) E_e12 (c) None (d) true

4.Consider the given expression: 1

7%5==2 and 4%2>0 or 15//2==7.5

Which of the following will be correct output if the given expression is evaluated?

(a)True (b) False (c)None (d)Null

5. Select the correct output of the code: 1

```
s = "Question paper 2022-23"
s= s.split('2')
print(s)
```

(a) `['Question paper ', '0', '', '-', '3']`
(b) `('Question paper ', '0', '', '-', '3')`
(c) `['Question paper ', '0', '2', '', '-', '3']`
(d) `('Question paper ', '0', '2', '', '-', '3')`

6. Which of the following mode in file opening statement does not results in Nor generates an error if the file does not exist? 1

(a) r (b) r+ (c) w+ (d) None of the above

7.Which of the following commands is not a DDL command? 1

(a) DROP (b) DELETE (c) CREATE (d) ALTER

8.Which of the following SQL statements is used to open a database named "SCHOOL"? 1

(a) CREATE DATABASE SCHOOL;

(b) USE DATABASE SCHOOL;
(c) USE SCHOOL;
(d) SHOW DATABASE SCHOOL;

9.Identify the output of the following python code: 1

```
D={1:"one",2:"two", 3:"three"}
L=[]
for k,v in D.items():
        if 'o' in v:
            L.append(k)
print(L)
```

(a) [1,2] (b) [1,3] (c)[2,3] (d)[3,1]

10.A relation can have only one_____key and one or more than one_____keys. 1
(a) PRIMARY, CANDIDATE
(b) CANDIDATE, ALTERNATE
(c)CANDIDATE ,PRIMARY
(d) ALTERNATE, CANDIDATE

11.Which of the following is the correct usage for tell() of a file object? 1
(a) It places the file pointer at the desired offset in a file.
(b)It returns the byte position of the file pointer as an integer.
(c)It returns the entire content of the file.
(d) It tells the details about the file.

12.What are the minimum number of attributes required to create a table in MySQL? 1
(a) 1 (b) 2 (c) 0 (d)3

13._____is a standard mail protocol used to receive emails from a remote server to a local email client. 1
(a) SMTP (b) POP (c) HTTP (d) FTP

14.Which of the following is not a tuple in python? 1
(a) (10,20) (b) (10,) (c) (10) (d) All are tuples.

15.SUM(), ANG() and COUNT() are examples of _____functions. 1
(a) single row functions
(b) multiple row functions
(c) math function
(d) date function

16.What are the mandatory arguments which are required to connect a MySQL database to python? 1
(a) username, password, hostname, database name
(b) username, password, hostname
(c) username, password, hostname, port
(d) username, password, hostname, database name

Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as
(a) Both A and R are true and R is the correct explanation for A
(b) Both A and R are true and R is not the correct explanation for A
(c) A is True but R is False
(d) A is false but R is True
17.Assertion: The default value of an argument will be used inside a function if we do not pass a value to that argument at the time of the function call. 1
Reason: the default arguments are optional during the function call. It overrides the default value if we provide a value to the default arguments during function calls.
18. Assertion: Pickling is the process by which a Python object is converted to a byte stream. 1
Reason: load() method is used to write the objects in a binary file. dump() method is used to read data from a binary file.

SECTION B

Each Question Carry 2 marks

19. Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code. 2

```
30=Value
for VAL in range(0,Value)
If val%4==0:
print (VAL*4)
Elseif val%5==0:
print (VAL+3)
else
print(VAL+10)
```

20.Write two points of difference between Bus Topology and Tree Topology. 2

OR

Write two points of difference between Packet Switching and Circuit Switching techniques?

21. (a) Given is a Python string declaration: 2

```
s="Up Above The World So High"
```

Write the output of:

```
print(s[::-4])
```

(b)Write the output of the code given below:

```
D={'month':'DECEMBER','exam':'PREBOARD1'}
D['month']='JANUARY'
D['EXAM']='PRE2'
print(D.items())
```

22. Differentiate between CHAR(N) and VARCHAR(N). 2

23. (a) Expand the following abbreviations: 2

i)POP ii)HTTPS

(b) What is a URL?

24. Predict the output of the Python code given below: 2

```
L=[4,6,7,1,6,9,4]
def fun(L):
        for i in range(len(L)):
           if(L[i]%3==0 and L[i]%2==0):
                L[i]=L[i]+1
    print(L)
        return(L)
print(L)
k=fun()
print(k)
```

OR

Predict the output of the Python code given below:

```
T = (9,18,27,36,45,54)
L=list(T)
L1 = []
for i in L:
    if i%6==0:
            L1.append(i)
T1 = tuple(L1)
print(T1)
```

25. Differentiate between WHERE and HAVING with appropriate examples. 2

OR

Differentiate between COUNT() AND COUNT(*) with appropriate examples.

SECTION C

Each Question Carry 3 Marks

26.(a)Write SQL query to add a column total price with datatype numeric and size 10, 2 in a table product.

1+2

(b) Consider the following tables SCHOOL and ADMIN. Give the output the following SQL queries:

TABLE: SCHOOL

CODE	TEACHER	SUBJECT	DOJ	PERIODS	EXPERIENCE
1001	RAVI SHANKAR	ENGLISH	12/3/2000	24	10
1009	PRIYA RAI	PHYSICS	03/09/1998	26	12
1203	LIS ANAND	ENGLISH	09/04/2000	27	5
1045	YASHRAJ	MATHS	24/8/2000	24	15
1123	GANAN	PHYSICS	16/7/1999	28	3
1167	HARISH B	CHEMISTRY	19/10/1999	27	5
1215	UMESH	PHYSICS	11/05/1998	22	16

TABLE: ADMIN

CODE	GENDER	DESIGNATION
1001	MALE	VICE PRINCIPAL
1009	FEMALE	COORDINATOR
1203	FEMALE	COORDINATOR
1045	MALE	HOD
1123	MALE	SENIOR TEACHER
1167	MALE	SENIOR TEACHER
1215	MALE	HOD

i.SELECT Designation COUNT (*) FROM Admin GROUP BY Designation HAVING COUNT (*) <2;
ii.SELECT max (EXPERIENCE) FROM SCHOOL;
iii.SELECT TEACHER FROM SCHOOL WHERE EXPERIENCE >12 ORDER BY TEACHER;
iv.SELECT COUNT (*), GENDER FROM ADMIN GROUP BY GENDER;

27. Write a program to count the words “to” and “the” present in a text file “python.txt”. 3

OR

A text file “PYTHON.TXT” contains alphanumeric text. Write a program that reads this text file and writes to another file “PYTHON1.TXT” entire file except the numbers or digits in the file.

28. (a)Sonal needs to display name of teachers, who have “0” as the third character in their name. She wrote the following query. 1+2

SELECT NAME FROM TEACHER WHERE NAME = “$$0?”;

But the query is’nt producing the result. Identify the problem.

(b)Write output for (i) & (iv) based on table COMPANY and CUSTOMER.

COMPANY

CID	NAME	CITY	PRODUCTNAME
111	SONY	DELHI	TV
222	NOKIA	MUMBAI	MOBILE
333	ONIDA	DELHI	TV
444	SONY	MUMBAI	MOBILE
555	BLACKBERRY	MADRAS	MOBILE
666	DELL	DELHI	LAPTOP

CUSTOMER

CUSTID	NAME	PRICE	QTY	CID
101	ROHAN SHARMA	70,000	20	222
102	DEEPAK KUMAR	50,000	10	666
103	MOHAN KUMAR	30,000	5	111
104	SAHIL BANSAL	35,000	3	333
105	NEHA SONI	25,000	7	444
106	SONAL AGGARWAL	20,000	5	333
107	ARUN SINGH	50,000	15	666

i. SELECT COUNT(*) , CITY FROM COMPANY GROUP BY CITY;
ii. SELECT MIN(PRICE), MAX(PRICE) FROM CUSTOMER WHERE QTY>10;
iii. SELECT AVG(QTY) FROM CUSTOMER WHERE NAME LIKE "%r%;
iv. SELECT PRODUCTNAME, CITY, PRICE FROM COMPANY, CUSTOMER
WHERE COMPANY.CID=CUSTOMER.CID AND PRODUCTNAME="MOBILE";

29. Write a function EVEN_LIST(L), where L is the list of elements passed as argument to the function. 3
The function returns another list named'evenList' that stores the indices of all even numbers of L.

For example:
If L contains [12,4,3,11,13,56]
The evenList will have - [12,4,5]

30. Alfred has created a list, L containing marks of 10 students. Write a program, with separate user defined function to perform the following operation: 3

PUSH()- Traverse the content of the List,L and push all the odd marks into the stack,S.
POP()- Pop and display the content of the stack.
Example: If the content of the list is as follows:
L=[87, 98, 65, 21, 54, 78, 59, 64, 32, 49]
Then the output of the code should be: 49 59 21 65 87

OR

Write a function in Python, Push(BItem) where , BItem is a dictionary containing the details of bakery items– {Bname:price}.
The function should push the names of those items in the stack,S who have price less than 50.
For example:
If the dictionary contains the following data:
Bitem={"Bread":40,"Cake":250,"Muffins":80,"Biscuits":25}

The stack should contain
Bread
Biscuits

SECTION D
Each Question Carry 5 Marks

31. Perfect Edu Services Ltd. is an educational organization. It is planning to setup its India campus at Chennai with its head office at Delhi. The Chennai campus has 4 main buildings – ADMIN, ENGINEERING, BUSINESS and MEDIA. 5

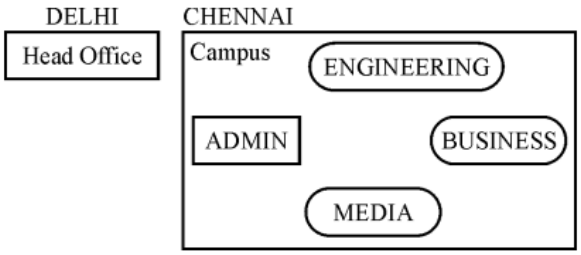
You as a network expert have to suggest the best network related solutions for their problems raised in (i) to (v), keeping in mind the distances between the buildings and other given parameters.

Shortest distances between various buildings :

ADMIN to ENGINEERING	55 m
ADMIN to BUSINESS	90 m
ADMIN to MEDIA	50 m
ENGINEERING to BUSINESS	55 m
ENGINEERING to MEDIA	50 m
BUSINESS to MEDIA	45 m
DELHI Head Office to CHENNAI Campus	2175 km

Number of Computers installed at various buildings are as follows :

ADMIN	110
ENGINEERING	75
BUSINESS	40
MEDIA	12
DELHI Head Office	20



(i) Suggest the most appropriate location of the server inside the CHENNAI campus (out of the 4 buildings), to get the best connectivity for maximum no. of computers. Justify your answer.

(ii) Suggest and draw the cable layout to efficiently connect various buildings within the CHENNAI campus for connecting the computers.

(iii) Which hardware device will you suggest to be procured by the company to be installed to protect and control the internet uses within the campus ?

(iv) Which of the following will you suggest to establish the online face-to-face communication between the people in the Admin Office of CHENNAI campus and DELHI Head Office ?
(a) Cable TV
(b) Email
(c) Video Conferencing
(d) Text Chat

(v) Name protocols used to send and receive emails between CHENNAI and DELHI office?

32.(a) Suppose the contents of text file quotes.txt is: 2+3

"Believe you can and you will!"

What will be the output of the following python code?

```
F=open("quotes.txt")
F.seek(17)
S=F.read()
print(S.split('o'))
```

(b) Pikato wrote a program which he wants to use to connect with MySQL and show the name of the all the record from the table "Student" from the database "School". You are required to complete the statements so that the code can be executed properly.

```
import_____.connector____pymysql                                    # statement 1
dbcon=pymysql.__(host="localhost",user="root",__="sia@1928",__)# statement 2
if dbcon.isconnected()==False:
     print("Error in establishing connection:")
cur=dbcon._______________()      # statement 3
query="select * from stmaster"
cur.execute(_________) # statement 4
resultset=cur.fetchmany(3)
for row in resultset:
      print(row)
dbcon._____()  # statement 5
```

OR

(a) Predict the output of the following python code snippet:

```
s="Hello2everyone"
n = len(s)
m=""
for i in range(0, n):
   if (s[i] >= 'a' and s[i] <= 'm'):
           m =   m +s[i].upper()
   elif (s[i] >= 'n' and s[i] <= 'z'):
           m = m +s[i-1]
   elif (s[i].isupper()):
          m = m + s[i].lower()
   else:
           m = m +'&'
print(m)
```

(b) Preety has written the code given below to read the following record from the table named employee and displays only those records who have salary greater than 53500:

Empcode – integer
EmpName – string
EmpSalary – integer

Note the following to establish connectivity between Python and MYSQL:

- Username is root
- Password is root@123
- The table exists in a MYSQL database named management.

Write the following missing statements to complete the code:
Statement 1 – to form the cursor object
Statement 2 – to execute the query that extracts records of those employees whose salary are greater than 53500.
Statement 3- to read the complete result of the query (records whose salary are greater than 53500) into the object named data, from the table employee in the database.

```
import mysql.connector as mysql
def sql_data():
    con1=mysql.connect(host="localhost",user="root", password="root@123",
database="management")
    mycursor=_____________   #Statement 1
    print("Employees with salary greater than 53500 are : ")
    _____________________                                    #Statement2
    data=_____________________          #Statement 3
   for i in data:
      print(i)
   print()
```

33. What is the advantage of using a csv file for permanent storage? 1+4
Write a Program in Python that defines and calls the following user defined functions:
a) ADD() – To accept and add data of an employee to a CSV file 'record.csv'. Each record consists of a list with field elements as empid, name and mobile to store employee id, employee name and employee salary respectively.
b) COUNTR() – To count the number of records present in the CSV file named 'record.csv'.

OR

Give any one point of difference between a binary file and a csv file.
Write a Program in Python that defines and calls the following user defined functions:
a) add() – To accept and add data of an employee to a CSV file 'furdata.csv'. Each record consists of a list with field elements as fid, fname and fprice to store furniture id, furniture name and furniture price respectively.
b) search()- To display the records of the furniture whose price is more than 10000.

SECTION E
Each question carries 4 marks

34. Write a python program to create a csv file dvd.csv and write 10 records in it Dvdid, dvd name, qty, price. Display those dvd details whose dvd price is more than 25. 4

35.Consider the table in Q26(b), write SQL Queries for the following: 4

i. To display TEACHERNAME, PERIODS of all teachers whose periods are more than 25.
ii. To display all the information from the table SCHOOL in descending order of experience.
iii. To display DESIGNATION without duplicate entries from the table ADMIN.
iv. To display TEACHERNAME, CODE and corresponding DESIGNATION from tables SCHOOL and ADMIN of Male teachers.

KENDRIYA VIDYALAYA SANGATHAN, TINSUKIA REGION
PRE-BOARD I (2022 - 23)
Class: XII
Subject: COMPUTER SCIENCE (083)(Theory)

Max Marks: 70 **Time:3hrs**

MARKING SCHEME

<table>
<tr><td>Question No.</td><td>SECTION – A
(1 Marks)</td><td></td></tr>
<tr><td>1</td><td>(d) error</td><td>1</td></tr>
<tr><td>2</td><td>(a)1*3</td><td>1</td></tr>
<tr><td>3</td><td>(c) None</td><td>1</td></tr>
<tr><td>4</td><td>(b) False</td><td>1</td></tr>
<tr><td>5</td><td>(a)['Question paper ', '0', '', '-', '3']</td><td>1</td></tr>
<tr><td>6</td><td>(c) w+</td><td>1</td></tr>
<tr><td>7</td><td>(b) DELETE</td><td>1</td></tr>
<tr><td>8</td><td>(c) USE SCHOOL;</td><td>1</td></tr>
<tr><td>9</td><td>(a)[1,2]</td><td></td></tr>
<tr><td>10</td><td>(a) PRIMARY, CANDIDATE</td><td>1</td></tr>
<tr><td>11</td><td>(b) It returns the byte position of the file pointer as an integer.</td><td>1</td></tr>
<tr><td>12</td><td>(b) 2</td><td>1</td></tr>
<tr><td>13</td><td>(b) POP-POST OFFICE PROTOCOL</td><td>1</td></tr>
<tr><td>14</td><td>(c) (10)</td><td>1</td></tr>
<tr><td>15</td><td>(b) multiple row functions</td><td>1</td></tr>
<tr><td>16</td><td>(d) username, password, hostname, database name</td><td>1</td></tr>
<tr><td>17</td><td>(a)Both A and R are true and R is the correct explanation for A</td><td>1</td></tr>
<tr><td>18</td><td>(c)A is True but R is False</td><td>1</td></tr>
<tr><td></td><td>SECTION B
(2 Marks)</td><td></td></tr>
<tr><td>19</td><td><pre>Value = 30
for VAL in range(0,Value) :   # Error 1
    if val%4==0:   # Error 2
        print (VAL*4)
    elif val%5==0:   # Error 3
        print (VAL+3)
    else: # Error 4
        print(VAL+10)</pre></td><td>2</td></tr>
<tr><td>20</td><td>
<table>
<tr><th>BUS TOPOLOGY</th><th>STAR TOPOLOGY</th></tr>
<tr><td>Bus topology is a topology where each device is connected to a single cable which is known as the backbone.</td><td>Star topology is a topology in which all devices are connected to a central hub</td></tr>
<tr><td>In a Bus topology, the failure of the network cable will cause the whole network to fail.</td><td>In star topology, if the central hub fails then the whole network fails.</td></tr>
<tr><td>In a bus topology, there is a linear arrangement of nodes in a network.</td><td>In star topology, there is a non-linear arrangement of nodes in a network.</td></tr>
</table>
OR
</td><td>2</td></tr>
</table>

	DOMAIN OF COMPARISON	CIRCUIT SWITCHING	PACKET SWITCHING	
	Definition	Transmission of data is done through a physically mapped circuit between the source and the target.	Data is transmitted in the form of segments called data packets through dynamic channels of data transmission.	
	Data processing	Transmitted data is demodulated and processed at the receiver end through hardware.	The data is processed at the source before transmission as well as at the nodes and receiver end during transmission and post completion respectively.	
	Flexibility	The route of data transmission is predefined and is rigid.	As there is no fixed route of data transmission hence there is flexibility in transmitting packets through different channels as per traffic or other constraints.	
	Utility	Finds maximum usage in voice-over or telephonic communication.	It has wide utility in the field of data transmission over networks.	

21	(a) h dWTop (b) dict_items([('month', 'JANUARY'), ('exam', 'PREBOARD1'), ('EXAM', 'PRE2')])	2

22	CHAR	VARCHAR	2
	CHAR datatype is used to store character strings of fixed length	VARCHAR datatype is used to store character strings of variable length	
	In CHAR, If the length of the string is less than set or fixed-length then it is padded with extra memory space.	In VARCHAR, If the length of the string is less than the set or fixed-length then it will store as it is without padded with extra memory spaces.	
	CHAR stands for “Character”	VARCHAR stands for “Variable Character”	
	Storage size of CHAR datatypes is equal to n bytes i.e. set length	The storage size of the VARCHAR datatype is equal to the actual length of the entered string in bytes.	
	We should use the CHAR datatype when we expect the data values in a column are of the same length.	We should use the VARCHAR datatype when we expect the data values in a column are of variable length.	
	CHAR takes 1 byte for each character	VARCHAR takes 1 byte for each character and some extra bytes for holding length information	
	Better performance than VARCHAR	Performance is not good as compared to CHAR	

23	POP-Post Office Protocol HTTPS-HyperText Transfer Protocol Secure OR A URL (Uniform Resource Locator) is a unique identifier used to locate a resource on the Internet. It is also referred to as a web address. URLs consist of multiple parts - including a protocol and domain name -- that tell a web browser how and where to retrieve a resource.	2
24	[4,6,7,1,6,9,4] [4, 7, 7, 1, 7, 9, 4] [4, 7, 7, 1, 7, 9, 4] OR (18, 36, 54)	2

25

Where Clause in SQL	Having Clause in SQL
Filter table based data catering to specific condition	Group based data under set condition
Applicable without GROUP BY clause	Does not function without GROUP BY clause
Row functions	Column functions
Select, update and delete statements	Only select statement
Applied before GROUP BY clause	Used after GROUP BY clause
Used with single row operations such as Upper, Lower and so on	Applicable with multiple row functions such as Sum, count and so on

OR

COUNT(*) will count all the rows in the table, including NULL values. On the other hand, COUNT(column name) will count all the rows in the specified column while excluding NULL values.

2

SECTION C
(3 Marks)

26

(a) ALTER TABLE PRODUCT ADD TOTAL PRICE NUMBER (10,2).

(b)

(i)

VICE PRINCIPAL	01

(ii)

16

(iii)

UMESH
YASH RAJ

(iv)

5 MALE
2 FEMALE

1+2

27

(a)

```
fname = "python.txt"
num_words = 0
f= open(fname, 'r')
words = f.read().split()
            for a in words:
    if (a.tolower() == "to" or a.tolower() == "the" ):
            num_words = num_words + 1
print("Number of words:", num_words)
f.close()
```

OR

(b)

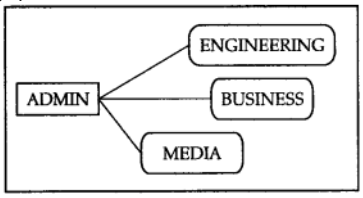
```
fh=open("python.txt","r")
       fw=open("python1.txt","w")
rec=fh.read();
for a in rec:
    if (a.isdigit() != True):
        print(a,end=' ')
        fw.write(a)
fh.close()
fw.close()
```

3

28	(a) SELECT NAME FROM TEACHER WHERE NAME LIKE "_ _0%"; _ and % are the wildcards for pattern matching. (b) i. 3 DELHI 2 MUMBAI 1 MADRAS ii. 50000,70000 iii.11 iv. MOBILE MUMBAI 70000 MOBILE MUMBAI 25000	1+2

29	`def EVEN_LIST(L):`
	`  evenList=[]`
	`  for i in L:`
	`  if i%2==0:`
	`  evenList.append(i)`
	`  return(evenList)`
		3

30	`def PUSH(S):`
	`  for i in L:`
	`  if i%2! =0:`
	`  S.append(i)`
	`  return(S)`
	
	`def POP ():`
	`  num=len(S)`
	`  while len(S)!=0:`
	`  dele=S.pop()`
	`  print(dele)`
	`  num=num-1`
	`  else:`
	`  print("empty")`
	
	OR
	`def Push(Bitem):`
	`  for i,j in Bitem.items():`
	`  if j<50:`
	`S.append(i)`
		3

	SECTION-D	
31	(i)admin; it contains the max number of systems. to reduce traffic (ii)  (iii)firewall (iv) (c) Video Conferencing (v) POP and SMTP	5

32	(a) `['and y','u will!']`
	(b)
	`import mysql.connector as pymysql  #statement 1`
	`dbcon=pymysql.connect(host="localhost",user="root",passwd="sia@1928",`
	`database='School')  # statement 2`
	`if dbcon.isconnected()==False:`
	`  print("Error in establishing connection:")`
	`cur=dbcon.cursor()  # statement 3`
		5

```
query="select * from stmaster"
cur.execute(query)                          # statement 4
resultset=cur.fetchmany(3)
for row in resultset:
      print(row)
dbcon.close()                               # statement 5
```

OR

(a)**hELLl&EeEeryoE**

(b)

Statement 1: **con1.cursor()**

Statement 2: **mycursor.execute("select * from student where Marks>75")**

Statement 3: **mycursor.fetchall()**

33 (5)

Advantage of a csv file:

- It is human readable – can be opened in Excel and Notepad applications
- It is just like text file

Program:

```
import csv
def ADD():
    fout=open("record.csv","a",newline="\n")
    wr=csv.writer(fout)
    empid=int(input("Enter Employee id :: "))
    name=input("Enter name :: ")
    mobile=int(input("Enter mobile number :: "))
    lst=[empid,name,mobile] ---------1/2 mark
    wr.writerow(lst) ---------1/2 mark
    fout.close()
def COUNTR():
    fin=open("record.csv","r",newline="\n")
    data=csv.reader(fin)
    d=list(data)
    print(len(d))
    fin.close()
ADD()
COUNTR()
```

OR

Binary file:

- Extension is .dat
- Not human readable
- Stores data in the form of 0s and 1s

CSV file

- Extension is .csv
- Human readable
- Stores data like a text file

Program:

```
import csv
def add():
    fout=open("furdata.csv","a",newline='\n')
    wr=csv.writer(fout)
    fid=int(input("Enter Furniture Id :: "))
    fname=input("Enter Furniture name :: ")
    fprice=int(input("Enter price :: "))
    FD=[fid,fname,fprice]
    wr.writerow(FD)
    fout.close()
def search():
    fin=open("furdata.csv","r",newline='\n')
    data=csv.reader(fin)
    found=False
```

	print("The Details are")
	for i in data:
	if int(i[2])>10000:
	found=True
	print(i[0],i[1],i[2])
	if found==False:
	print("Record not found")
	fin.close()
	add()
	print("Now displaying")
	search()	

	SECTION-E(4 marks)	0

34	import csv
	f=open("pl.csv","w")
	cw=csv.writer(f)
	ch="Y"
	while ch=="Y":
	l=[]
	pi=int(input("enter dvd id "))
	pnm=input("enter dvd name ")
	sp=int(input("enter qty "))
	p=int(input("enter price(in rupees) "))
	l.append(pi)
	l.append(pnm)
	l.append(sp)
	l.append(p)
	cw.writerow(l)
	ch=input("do you want to enter more rec(Y/N): ").upper()
	if ch=="Y":
	continue
	else:
	break
	f.close()
	f=open("pl.csv","r+")
	cw=list(csv.reader(f))
	for i in cw:
	if l[3]>25:
	print(i)
	f.close()
		4

35	1. SELECT TEACHERNAME, PERIODS FROM SCHOOL WHERE PERIODS>25: 2. SELECT * FROM SCHOOL; 3. SELECT DISTINCT DESIGNATION FROM ADMIN; 4. SELECT TEACHERNAME.CODE DESIGNATION FROM SCHOOL.CODE = ADMIN.CODE WHERE GENDER = MALE;	4

KENDRIYA VIDYALAYA SANGATHAN HYDERABAD REGION
PRE-BOARD 1 - EXAMINATION - 2022-23
Class: XII (COMPUTER SCIENCE -083)

Maximum Marks: 70 **Time Allowed: 3 hours**

General Instructions:

1. *This question paper contains five sections, Section A to E.*
2. *All questions are compulsory.*
3. *Section A has 18 questions carrying 01 mark each.*
4. *Section B has 07 Very Short Answer type questions carrying 02 marks each.*
5. *Section C has 05 Short Answer type questions carrying 03 marks each.*
6. *Section D has 03 Long Answer type questions carrying 05 marks each.*
7. *Section E has 02 questions carrying 04 marks each. One internal choice is given in Q34 against part C only.*
8. *All programming questions are to be answered using Python Language only.*

SECTION A

1 What will be the result of the following statements? 1

a) bool(int('0')) b) type("hello")

2 Which of the following is valid arithmetic operator in Python: 1

(a) // (b) ? (c) < (d) and

3 Given the following dictionary 1

```
Emp1={'salary':10000,'dept':'sales','age':24,'name':'john'}
Emp1.keys() can give the output as
a. ('salary','dept','age','name')
b. ['name','salary','dept','age']
c. [10000,'sales',24,'john']
d. {'salary','dept','age','name'}
```

4 Consider the given expression: 1

(5<10)and(10<5)or(3<18)and not(8<18)

Which of the following will be correct output if the given expression is evaluated?

(a) True
(b) False
(c) NONE
(d) NULL

5 1

```
string= "it goes as - ringa ringa roses"
sub="ringa"
string.find(sub,15,22)
```

(a) 13 (b)-13 (c) -1 (d) 19

6 When the file content is to be retained , we can use the _____ mode 1

(a) r (b) w (c) a (d) w+

7 Which of the following is NOT a DML Command? 1

(a) Insert (b) Update (c) Drop (d) Delete

8 Identify the error in the following SQL query which is expected to delete all rows of a table emp without deleting its structure and write the correct one: 1

(a) DELETE TABLE emp;
(b) DROP TABLE emp;
(c) REMOVE TABLE emp;
(d) DELETE FROM emp;

9 What will be the Output for the following code – 1

```
Language=["C", "C++", "JAVA", "Python", "VB", "BASIC", "FORTRAN"]
del Language[4]
Language.remove("JAVA")
Language.pop(3)
print(Language)
```

(a) ['C', 'C++', 'VB', 'FORTRAN']
(b) ['C', 'C++', 'Python', 'FORTRAN']
(c) ['C', 'C++', 'BASIC', 'FORTRAN']
(d) ['C', 'C++', 'Python', 'BASIC']

10 All attribute combinations inside a relation that can serve as primary key are_____ 1

(a) Primary Key
(b) Foreign Key
(c) Candidate Key
(d) Alternate Key

11 Which of the following statements correctly explain the function of tell() method? 1

(a) tells the current position within the file.
(b) tell the name of file.
(c) move the current file position to a different location.
(d) it changes the file position only if allowed to do so else returns an error

12 Which is known as range operator in MySQL? 1

(a) IN (b) BETWEEN (c) IS (d) DISTINCT

13 Network in which every computer is capable of playing the role of a client, or a server or both at same time is called 1

a) local area network
b) peer-to-peer network
c) dedicated server network
d) wide area network

14 What will be the value of y when following expression be evaluated in Python? 1

```
x=10.0
y=(x<100.0) and x>=10
```

(a)110 (b) False (c)Error (d)True

15 All aggregate functions except _____ ignore null values in their input collection. 1

(a) Count (attribute)
(b) Count (*)
(c) Avg
(d) Sum

16 A database _____is a special control structure that facilitates the row by row processing of records in the result set. 1

(a) Fetch (b) table (c) cursor (d) query

Q17and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as

(a) Both A and R are True and R is the correct explanation for A

(b) Both A and R are True and R is not the correct explanation for A

(c) A is True but R is False

(d) **A is False but R is True**

17 Assertion (A):-Built in functions are predefined in the language that are used directly. 1

Reasoning(R):-print() and input() are built in functions

18 Assertion (A):CSV file stands for Comma Separated Values. 1

Reason(R):CSV files are common file format for transferring and storing data

SECTIONB

19 Ravi has written a function to print Fibonacci series for first 10 elements. His code is having errors. Rewrite the correct code and underline the corrections made. some initial elements of Fibonacci series are: 2

```
def fibonacci()
    first=0
    second=1
    print((“first no. is “, first)
    print(“second  no. is , second)
    for a in range (1,9):
        third=first+second
        print(third)
        first,second=second,third
     fibonacci()
```

20 Give difference between Video Conferencing and Chatting 2

OR

Write two points of difference between Message Switching and Packet Switching

21 (a) Given is a Python string declaration: 1

```
str="malayalam"
```

Write the output of print(str[: :-1])

(b) Write the output of the code given below: 1

```
Employee1={'name':'John','salary':10000,'age':24}
Employee2={'name':'Divya','salary':54000,'dept':'Sales'}
Employee1.update(Employee2)
print(Employee1)
```

22 Explain the use of ‘Primary key’ in a Relational Database Management System. Give example to support your answer. 2

23 (a) Write the full forms of the following: 2

(i)GSM (ii)XML

(b) What is the use of Modem?

24 (a) Predict the output of the Python code given below: 2

```
def Display(str):
    m=""
    for i in range(0,len(str)):
        if(str[i].isupper()):
            m=m+str[i].lower()
        elif str[i].islower():
            m=m+str[i].upper()
    else:
      if i%2==0:
        m=m+str[i-1]
      else:
        m=m+"#"
  print(m)
Display('Fun@World2.0')
```

OR

(b)Predict the output of the Python code given below:

What is the output of the following Python code

x=”hello world”

print(x[:2],x[:-2],x[-2:])

print(x[6],x[2:4])

print(x[2:-3],x[-4:-2])

25 Differentiate between WHERE and HAVING clause in MySql. 2

OR

What do you understand by the terms Degree, cardinality of a Relation? Explain with an example.

SECTION –C

26 (a) Differentiate between Natural join and Equi join. 1+2

(b)**Table : Employee**

EmployeeId	Name	Sales	JobId
E1	SumitSinha	110000	102
E2	Vijay Singh Tomar	130000	101
E3	Ajay Rajpal	140000	103
E4	Mohit Kumar	125000	102
E5	Sailja Singh	145000	103

Table: Job

JobId	JobTitle	Salary
101	President	200000
102	Vice President	125000
103	Administrator Assistant	80000
104	Accounting Manager	70000
105	Accountant	65000
106	Sales Manager	80000

Give the output of following SQL statement:

(i) Select Name, JobTitle, Sales from Employee, Job

where Employee.JobId=Job.JobId and JobId in (101,102);

(ii) Select JobId, count(*) from Employee group by JobId;

27 Write a method/function COUNT_BLANK_SPACES() in Python to read lines from a text file STORY.TXT, and display the count of blank spaces in the text file. 3

OR

Write a method/function DISPLAYWORDS() in python to read lines from a text file POEM.TXT, and display those words, which are less than 4 characters.

28 **(a) Consider the following table GAMES. Give outputs for SQL queries (i) to (iv).** 3

Table: GAMES

GCode	GameName	Number	PrizeMoney	ScheduleDate
101	CaromBoard	2	5000	23-Jan-2004
102	Badminton	2	12000	12-Dec-2003
103	TableTennis	4	8000	14-Feb-2004
105	Chess	2	9000	01-Jan-2004
108	LawnTennis	4	25000	19-Mar-2004

(i) SELECT COUNT(DISTINCT Number) FROM GAMES;
(ii) SELECT MAX(ScheduleDate),MIN(ScheduleDate) FROM GAMES;
(iii) SELECT SUM(PrizeMoney) FROM GAMES;
(iv) SELECT * FROM GAMES WHERE PrizeMoney > 12000;

(b) What are the eligible candidate keys from the Table Games?

29 Write definition of a method/function **DoubletheOdd( )** to add and display twice of odd values from the list of Nums. 3

For example :

If the Nums contains **[25,24,35,20,32,41]**

The function should display

Twice of Odd Sum: **202**

30 Pramod has created a dictionary containing EMPCODE and SALARY as key value pairs of 5 Employees of Parthivi Constructions. 3

Write a program, with separate user defined functions to perform the following operations:

● Push the keys (Employee code) of the dictionary into a stack, where the corresponding value (Salary) is less than 25000.

● Pop and display the content of the stack. For example: If the sample content of the dictionary is as follows:

EMP={"EOP1":16000, "EOP2":28000, "EOP3":19000, "EOP4":15000, EOP5":30000}

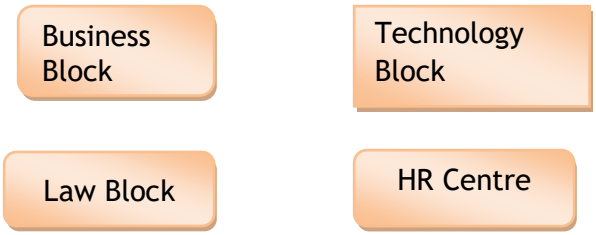
The output from the program should be: EOP4 EOP3 EOP1

OR

Write a function POP(Arr) , where Arr is a stack implemented by a list of numbers The function returns the value deleted from the stack.

SECTION D

31 Quick Learn University is setting up its academic blocks at Prayag Nagar and planning to set up a network. The university has 3 academic blocks and one human resource Centre as shown in the diagram given below:



Centre-to-Centre distance between various blocks is as follows:

Law block to business block	40 m
Law block to technology block	80 m
Law block to HR block	105 m
Business block to technology block	30 m
Business block to HR block	35 m
Technology block to HR block	15 m

Number of computers in each of the buildings is as follows:

Law block	15
Technology block	40
HR Centre	115
Business block	25

(a) Suggest a cable layout of connection between the blocks. 1

(b) Suggest the most suitable place to house the server of the organization with suitable reason. 1

(c) Which device should be placed/installed in each of these blocks to efficiently connect all the computers within these blocks? 1

(d) The university is planning to link its sales counters situated in various parts of the CITY. Which type of network out of LAN, MAN or WAN will be formed? 1

(e) Which network topology may be preferred between these blocks? 1

32 **(a)** Find and write the output of the following python code: 2+3

```
def Change(P ,Q=10):
  P=P*Q
  Q=Q+P
  print( P,"#",Q)
  return (Q)
A=5
B=10
A=Change(A)
B=Change(A,B)
print(A,"#",B)
```

(b) Avni is trying to connect Python with MySQLfor her project.
Help her to write the python statement on the following:-

(i) Name the library, which should be imported to connect MySQL with Python.

(ii)Name the function, used to run SQL query in Python.

(iii) Write Python statement of connect function having the arguments values as :

Host name :192.168.11.111 **User : root**

Password: Admin **Database : MYPROJECT**

OR

(a) Find and write the output of the following python code:

```
def encrypt(s):
  k=len(s)
  m=""
  for i in range(0,k):
    if(s[i].isupper( )):
      m=m+str(i)
    elif s[i].islower( ):
      m=m+s[i].upper()
    else:
      m=m+'*'
  print(m)
encrypt('Kvs@Hyderabad')
```

(b) Note the following to establish connectivity between Python and MYSQL:

- Username is **myusername**
- Password is **mypassword**
- The table exists in a MYSQL database named **mydatabase**

Write the following missing statements to complete the code:
Statement 1 – to create the connection object
Statement2–tocreate the cursor object
Statement3-To execute the sql query

```
import mysql.connector
mydb = _____ # Statement 1
mycursor = _____  # Statement 2
sql = "INSERT INTO customers (name, address) VALUES (%s, %s)"
val = ("John", "Highway 21")
mycursor._____ # Statement 3
mydb.commit()
print(mycursor.rowcount, "record inserted.")
```

33 Manoj Kumar of class 12 is writing a program to create a CSV file "user.csv" which will contain user name and password for some entries. He has written the following code. As a programmer, help him to successfully execute the given task. 5

```
import _______________                                  #Line1
def addCsvFile(UserName, Password):
     fh=open('user.csv','_______________')              #Line2
    Newfilewriter=csv.writer(fh)
    Newfilewriter.writerow([UserName,Password])
fh.close( )
# csv file reading code
def readCsvFile(): #to read data from CSV file
   with open('user.csv','r') as newFile:
         newFileReader=csv._____(newFile)              #Line3
         for row in newFileReader:
              print(row)
newFile._____________________                          #Line4
addCsvFile('Arjun','123@456')
addCsvFile('Arunima','aru@nima')
addCsvFile('Frieda','myname@FRD')
readCsvFile()

OUTPUT_____________________                            #Line 5
```

(a) What module should be imported in #Line1 for successful execution of the program?
(b) In which mode file should be opened to work with user.csv file in#Line2
(c) Fill in the blank in #Line3 to read data from csv file
(d) Fill in the blank in #Line4 to close the file
(e) Write the output he will obtain while executing Line5

OR

Radha Shah is a programmer, who has recently been given a task to write a python code to perform the following CSV file operations with the help of two user defined functions/modules:

(a) . CSVOpen() : to create a CSV file called **" books.csv"** in append mode containing information of books – Title, Author and Price.
(b). CSVRead() : to display the records from the CSV file called **" books.csv"** .where the field title starts with 'R'.
She has succeeded in writing partial code and has missed out certain statements, so she has left certain queries in comment lines.

```
import csv

def CSVOpen( ):
    with open('books.csv','_____',newline='') as csvf: #Statement-1
        cw=_____ #Statement-2
          _____ #Statement-3
        cw.writerow(['Rapunzel','Jack',300])
        cw.writerow(['Barbie','Doll',900])
        cw.writerow(['Johnny','Jane',280])
def CSVRead( ):
   try: with open('books.csv','r') as csvf:
        cr=_____ #Statement-4
        for r in cr:
```

```
            if _____: #Statement-5
                print(r)
    except:
        print('File Not Found')
CSVOpen( )
CSVRead( )
```

You as an expert of Python have to provide the missing statements and other related queries based on the following code of Radha.

(a) Write the appropriate mode in which the file is to be opened in append mode (Statement 1)

(b) Which statement will be used to create a csv writer object in Statement 2.
(c) Write the correct option for Statement 3 to write the names of the column headings in the CSV file, **books.csv**
(d) Write statement to be used to read a csv file in Statement 4.
(e) Fill in the appropriate statement to check the field Title starting with 'R' for Statement 5 in the above program.

SECTION –E

34 A departmental store MyStore is considering to maintain their inventory using SQL to store the data. As a database Administrator, Abhay has decided that: 1+1+2

Name of the database – mystore
Name of the table –STORE
The attributes of STORE are as follows
ItemNo –numeric
ItemName – character of size 20
Scode – numeric
Quantity – numeric

Table : STORE

ItemNo	ItemName	Scode	Quantity
2005	Sharpner Classic	23	60
2003	Ball Pen 0.25	22	50
2002	Gel Pen Premium	21`	150
2006	Gel Pen Classic	21	250
2001	Eraser Small	22	110
2004	Eraser Big	22	220
2009	Ball Pen 0.5	21	180

(a) Identify the attribute best suitable to be declared as primary key
(b) Write the query to add the row with following details

(2010,"Notebook",23,155)

(c) (i) Abhay wants to remove the table STORE from the database MyStore, Help Abhay in writing the command for removing the table STORE from the database MyStore.

(ii) Now Abhay wants to display the structure of the table STORE i.e. name of the attributes and their respective data types that he has used in the table. Write the query to display the same.

OR

(i) Abhay wants to ADD a new column price with data type as decimal. Write the query to add the column..

(ii) Now Abhay wants to remove a column price from the table STORE. Write the query.

35 Manoj is learning to work with Binary files in Python using a process known as Pickling/de-pickling. His teacher has given him the following incomplete code, which is creating a Binary file namely Mydata.dat and then opens, reads and displays the content of this created file.

```
import_____#Statement-1
sqlist=list()
for k in range(5): sqlist.append(k*k)
fout=open("mydata.dat",_____) #Statement-2
_____(sqlist,fout) #Statement-3
fout.close()
fin=open("Mydata.dat", "rb" )
mylist=_____(fin) #Statement-4
fin.close()
print(mylist)
```

i) Which module should be imported in Statement-1. 1

ii) Which file mode to be passed to write data in file in Statement-2 1

iii) What should be written in Statement-3 to write data onto the file. 1

iv) Which function to be used in Statement-4 to read the data from the file. 1

KENDRIYA VIDYALAYA SANGATHAN HYDERABAD REGION
PRE-BOARD - EXAMINATION - 2022-23
Class: XII (Comp.Sc -083)
MARKING SCHEME

Maximum Marks: 70 **TimeAllowed:3hours**

	SECTION A	
1	What will be the result of the following statements? a) bool(int('0')) b) type("hello")	1
ans	a) False b) <class str'>	1
2	Which of the following is valid arithmetic operator in Python: (a) // (b) ? (c) < (d) and	1
ans	(a) //	1
3	Given the following dictionary Emp1={'salary':10000,'dept':'sales','age':24,'name':'john'} Emp1.keys() can give the output as a. ('salary','dept','age','name') b. ['salary','dept','age','name'] c. [10000,'sales',24,'john'] d. {'salary','dept','age','name'}	
ans	b.['salary','dept','age','name']	1
4	Consider the given expression: (5<10)and(10<5)or(3<18)and not (8<18) Which of the following will be correct output if the given expression is evaluated? (a) True (b) False (c) NONE (d) NULL	1
ans	b) False	1
5	string= "it goes as - ringa ringa roses" sub="ringa" string.find(sub,15,22) (a) 13 (b)-13 (c) -1 (d) 19	
ans	(c) -1	1
6	When the file content is to be retained, we can use the _____ mode (a) r (b) w (c) a (d) w+	1
ans	(c) a	
7	Which of the following is NOT a DML Command? (a) Insert (b) Update (c) Drop (d) Delete	1
ans	(c) Drop	1
8	Identify the error in the following SQL query which is expected to delete all rows of a table emp without deleting its structure and write the correct one: (a) DELETETABLE;	1

	(b) DROPTABLE emp; (c) REMOVETABLE emp; (d) DELETE FROM emp;	
ans	(d) DELETE FROM emp;	1
9	What will be the Output for the following code – Language=["C", "C++", "JAVA", "Python", "VB", "BASIC", "FORTRAN"] del Language[4] Language.remove("JAVA") Language.pop(3) print(Language) (a) ['C', 'C++', 'VB', 'FORTRAN'] (b) ['C', 'C++', 'Python', 'FORTRAN'] (c) ['C', 'C++', 'BASIC', 'FORTRAN'] (d) ['C', 'C++', 'Python', 'BASIC']	
ans	(b) ['C', 'C++', 'Python', 'FORTRAN']	1
10	All attribute combinations inside a relation that can serve as primary key are_____ (a) Primary Key (b) ForeignKey (c) CandidateKey (d) AlternateKey	1
ans	(c) Candidate Key	1
11	Which of the following statements correctly explain the function of tell() method? (a) tells the current position within the file. (b) tell the name of file. (c) move the current file position to a different location. (d) it changes the file position only if allowed to do so else returns an error	
ans	(a) tells the current position within the file.	1
12	Which is known as range operator in MySQL? (a) IN (b) BETWEEN (c) IS (d) DISTINCT	1
ans	(b) BETWEEN	1
13	Network in which every computer is capable of playing the role of a client, or a server or both at same time is called a)local area network b)peer-to-peer network c)dedicated server network d)wide area network	1
ans	b)peer-to-peer network	1
14	What will be the value of y when following expression be evaluated in Python? x=10.0 y=(x<100.0) and x>=10 (a)110 (b) False (c)Error (d)True	1
ans	(d) True	1
15	All aggregate functions except _____ ignore null values in their input collection. (a) Count (attribute) (b) Count (*) (c) Avg (d) Sum	1
ans	(b) Count (*)	1

16	A database _____is a special control structure that facilitates the row by row processing of records in the result set. (a) Fetch (b) table (c) cursor (d) query	1
ans	(c) cursor	1
	Q17and18areASSERTIONANDREASONINGbasedquestions. Mark the correct choice as **(a) Both A and R are true and R is the correct explanation for A** **(b) Both A and R are true and R is not the correct explanation for A** **(c) A is True but R is False** (d) **A is false but R is True**	
17	Assertion(A):-Built in functions are predefined in the language that are used directly. Reasoning(R):-print() and input() are built in functions	1
ans	(b) Both A and Rare true and R is not the correct explanation for A **Explanation**: The python built in functions are defined as the functions whose functionality is predefined. The python interpreter has several functions that are always present for use. Example: print() and input() are built in functions	1
18	Assertion(A):CSV file stands for Comma Separated Values. Reason(R):CSV files are common file format for transferring and storing data	1
ans	(b) Both A and R are true and R is not the correct explanation for A **Explanation:** The ability to read , manipulate and write data to and from CSV files using python is a key skill to master for any data Scientist and Business analysis.	1
	SECTIONB	
19	Ravi has written a function to print Fibonacci series for first 10 element. His code is having errors. Rewrite the correct code and underline the corrections made. some initial elements of Fibonacci series are: def fibonacci() first=0 second=1 print((“first no. is “, first) print(“second no. is , second) for a in range (1,9): third=first+second print(third) first,second=second,third fibonacci()	2

ans	def fibonacci( )**: # missing colon**
	first=0
	second=1
	print**(**“first no. is “, first) # **extra parenthesis**
	print(“second no. is**”**, second) # **closing quotes is missing**
	for a in range (1,9):
	third=first+second
		2

print(third)
first,second=second,third

<u>fibonacci( )</u> # fuction call indentation is wrong

20 Give difference between Video Conferencing and Chatting 2

OR

Write two points of difference between Message Switching and Packet Switching

ans

Video conference	**Chatting**
Audio as well Visuals are shared	Only text communicated
High Bandwidth required	Works with low bandwidth also
Protocols: SIP, H.323	Protocol: IRC(Internet relay chat)

Or

Message Switching	**Packet Switching**
In message switching data is stored in buffer form.	In this form of switching data is transferring into packet form.
The message is, sent to the nearest directly connected switching node. This process continues until data is delivered to the destination computer.	A fixed size of packet that can be transmitted across the network is specified.
Stored in disk	All the packets are stored in the main memory instead of disk.
Ex: sms	Ex:E mail

2

21 (a) Given is a Python string declaration: 1

str="malayalam"

Write the output of :print(str[: :-1])

(b) Write the output of the code given below: 1

```
Employee1={'name':'John','salary':10000,'age':24}
Employee2={'name':'Divya','salary':54000,'dept':'Sales'}
Employee1.update(Employee2)
print(Employee1)
```

ans (a)"malayalam" 1

(b){'name': 'Divya', 'salary': 54000, 'age': 24, 'dept': 'Sales'} 1

22 Explain the use of'Primary key' in a Relational Database Management System. Give example to support your answer. 2

ans A Primary Key is a set of one or more attributes that can uniquely identify tuples within the relation . 2

Ex: Adminno. From student table or any other suitable example.

(1 mark for explanation and 1 mark for example) (Any relevant correct example may be marked)

23 (a) Write the full forms of the following: 2

(i)GSM (ii)XML

(b) What is the use of Modem?

ans (a) (i) GSM: Global system for mobile computing 1

(ii) XML: Extensible Mark up Language

(b) Modem:A modem is a device that modulates or demodulates the signal. · It acts as a bridge between the internet/telephone line and the computer 1

<table>
<tr><td>24</td><td>(a) Predict the output of the Python code given below:

def Display(str):
m=""
for i in range(0,len(str)):
if(str[i].isupper()):
m=m+str[i].lower()
elif str[i].islower():
m=m+str[i].upper()
else:
if i%2==0:
m=m+str[i-1]
else:
m=m+"#"
print(m)
Display('Fun@World2.0')

OR

(b)Predict the output of the Python code given below:
What is the output of the following Python code

x=”hello world”

print(x[:2],x[:-2],x[-2:])

print(x[6],x[2:4])

print(x[2:-3],x[-4:-2])</td><td>2</td></tr>
<tr><td>ans</td><td>(a)fUN#wORLD#2#

OR

(b)he hello wor ld

w ll

llo wo or</td><td>2</td></tr>
<tr><td>25</td><td>Differentiate between WHERE and HAVING clause in MySql.

OR

What do you understand by the terms Degree , cardinality of a Relation? Explain with an example.</td><td>2</td></tr>
<tr><td>ans</td><td>WHERE Clause is used to filter the records from the table or used while joining more than one table. Only those records will be extracted who are satisfying the specified condition in WHERE clause. It can be used with SELECT, UPDATE, DELETE statements.

HAVING Clause is used to filter the records from the groups based on the given condition in the HAVING Clause. Those groups who will satisfy the given condition will appear in the final result. It can be used only with GROUP BY clause.

OR

Degree: No. of columns(attribute) of a table
Cardinality: No.of rows(Tuples) of a table
Ex: EMP Table

<table>
<tr><td>EmployeeId</td><td>Name</td><td>Sales</td><td>JobId</td></tr>
<tr><td>E1</td><td>Sumit Sinha</td><td>110000</td><td>102</td></tr>
<tr><td>E2</td><td>Vijay Singh Tomar</td><td>130000</td><td>101</td></tr>
</table></td><td>2</td></tr>
</table>

E3	Ajay Rajpal	140000	103	

Degree- 4
Cardinality- 3
(Any other suitable example)

26 (a) Differentiate between Natural join and Equi join. 1+2

(b)**Table : Employee**

EmployeeId	Name	Sales	JobId
E1	SumitSinha	110000	102
E2	Vijay Singh Tomar	130000	101
E3	Ajay Rajpal	140000	103
E4	Mohit Kumar	125000	102
E5	Sailja Singh	145000	103

Table: Job

JobId	JobTitle	Salary
101	President	200000
102	Vice President	125000
103	Administrator Assistant	80000
104	Accounting Manager	70000
105	Accountant	65000
106	Sales Manager	80000

Give the output of following SQL statement:

(i) Select Name, JobTitle, Sales from Employee, Job

where Employee.JobId=Job.JobId and JobId in (101,102)

(ii) Select JobId, count(*) from Employee group by JobId

ans (a) Equi Join displays the common column twice , where as the Natural join displays the common column only once in the Join query.

(b) (i)

Name	**JobTitle**	**Sales**
Vijay Singh Tomar	President	130000
SumitSinha	Vice President	110000
Mohit Kumar	Vice President	125000

(ii)

JobId	Count(*)
101	1
102	2
103	2

27	Write a method/function COUNT_BLANK_SPACES() in Python to read lines from a text file STORY.TXT, and display the count of blank spaces in the text file. **OR** Write a method/function DISPLAYWORDS() in python to read lines from a text file POEM.TXT, and display those words, which are less than 4 characters.	3

ans	def COUNT_BLANK_SPACES():
	f=open("STORY.txt",'r')
	str=f.read()
	x=str.split()
	count=0
	for i in x:
	count+=1
	print("Total no. blank spaces are ",count-1)
	f.close()
	Any other logic 3 marks
	OR
	def DISPLAYWORDS():
	file=open('POEM.txt','r')
	line = file.read()
	word = line.split()
	for w in word:
	if len(w)<4:
	print(w)
	file.close()
	(½ Mark for opening the file)
	(½ Mark each for reading line and/or splitting)
	(½ Mark each for loop amd checking condition)
	(½ Mark for printing word)
		3

28	**(a) ConsiderthefollowingtablesGAMES.GiveoutputsforSQLqueries(i)to(iv).** **Table:GAMES** (i) SELECTCOUNT(DISTINCTNumber)FROMGAMES; (ii) SELECTMAX(ScheduleDate),MIN(ScheduleDate)FROMGAMES; (iii) SELECTSUM(PrizeMoney)FROMGAMES; (iv) SELECT*FROMGAMESWHEREPrizeMoney>12000; (b) Whatare the eligible candidate keys from the Table Games?	3

GCode	GameName	Number	PrizeMoney	ScheduleDate
101	CaromBoard	2	5000	23-Jan-2004
102	Badminton	2	12000	12-Dec-2003
103	TableTennis	4	8000	14-Feb-2004
105	Chess	2	9000	01-Jan-2004
108	LawnTennis	4	25000	19-Mar-2004

ans	(a) i) 2 **ii)** 19-Mar-2004 12-Dec-2003 **iii)** 59000 **iv)** <table><tr><td>GCode</td><td>GameName</td><td>Number</td><td>PrizeMoney</td><td>ScheduleDate</td></tr><tr><td>108</td><td>LawnTennis</td><td>4</td><td>25000</td><td>19-Mar-2004</td></tr></table> **(b)** <table><tr><td>GCode</td><td>GameName</td></tr></table>	2+ 1
29	Write definition of a method/function **DoubletheOdd( )** to add and display twice of odd values from the list of Nums. For example : If the Nums contains **[25,24,35,20,32,41]** The function should display Twice of Odd Sum: **202**	3
ans	def **DoubletheOdd( ):** Nums=[25,24,35,20,32,41] s=0 for i in Nums : if i%2!=0: s+=i*2 print(s) (3 marks for correct code)	3
30	Pramod has created a dictionary containing EMPCODE and SALARY as key value pairs of 5 Employees of Parthivi Constructions. Write a program, with separate user defined functions to perform the following operations: ● Push the keys (Employee code) of the dictionary into a stack, where the corresponding value (Salary) is less than 25000. ● Pop and display the content of the stack. For example: If the sample content of the dictionary is as follows: EMP={"EOP1":16000, "EOP2":28000, "EOP3":19000, "EOP4":15000, EOP5":30000} The output from the program should be: EOP4 EOP3 EOP1 **OR** Write a function POP(Arr) , where Arr is a stack implemented by a list of numbers The function returns the value deleted from the stack.	

ans	EMP={"EOP1":16000, "EOP2":28000, "EOP3":19000, "EOP4":15000,"EOP5":30000}
	def PUSH(S,N):
	S.append(N)
	def POP(S):
	if S!=[]:
	return S.pop()
	else:	

```
        return None
ST=[]
for k in EMP:
    if EMP[k]<25000:
        PUSH(ST,k)
while True:
    if ST!=[]:
        print(POP(ST),end="")
    else:
        break
```

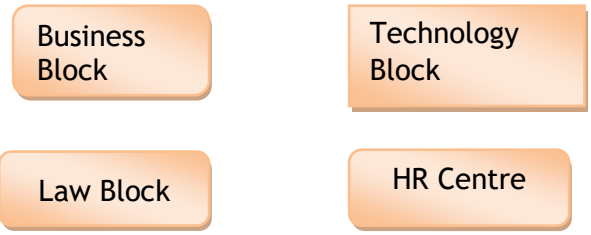
OR

```
def POP(Arr):
    if len(Arr)==0:
        print("Underflow")
    else:
        L=len(Arr)
        val=Arr[L-1]
        print(val)
        return (Arr.pop(L-1))
```

(Any other correct code can also be given.)

SECTIOND

31 Quick Learn University is setting up its academic blocks at Prayag Nagar and planning to set up a network. The university has 3 academic blocks and one human resource Centre as shown in the diagram given below:

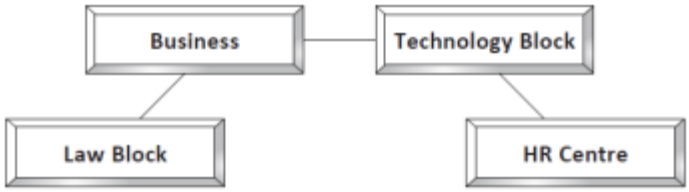


Centre-to-Centre distance between various blocks is as follows:

Law block to business block	40 m
Law block to technology block	80 m
Law block to HR block	105 m
Business block to technology block	30 m
Business block to HR block	35 m
Technology block to HR block	15 m

Number of computers in each of the buildings is as follows:

Law block	15
Technology block	40
HR Centre	115
Business block	25

	(a) Suggest a cable layout of connection between the blocks. (b) Suggest the most suitable place to house the server of the organization with suitable reason. (c) Which device should be placed/ installed in each of these blocks to efficiently connect all the computers within these blocks? (d) The university is planning to link its sales counters situated in various parts of the CITY. Which type of network out of LAN, MAN or WAN will be formed? (e) Which network topology may be preferred between these blocks?	1 1 1 1 1
ans	(a) Suggest a cable layout of connection between the blocks.  (b) Ans : HR centre because it consists of the maximum number of computers to house the server. (c) Ans: Switch/ Hub should be placed in each of these blocks. (d) Ans : MAN (e) Ans : Bus	1 1 1 1 1
32	**(a)** Find and write the output of the following python code: def Change(P ,Q=10): P=P*Q Q=Q+P print(P,"#",Q) return (Q) A=5 B=10 A=Change(A) B=Change(A,B) print(A,"#",B) (b) Avni is trying to connect Python with MySQLfor her project. Help her to write the python statement on the following:- (i) Name the library, which should be imported to connect MySQL with Python. (ii)Name the function, used to run SQL query in Python. (iii) Write Python statement of connect function having the arguments values as : **Host name :192.168.11.111** **User : root** **Password: Admin**	2+ 3

Database : MYPROJECT

OR

(a)Find and write the output of the following python code:

```
def encrypt(s):
  k=len(s)
  m=""
  for i in range(0,k):
    if(s[i].isupper()):
      m=m+str(i)
    elif s[i].islower():
      m=m+s[i].upper()
    else:
      m=m+'*'
  print(m)
encrypt('Kvs@Hyderabad')
```

(b)

NotethefollowingtoestablishconnectivitybetweenPythonand MYSQL:

- Usernameis**myusername**
- Passwordis**mypassword**
- ThetableexistsinaMYSQLdatabasenamed**mydatabase**

WritethefollowingmissingstatementstocompletethecodeStatement 1 – to create the connection object
Statement2–tocreate the cursor object
Statement3-To execute the sql query

```
import mysql.connector

mydb = _____ # Statement 1
mycursor = _____  # Statement 2

sql = "INSERT INTO customers (name, address) VALUES (%s, %s)"
val = ("John", "Highway 21")

mycursor._____ # Statement 3

mydb.commit()

print(mycursor.rowcount, "record inserted.")
```

ans

(a)

50 # 60
600 # 610
60 # 610

(b)

	(i) import mysql.connector
	(ii) execute (<sql query >)
	(iii)mysql.connector.connect(host="192.168.11.111",user="root",passwd="Admin", database="MYPROJECT")
	
	OR
	(a)0VS*4YDERABAD
	(b)
	import mysql.connector
	mydb = **mysql.connector.connect(host="localhost", user="myusername", password="mypassword", database="mydatabase") # Statement 1**
	mycursor = **mydb.cursor() # Statement 2**
	sql = "INSERT INTO customers (name, address) VALUES (%s, %s)"
	val = ("John", "Highway 21")
	mycursor.**execute(sql, val) # Statement 3**
	mydb.commit()
	print(mycursor.rowcount, "record inserted.")	

33	Manoj Kumar of class 12 is writing a program to create a CSV file "user.csv" which will contain user name and password for some entries. He has written the following code. As a programmer, help him to successfully execute the given task.
	import _____ **#Line1**
	def addCsvFile(UserName, Password):
	fh=open('user.csv','_____') **#Line2**
	Newfilewriter=csv.writer(fh)
	Newfilewriter.writerow([UserName,Password])
	fh.close()
	# csv file reading code
	def readCsvFile(): #to read data from CSV file
	with open('user.csv','r') as newFile:
	newFileReader=csv._____(newFile) **#Line3**
	for row in newFileReader:
	print(row)
	newFile._____ **#Line4**
	addCsvFile('Arjun','123@456')
	addCsvFile('Arunima','aru@nima')
	addCsvFile('Frieda','myname@FRD')
	readCsvFile()
	
	OUTPUT_____ **#Line 5**
	
	(a) What module should be imported in #Line1 for successful execution of the program?
		5

(b) In which mode file should be opened to work with user.csv file in#Line2
(c) Fill in the blank in #Line3 to read data from csv file
(d) Fill in the blank in #Line4 to close the file
(e) Write the output he will obtain while executing Line5

OR

Radha Shah is a programmer, who has recently been given a task to write a python code to perform the following CSV file operations with the help of two user defined functions/modules:

(a) . CSVOpen() : to create a CSV file called **books.csv** in append mode containing information of books – Title, Author and Price.
(b). CSVRead() : to display the records from the CSV file called **books.csv** where the field title starts with 'R'.
She has succeeded in writing partial code and has missed out certain statements, so she has left certain queries in comment lines.

```
import csv
def CSVOpen():
    with open('books.csv','_____',newline='') as csvf: #Statement-1
        cw=_____ #Statement-2
        _____ #Statement-3
        cw.writerow(['Rapunzel','Jack',300])
        cw.writerow(['Barbie','Doll',900])
        cw.writerow(['Johnny','Jane',280])
def CSVRead():
    try: with open('books.csv','r') as csvf:
        cr=_____ #Statement-4
        for r in cr:
            if _____: #Statement-5
                print(r)
    except:
        print('File Not Found')
CSVOpen()
CSVRead()
```

You as an expert of Python have to provide the missing statements and other related queries based on the following code of Radha.

(a) Write the appropriate mode in which the file is to be opened in append mode (Statement 1)

(b) Which statement will be used to create a csv writer object in Statement 2.
(c) Write the correct option for Statement 3 to write the names of the column headings in the CSV file, books.csv
(d) Write statement to be used to read a csv file in Statement 4.
(e) Fill in the appropriate statement to check the field Title starting with 'R' for Statement 5 in the above program.

ans

a) csv

b) w

c) reader()

d) close()

e) **['Frieda', 'myname@FRD']**

OR

(a) a

(b) csv.writer(csvf)

(c) cw.writerow(['Title','Author','Price'])

(d) csv.reader(csvf)

(e) r[0][0]=='R'

34

A departmental store MyStore is considering to maintain their inventory using SQL to store the data. As a database Administrator, Abhay has decided that:

Name of the database – mystore

Name of the table –STORE

The attributes of STORE are as follows

ItemNo –numeric

ItemName – character of size 20

Scode – numeric

Quantity – numeric

Table : STORE

ItemNo	ItemName	Scode	Quantity
2005	Sharpner Classic	23	60
2003	Ball Pen 0.25	22	50
2002	Gel Pen Premium	21`	150
2006	Gel Pen Classic	21	250
2001	Eraser Small	22	110
2004	Eraser Big	22	220
2009	Ball Pen 0.5	21	180

(a) Identify the attribute best suitable to be declared as primary key

(b) Write the query to add the row with following details

(2010,"Notebook",23,155)

(c)

(i) Abhay wants to remove the table STORE from the database MyStore, Help Abhay in writing the command for removing the table STORE from the database MyStore.

	(ii) Now Abhay wants to display the structure of the table STORE i.e. name of the attributes and their respective data types that he has used in the table. Write the query to display the same. **OR** (i) Abhay wants to ADD a new column price with data type as decimal. Write the query to add the column.. (ii) Now Abhay wants to remove a column price from the table STORE. Write the query.	
ans	(a) ItemNo (b) INSERT INTO STORE VALUES (2010,"Notebook",23,155); (c) (i) DROP TABLE STORE; (ii) DESCRIBE STORE; **OR** (i) Alter table STORE add price decimal(2,1); (ii) Alter table Store drop price;	
35	Manoj is learning to work with Binary files in Python using a process known as Pickling/de-pickling. His teacher has given him the following incomplete code, which is creating a Binary file namely Mydata.dat and then opens, reads and displays the content of this created file. import_____**#Statement-1** sqlist=list() for k in range(5): sqlist.append(k*k) fout=open("mydata.dat",_____) **#Statement-2** _____(sqlist,fout) **#Statement-3** fout.close() fin=open("Mydata.dat", "rb") mylist=_____(fin) **#Statement-4** fin.close() print(mylist) i) Which module should be imported in Statement-1. ii) Which file mode to be passed to write data in file in Statement-2 iii) What should be written in Statement-3 to write data onto the file. iv) Which function to be used in Statement-4 to read the data from the file.	1 1 1 1
ans	i) pickle ii) wb iii) pickle.dump() iv) pickle.load()	1 1 1 1

KENDRIYA VIDYALAYA SANGATHAN, JABALPUR REGION
FIRST PREBOARD EXAMINATION (2022-23)
CLASS - XII
SUBJECT- Computer Science (083)

Max Marks : 70 **Time : 3 Hrs**

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A have 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each. One internal choice is given in Q34 against part iii only.
8. All programming questions are to be answered using Python Language only.

	SECTION A	
1	Find the invalid identifier from the following a) Marks@12 b) string_12 c)_bonus d)First_Name	1
2	Identify the valid declaration of Rec: Rec=(1,"Ashoka",50000) a) List b) Tuple c)String d) Dictionary	1
3	Suppose a tuple Tup is declared as Tup = (12, 15, 63, 80) which of the following is incorrect? a) print(Tup[1]) b) Tup[2] = 90 c) print(min(Tup)) d) print(len(Tup))	1
4	The correct output of the given expression is: True and not False or False (a) False (b) True (c) None (d) Null	1
5	t1=(2,3,4,5,6) print(t1.index(4)) output is (a) 4 (b) 5 (c) 6 (d) 2	1
6	Which of the following modes is used to open a binary file for writing (a) b (b) rb+ (c) wb (d) rb	1
7	Fill in the blank: The _____ command is used in a WHERE clause to search for a specified pattern in a column. (a) match (b) similar (c) like (d) pattern	1
8	Which of the following commands is used to modify a table in SQL? (a) MODIFY TABLE (b) DROP TABLE (c) CHANGE TABLE (d) ALTER TABLE	1
9	Which of the following statement(s) would give an error after executing the following code? x= int("Enter the Value of x:")) #Statement 1 for y in range[0,21]: #Statement 2 if x==y: #Statement 3 print (x+y) #Statement 4 else: #Statement 5 print (x-y) # Statement 6	1

	(a) Statement 4 (b) Statement 5 (c) Statement 4 & 6 (d) Statement 1 & 2	
10	Fill in the blank: For each attribute of a relation, there is a set of permitted values, called the _____of that attribute. (a) cardinality (b) degree (c) domain (d) tuple	1
11	What is the significance of the tell() method? (a) tells the path of the file. (b) tells the current position of the file pointer within the file. (c) tells the end position within the file. (d) checks the existence of a file at the desired location.	1
12	Fill in the blank: The SELECT statement when combined with _____ clause, returns records in sorted order. (a) SORT (b) ARRANGE (c) ORDER BY (d) SEQUENCE	1
13	Fill in the blank: The _____ is a mail protocol used to retrieve mail from a remote server to a local email client. (a) VoIP (b) FTP (c) PPP (d) HTTP	1
14	Evaluate the following Python expression print(12*(3%4)//2+6) (a)12 (b)24 (c) 10 (d) 14	1
15	In SQL, the aggregate function used to calculate and display the average of numeric values in an attribute of a relation is: (a) sum() (b) total() (c) count() (d) avg()	1
16	The name of the module used to establish a connection between Python and SQL database is- (a) mysql-connect (b) mysql-connector (c) mysql-interface (d) mysql-conn	1
	Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as (a) Both A and R are true and R is the correct explanation for A (b) Both A and R are true and R is not the correct explanation for A (c) A is True but R is False (d) A is false but R is True	
17	Assertion (A):- The default arguments can be skipped in the function call. Reasoning (R):- The function argument will take the default values even if the values are supplied in the function call	1
18	Assertion (A):- If a text file already containing some text is opened in write mode the previous contents are overwritten. Reasoning (R):- When a file is opened in write mode the file pointer is present at the beginning position of the file	1
	SECTION B	
19	Aarti has written a code to input an integer and check whether it is even or odd. The code has errors. Rewrite the code after removing all the syntactical errors, underlining each correction: checkval def(): x = input("Enter a number") if x % 2 == 0 print (x, "is even") else;	2

	print (x, "is odd")	
20	What is the difference between hub and switch? Which is more preferable in a large network of computers and why? **OR** Differentiate between WAN and MAN. Also give an example of WAN.	2
21	(a) Given is a Python string declaration: str="Kendriya Vidyalaya Sangathan" Write the output of: print(str[9:17]) (b) Write the output of the code given below: lst1 = [10, 15, 20, 25, 30] lst1.insert(3, 4) lst1.insert(2, 3) print (lst1[-5])	2
22	What are constraints in SQL? Give two examples.	2
23	(a) Write the full forms of the following: (i) TCP (ii) VPN (b) What is the use of FTP?	2

24	Predict the output of the Python code given below:
	value = 50
	def display(N):
	global value
	value = 25
	if N%7==0:
	value = value + N
	else:
	value = value - N
	print(value, end="#")
	display(20)
	print(value)
	OR
	Predict the output of the Python code given below:
	a=20
	def call():
	global a
	b=20
	a=a+b
	return a
	print(a)
	call()
	print(a)
		2

25	What are aggregate functions in MySql? Give their names along with their use. OR List various DDL and DML commands available in MySql	2
	SECTION C	
26	(a) Consider the following tables – EMPLOYEES AND DEPARTMENT	1

	TABLE : EMPLOYEES
	ENO | ENAME | DOJ | DNO
	E1 | NUSRAT | 2001-11-21 | D3
	E2 | KABIR | 2005-10-25 | D1
	TABLE : DEPARTMENT
	DNO | DNAME
	D1 | ACCOUNTS
	D2 | HR
	D3 | ADMIN
	What will be the output of the following statement?
	SELECT ENAME, DNAME FROM EMPLOYEES, DEPARTMENT WHERE EMPLOYEE.DNO=DEPARTMENT.DNO;
	(b) Write the output of the queries (i) to (iv) based on the tables given below:
	Table: ITEM
	ID | Item_Name | Manufacturer | Price
	PC01 | Personal Computer | ABC | 35000
	LC05 | Laptop | ABC | 55000
	PC03 | Personal Computer | XYZ | 32000
	PC06 | Personal Computer | COMP | 37000
	LC03 | Laptop | PQR | 57000
	Table: CUSTOMER
	C_ID | CName | City | ID
	01 | N Roy | Delhi | LC03
	06 | R Singh | Mumbai | PC03
	12 | R Pandey | Delhi | PC06
	15 | C Sharma | Delhi | LC03
	16 | K Agarwal | Bangalore | PC01
	i) SELECT ITEM_NAME, MAX(PRICE), COUNT(*) FROM ITEM GROUP BY ITEM_NAME;
	ii) SELECT CNAME, MANUFACTURER FROM ITEM, CUSTOMER WHERE ITEM.ID=CUSTOMER.ID;
	iii) SELECT ITEM_NAME, PRICE*100 FROM ITEM WHERE MANUFACTURER="ABC";
	(iv) SELECT DISTINCT CITY FROM CUSTOMER;
		2

27	Write a function in python to count the number of lines in a text file 'Country.txt' which are starting with an alphabet 'W' or 'H'. For example, If the file contents are as follows: Whose woods these are I think I know. His house is in the village though; He will not see me stopping here To watch his woods fill up with snow. The output of the function should be: W or w : 1 H or h : 2 OR Write a user defined function to display the total number of words present in a text file 'Quotes.txt'	3

For example if the file contents are as follows:
Living a life you can be proud of doing your best Spending your time with people and activities that are important to you Standing up for things that are right even when it's hard Becoming the best version of you.
The countwords() function should display the output as:
Total number of words : 40

28 (a) Write the outputs of the SQL queries (i) to (iv) based on the relations SCHOOL and ADMIN given below: 2

TABLE: SCHOOL

CODE	TEACHERNAME	SUBJECT	DOJ	PERIODS	EXPERIENCE
1001	RAVI SHANKAR	ENGLISH	12/03/2000	24	10
1009	PRIYA RAI	PHYSICS	03/09/1998	26	12
1203	LISA ANAND	ENGLISH	09/04/2000	27	5
1045	YASHRAJ	MATHS	24/08/2000	24	15
1123	GANAN	PHYSICS	16/07/1999	28	3
1167	HARISH B	CHEMISTRY	19/10/1999	27	5
1215	UMESH	PHYSICS	11/05/1998	22	16

TABLE: ADMIN

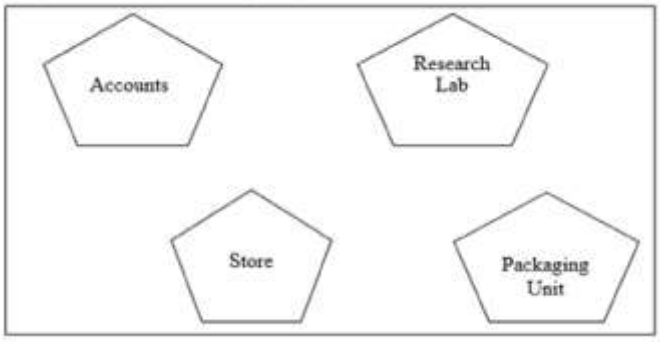
CODE	GENDER	DESIGNATION
1001	MALE	VICE PRINCIPAL
1009	FEMALE	COORDINATOR
1203	FEMALE	COORDINATOR
1045	MALE	HOD
1123	MALE	SENIOR TEACHER
1167	MALE	SENIOR TEACHER
1215	MALE	HOD

(i) SELECT SUM (PERIODS), SUBJECT FROM SCHOOL GROUP BY SUBJECT;
(ii) SELECT TEACHERNAME, GENDER FROM SCHOOL, ADMIN WHERE DESIGNATION = 'COORDINATOR' AND SCHOOL.CODE=ADMIN.CODE;
(iii) SELECT COUNT (DISTINCT SUBJECT) FROM SCHOOL;
(iv) SELECT MAX(PERIODS) FROM SCHOOL;
(b) Write the command to view the structure of a table SCHOOL 1

29 Write a function in python named SwapHalfList(Array), which accepts a list Array of numbers and swaps the elements of 1st Half of the list with the 2nd Half of the list, ONLY if the sum of 1st Half is greater than 2nd Half of the list. 3
Sample Input Data of the list
Array= [100, 200, 300, 40, 50, 60],
Output Array = [40, 50, 60, 100, 200, 300]

30 Write a function in Python PushBook(Book) to add a new book entry as book_no and book_title in the list of Books , considering it to act as push operations of the Stack data structure. 3

OR

	Write a function in Python PopBook(Book), where Book is a stack implemented by a list of books. The function returns the value deleted from the stack.	
	SECTION D	
31	Rehaana Medicos Center has set up its new center in Dubai. It has four buildings as shown in the diagram given below:  Distances between various buildings are as follows: Accounts to Research Lab — 55 m Accounts to Store — 150 m Store to Packaging Unit — 160 m Packaging Unit to Research Lab — 60 m Accounts to Packaging Unit — 125 m Store to Research Lab — 180 m No of Computers Accounts — 25 Research Lab — 100 Store — 15 Packaging Unit — 60 As a network expert, provide the best possible answer for the following queries: i) Suggest a cable layout of connections between the buildings. ii) Suggest the most suitable place (i.e. buildings) to house the server of this organization. iii) Suggest the placement of the Repeater device with justification. iv) Suggest a system (hardware/software) to prevent unauthorized access to or from the network. (v) Suggest the placement of the Hub/ Switch with justification.	1 1 1 1 1
32	(a) Write the output of the code given below: x = 50 def func(): global x print('x is', x)	2

	x = 20
	print('Changed global+local x to', x)
	func()
	(b) The code given below inserts the following record in the table Book:
	B_No – integer
	B_Name – string
	B_Author – string
	Price – Decimal
	Note the following to establish connectivity between Python and MYSQL:
	▪ Username is root
	▪ Password is tiger
	▪ The table exists in a MYSQL database named Library.
	
	The details (B_No, B_Name, B_Author and Price) are to be accepted from the user.
	Write the following missing statements to complete the code:
	Statement 1 – to form the cursor object
	Statement 2 – to execute the command that inserts the record in the table Book.
	Statement 3- to add the record permanently in the database
	import mysql.connector as mysql
	def sql_data():
	conn=mysql.connect(host="localhost", user="root", password="tiger", database="Library")
	mycursor=_____ #Statement 1
	B_No=int(input("Enter Book Number : "))
	B_Name=input("Enter Book Name : ")
	B_Author=input("Enter Author : ")
	Price=float(input("Enter Price : "))
	sql="insert into Book values({},'{}','{}',{})".format(B_No, B_Name, B_Author, Price)
	_____ #Statement 2
	_____ # Statement 3
	print("Data Added successfully")
	conn.close()
	
	OR
	(a) Predict the output of the code given below:
	def convert(Old):
	l=len(Old)
	New=" "
	for i in range(0,1):
	if Old[i].isupper():
	New=New+Old[i].lower()
	elif Old[i].islower():
	New=New+Old[i].upper()
	elif Old[i].isdigit():
	New=New+"*"
	else:
	New=New+"%"
		3

	return New
	Older="InDIa@2022"
	Newer=Convert(Older)
	print("New String is: ", Newer)
	(b) The code given below reads and fetches all the records from EMP table having salary more than 25000.
	empno - integer,
	ename- string and
	salary- integer.
	Note the following to establish connectivity between Python and MYSQL:
	▪ Username is root
	▪ Password is tiger
	▪ The table exists in a MYSQL database named company.
	Write the following missing statements to complete the code:
	Statement 1 – to form the cursor object
	Statement 2 – to execute the query that extracts records of those employees having salary more than 25000.
	Statement 3- to read the complete result of the query (records whose salary is more than 25000) into the object named data, from the table EMP in the database.
	
	import mysql.connector as mysql
	def sql_data():
	conn=mysql.connect(host="localhost", user="root", password= "tiger", database="company")
	mycursor=_____ #Statement 1
	print("Employees with salary more than 25000 are : ")
	try:
	_____ #Statement 2
	resultset=_____ #Statement 3
	for row in resultset:
	print(row)
	except:
	print("Error: unable to fetch data")
	conn.close()	

33	A binary file “Book.dat” has structure [BookNo, Book_Name, Author, Price]. i. Write a user defined function CreateFile() to input data for a record and add to Book.dat . ii. Write a function CountRec(Author) in Python which accepts the Author name as parameter and count and return number of books by the given Author are stored in the binary file “Book.dat” **OR** A binary file “STUDENT.DAT” has structure (admission_number, Name, Percentage). Write a function countrec() in Python that would read contents of the file “STUDENT.DAT” and display the details of those students whose percentage is above 75. Also display number of students scoring above 75%	5
	SECTION E	

34	Modern Public School is maintaining fees records of students. The database administrator Aman decided that- • Name of the database -School • Name of the table – Fees • The attributes of Fees are as follows: Rollno - numeric Name – character of size 20 Class - character of size 20 Fee – Numeric Qtr – Numeric Answer any four from the following questions: (i) Identify the attribute best suitable to be declared as a primary key (ii) What is the degree of the table. (iii) Write the statements to: a. Insert the following record into the table Rollno-1201, Name-Akshay, Class-12th, Fee-350, Qtr-2 b. Increase the second quarter fee of class 12th students by 50 **OR (Option for part iii only)** a. Delete the record of student with Rollno-1212 b. Aman wants to add a new column to the Fees table, Which command will he use from the following: a) CREATE b) ALTER c) SHOW d) DESCRIBE	1 1 2

35	Vijay of class 12 is writing a program to create a CSV file “mydata.csv” which will contain user name and password for some entries. He has written the following code. As a programmer, help him to successfully execute the given task.
	import _____ # Line 1
	def addCsvFile(UserName,PassWord): # write data into the CSV file
	f=open(' mydata.csv','_____') # Line 2
	newFileWriter = csv.writer(f)
	newFileWriter.writerow([UserName,PassWord])
	f.close()
	def readCsvFile(): # read data from CSV file
	with open('mydata.csv','r') as newFile:
	newFileReader = csv._____(newFile) # Line 3
	for row in newFileReader:
	print (row[0],row[1])
	newFile._____ # Line 4
	addCsvFile(“Aman”,”123@456”)
	addCsvFile(“Vijay”,”aru@nima”)
	addCsvFile(“Raju”,”myname@FRD”)
	readCsvFile()
	(i) Give Name of the module he should import in Line 1.
	(ii) In which mode, Vijay should open the file to add data into the file in Line2.
	(iii) Complete the Line 3 to read the data from csv file and Line 4 to close the file.
		1
		1
		2

KENDRIYA VIDYALAYA SANGATHAN, JABALPUR REGION
FIRST PREBOARD EXAMINATION(2022-23)
CLASS - XII
Computer Science (083)
MARKING SCHEME

Max Marks : 70 Time : 3 Hrs

	SECTION A	
1	a) Marks@12	1
2	b) Tuple	1
3	b) Tup[2]=90	1
4	(b) True	1
5	(d) 2	1
6	(c) wb	1
7	(c) like	1
8	(d) ALTER TABLE	1
9	(d) Statement 1 & 2	1
10	(c) domain	1
11	(b) tells the current position of the file pointer within the file.	1
12	(c) ORDER BY	1
13	(c) PPP	1
14	(b) 24	1
15	(d) avg()	1
16	(b) mysql-connector	1
17	(c) A is True but R is False	1
18	(a) Both A and R are true and R is the correct explanation for A	1
	SECTION B	
19	Rewrite the following Python program after removing all the syntactical errors (if any), underlining each correction: checkval def(): *# def checkval( ):* x = input("Enter a number") *# x=int(input("Enter a number"))* if x % 2 == 0 # if x % 2 ==0: print (x, "is even") else; *# else:* print (x, "is odd") *(1/2 mark for each correction)*	2
20	Hub forwards the message to every node connected and create a huge traffic in the network hence reduces efficiency whereas a Switch is also called intelligent hub since it redirects the received information/ packet to the intended node(s). In a large network a switch is preferred to reduce the unwanted traffic in the network which may also reduce the bandwidth and cause network congestion. *(1 mark for each part)* **OR** WAN is also called as Wide Area Network. It is a network of computing devices crossing the limits of city, country or continent. It covers area of over hundreds or thousands of kilometres radius. For example: Network of ATMs, BANKs, National or International organization offices spread over a country or continent. MAN is also called as Metropolitan Area Network. It is a network of communicating devices within a city. It covers an area of few kilometres	2

	to few hundred kilometres. For example: Network of schools, bank, and government offices within a city. Best example of WAN is the Internet. *(1 mark for each part)*	
21	(a) Vidyalay (b) 3 *(1 mark for each correct answer)*	2
22	SQL constraints are used to specify rules for the data in a table. Constraints are used to limit the type of data that can go into a table. This ensures the accuracy and reliability of the data in the table. If there is any violation between the constraint and the data action, the action is aborted. Examples NOT NULL, UNIQUE, PRIMARY KEY, CHECK etc. *(1 mark for correct definition, 1 mark for examples)*	2
23	(a) Transmission Control Protocol, Virtual Private Network *(1/2 mark for each answer)* (b) FTP is used to transfer files between computers on a network. *(1 Mark for correct answer)*	2
24	50#5 *(2 marks for correct answer)* **OR** 20 40 *(2 marks for correct answer)*	2
25	Aggregate functions are also known as group functions. Various aggregate functions in MySql are- sum(), min(), max(),avg() and count() **OR** DDL commands- CREATE, ALTER, DROP DML commands- INSERT, UPDATE, DELETE, SELECT	2
	SECTION C	
26	(a) 1 Mark for correct answer (b) i) Personal Computer 37000 3 Laptop 57000 2 ii) N Roy PQR R Singh XYZ R Pandey COMP C Sharma PQR K Agarwal ABC iii) Personal Computer 3500000 Laptop 5500000 iv) Delhi Mumbai Bangalore *(1/2 mark for each correct result)*	3

27	def count_W_H():
	f = open (“Country.txt”, “r”)
	W,H = 0,0
	r = f.read()
	for x in r:
	if x[0] == “W” or x[0] == “w”:
	W=W+1
	elif x[0] == “H” or x[0] == “h”:
	H=H+1
		3

	f.close()
	print (“W or w :”, W)
	print (“H or h :”, H)
	OR
	def countwords():
	s = open("Quotes.txt","r")
	f = s.read()
	z = f.split ()
	count = 0
	for I in z:
	count = count + 1
	print ("Total number of words:", count)
	Note: Using of any correct code giving the same result is also accepted.	

28	(a) i) ENGLISH 51 PHYSICS 76 MATHS 24 CHEMISTRY 27 ii) PRIYA RAI FEMALE LISA ANAND FEMALE iii) 4 iv) 28 *(1/2 Marks for each correct answer)* (b) DESCRIBE SCHOOL; *(1 Mark for correct answer)*	3

29	def SwapHalfList(Array):
	s1=s2=0
	L=len(Array)
	for i in range(0,L//2):
	s1+=Array[i]
	for i in range(L//2, L):
	s2+=Array[i]
	if s1>s2:
	for i in range(0,L//2):
	Array[i],Array[i+L//2]=Array[i+L//2],Array[i]
	L=[6,5,4,1,2,3]
	SwapHalfList(L)
	print(L)
	[1/2 mark for writing correct function header. 2 marks for correct logic and 1/2 mark for calling the function. Any other logic producing the same result is accepted]
		3

30	def PushBook(Book):
	bno = input("enter book no : ")
	btitle = input(“enter book title:”)
	rec = bno + “ ” + btitle
	Book.append(rec)
	print(Book)
	OR
	def PopBook(Book) :
	if len(Book)==0: # If stack is empty
	print("Underflow")
		3

	else: print(“Deleted entry :”, Book.pop()) *½ marks for correct function header* *1½ marks for correct logic* *½ mark for proper use of append or pop function* *½ mark for correct output statement*	
	SECTION D	
31	(i) *1 Mark for correct Layout.* (ii) Research Lab (*1 Mark*) (iii) *1 Mark for correct Justification.* (iv) Antivirus/ Firewall *(1 Mark for Correct Answer)* (v) *1 Mark for correct Justification.*	5
32	(a) x is 50 *(2 Marks for correct answer)* Changed global+local x to 20 (b) Statement 1 mycursor=conn.cursor() Statement 2 mycursor.execute(sql) Statement 3 conn.commit() *(3 Marks for all correct answer)* **OR** (a) iNdiA%**** *(2 Marks for correct answer)* (b) Statement 1 mycursor=conn.cursor() Statement 2 mycursor.execute("select * from EMP where salary>25000") Statement 3 resultset=mycursor.fetchall() *(3 Marks for all correct answer)*	5

33	import pickle
	def createFile():
	fobj=open("Book.dat","ab")
	BookNo=int(input("Book Number : "))
	Book_name=input("Name :")
	Author = input("Author:")
	Price = int(input("Price : "))
	rec=[BookNo,Book_Name,Author,Price]
	pickle.dump(rec,fobj)
	fobj.close()
	def CountRec(Author):
	fobj=open("Book.dat","rb")
	num = 0
	try:
	while True:
	rec=pickle.load(fobj)
	if Author==rec[2]:
	num = num + 1
	except:
	fobj.close()
	return num
	or
		5

	import pickle
	def CountRec():
	fobj=open("STUDENT.DAT","rb")
	num = 0
	try:
	while True:
	rec=pickle.load(fobj)
	if rec[2] > 75:
	print(rec[0],rec[1],rec[2],sep="\t")
	num = num + 1
	except:
	fobj.close()
	return num	

	SECTION E	

34	(i) Rollno *(1 mark)*
	(ii) 5 *(1 mark)*
	(iii) a. INSERT INTO FEES VALUES(1201,"AKSHAY","12TH",350,2);
	b. UPDATE FEES SET FEE=FEE+50 WHERE CLASS="12TH" AND QTR=2;
	OR (Option for part iii only)
	a. DELETE FROM FEES WHERE ROLLNO=1212;
	b. b) ALTER
	(1 marks for correctly answering each sub-part of iii)
		4

35	(i) CSV *(1 mark)* (ii) "w" *(1 mark)* (iii) reader, close() *(2 marks for both correct answers)*	4

केंद्रीय विद्यालय संगठन कोलकाता संभाग

KENDRIYA VIDYALYA SANAGATHAN , KOLKATA REGION

पूर्व बोर्ड परीक्षा / PRE-BOARD EXAM– 1

MARKING SCHEME (SET-1)

कक्षा /CLASS - XII अधिकतम अंक / MAX. MARKS: 70

विषय / SUBJECT : COMPUTER SCIENCE समय /TIME : 3 घंटे / HRS.

प्रश्न पत्र कोड / Q. P. CODE : CS**/PB1/22-01**

	SECTION A	
1.	State True or False : Python does <u>not</u> allows same variable to hold different data literals / data types. Ans : False	1
2.	Which of the following datatype in python is used to represent <u>any</u> real number : (a) int , (b) complex , (c) float , (d) bool (c) float	1
3.	Given the following list place=[(“State” , ”Sikkim”), (“Population”, ”8 Lakh”)] which of the following method will turn the above list place into something like { “State” : “Sikkim” , “Population” : “8 Lakh” } when applied over it : a. dictionary( ) b. to_dict( ) c. dict( ) d. Items( ) c. dict( )	1
4.	Consider the given Expression : 5 == True and not 0 or False Which of the following will be the correct output if the given expression is evaluated? a. True	1

	b. False c. NONE d. NULL b. False	
5.	Select the correct output of the code : n = "Post on Twitter is trending" q = n.split('t') print(q[0]+q[2]+q[3]+q[4][1:]) a. Pos on witter is rending b. Pos on Twitter is ending c. Poser witter is ending d. Poser is ending d) Poser is ending	1
6.	Which of the following mode in file opening statement does not overwrites the any previous content of the file ? a. w+ b. r+ c. a+ d. None of the above c. a+	1
7.	_____ command is used to a remove a tuple or many tuple(s) from a table / relation in SQL (a) drop (b)delete (c) remove (d) alter b. delete	1
8.	Which of the following commands will remove a particular table's schema along with its data , contained in a MySQL database? a. DROP DATABASE b. ALTER TABLE c. DELETE FROM TABLE d. DROP TABLE c. DROP TABLE	1

9.	Which of the following statement(s) would give an error after executing the following code?
	EM = "Blue Tick will cost $8" # Statement 1
	print(EM) # Statement 2
	ME = "Nothing costs more than Truth" # Statement 3
	EM *= 2 # Statement 4
	EM [-1: -3 : -1] += ME[: 7] # Statement 5
	
	a. Statement 3
		1

	b. Statement 4 c. Statement 5 d. Statement 4 and 5 c.Satement 5	
10.	……is an attribute, which is not a primary key of a table but has a capability of becoming a primary key. a. Primary Key b. Foreign Key c. Candidate Key d. Alternate Key c.Candidate Key	1
11.	The seek(8) if applied to a text file stream object moves the read cursor/ pointer : **a. 8 characters backwards from its current position** **b. 8 characters backward from the end of the file** **c. 8 characters forward from its current position** **d. 8 characters forwarded from the beginning of the file** **d. 8 characters forwarded from the beginning of the file**	1
12.	To restrict repeated values from being entered under a column of table, while creating the table in MySQL we take help of which of the following : a. DESCRIBE b. NULL c. PRIMARY KEY d. DISTINCT b. PRIMARY KEY	1
13	……is a communication methodology designed to establish a direct and dedicated communication between an internet user and his/her ISP. (a) VoIP (b) SMTP (c) PPP (d)HTTP c. PPP	1
14.	What will the following expression be evaluated to in Python? print((- 33 // 13) * (35 % -2)* 15/3) a. 10.0 b. -15.0 c. 15.0 d. -10.0	1

	c. 15.0	
15.	Which function is <u>not</u> an aggregate function ? a. sum() b. total() c. count() d. avg() b. total( )	1
16.	Which of the following method is needed to create an object using whose method a query is executed from python's front end connected to a mysql database. a. cursor( ) b. execute( ) c. Connect( ) d. fetchall( ) a. cursor( )	1
	Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as i. Both A and R are true and R is the correct explanation for A ii. Both A and R are true and R is not the correct explanation for A iii. A is True but R is False iv. A is false but R is True	
17.	Assertion(A):Key word arguments are related to the function calls Reason(R): When you use keyword arguments in a function call, the caller identifies the arguments by the parameter name i. Both A and R are true and R is the correct explanation for A	1
18.	**Assertion (A): - The acronym for a** CSV File is " Comma Separated Value" **Reasoning (R):- Since the seprator symbols between data elements with a line should always be a comma hence the name CSV originated.** iii. A is True but R is False	1
	SECTION B	
19.	Mithilesh has written a code to input a number and evaluate its factorial and then finally print the result in the format : "The factorial of the <number> is <factorial value>" His code is having errors. Rewrite the correct code and underline the corrections made. f = 0 num = input("Enter a number whose factorial you want to evaluate :") n = num while num > 1:	2

	f = f * num
	num -= 1
	else:
	print("The factorial of : ", n , "is" , f)
	
	Ans :
	
	1. f =1 # f is wrongly initialized to 0
	2. int( ) must be used with input( )
	3. else part of while should be properly indented
	4. print("The factorial of : ", n , "is" , f)
	Hence the correct code will be :
	
	f = 1
	num = int(input("Enter a number whose factorial you want to evaluate :"))
	org_num = num
	while num > 1:
	f = f * num
	num -= 1
	else:
	print("The factorial of : ", org_num , "is" , f)	

20.	Write any one point of difference between i. Circuit Switching and Packet Switching. ii. Co-axial cable and Fiber – optic cable OR Write two points of difference between Bus and Star Topologies. 1 marks each for any two correct differences	2
21.	a. Given is a Python string declaration: Wish = "## Wishing All Happy Diwali @#$" Write the output of Wish[-6 : : -6] Ans : lyli# b. Write the output of the code given below : Emp = { "SMITH":45000 , "CLARK":20000 } Emp["HAPPY"] = 23000 Emp["SMITH"] = 14000 print(Emp.values()) Ans : dict_values([14000, 20000, 23000]) or [14000,20000,23000]	2
22.	Explain the use of 'Foreign Key' for performing table Joins, giving a suitable example to support your answer.	2

	1 mark to make role of Foreign Key clear in joining tables + 1 marks for example	
23.	a. Write the full form of : • HTML • VoIP b. What do you mean by a URL ? Ans a. HTML – HYPER TEXT MARKUP LANGUALGE (½ + ½) VoIP – VOICE OVER INTERNET PROTOCOL b. URL – UNIFORM RESOURCE LOCATER or Any correct definition award 1 mark.	2

24.	def Compy(N1,N2=10):
	return N1 > N2
	
	NUM= [10,23,14,54,32]
	for VAR in range (4,0,-1):
	A=NUM[VAR]
	B=NUM[VAR-1]
	if VAR > len(NUM)//2:
	print(Compy(A,B),'#', end=' ')
	else:
	print(Compy(B),'%',end=' ')
	
	Ans : False # True # True % False %
	
	OR
	
	tuple1 = ([7,6], [4,4], [5,9] , [3,4] , [5,5] , [6,2] , [8,4])
	listy = list(tuple1)
	new_list = list()
	for elem in listy :
	tot = 0
	for value in elem:
	tot += value
	if elem.count(value) == 2:
	new_list.append(value)
	tot = 0
	else:
	print(tuple(new_list))
	
	Ans : (4,4,5,5)
		2

25.	Differentiate between 'WHERE' clause and 'HAVING' clause in MySQL with appropriate example. OR Differentiate between DELETE and DROP keywords used in MySQL,giving suitable example for each	2

Correct difference one mark
Correct example one mark

SECTION C

26. (a) Consider the following tables – Bank_Account and Branch: 1+2

BANK_ACCOUNT

E_CODE	NAME
E01	ASHISH
E02	SURESH

BRANCH

E_CODE	LOCATION
E05	MUMBAI

What will be the output of the following statement?
SELECT * FROM Bank_Account, Branch;

Ans :

```
+--------+--------+--------+----------+
| e_code | name   | e_code | location |
+--------+--------+--------+----------+
| E01    | ASHISH | E05    | MUMBAI   |
| E02    | SURESH | E05    | MUMBAI   |
+--------+--------+--------+----------+
```

(1 mark for correct output)

(b) Write the output of the queries (i) to (iv) based on the table, TECHER given below:

TEACHER

TCODE	TNAME	SUBJECT	SEX	SALARY
5467	Narendra Kumar	Computer Science	M	70000
6754	Jay Prakash	Accountancy	M	Null
8976	Ajay Kumar	Chemistry	M	65000
5674	Jhuma Nath	English	F	55000
8756	Divya Bothra	Computer Science	F	75000
6574	Priyam Kundu	Physics	M	Null
3425	Dinesh Verma	Economics	M	71000

i) SELECT DISTINCT(SUBJECT) FROM TEACHER WHERE SALARY IS NOT NULL;
ii) SELECT SUBJECT , COUNT(*) AS TOT_FACUL FROM TEACHER GROUP BY SUBJECT HAVING TOT_FACUL > 1
iii) SELECT TNAME FROM TEACHER WHERE SEX = 'M' AND SALARY >= 70000 ORDER BY TCODE
iv) SELECT MAX(SALARY) FROM TEACHER WHERE TCODE IN (5467,8976,3425) AND SUBJECT LIKE 'C%'

Ans:I)

SUBJECT
Computer Science
Chemistry

	English Economics II) SUBJECT | TOTA_FACUL Computer Science | 2 III) TNAME Dinesh Verma Narendra Kumar IV) MAX(SALARY) 70000 (½ mark for the correct output)	

27.	Write a function COUNTLINES( ) which reads a text file STORY.TXT and then count and display the number of the lines which starts and ends with same letter irrespective of its case . For example if the content of the text file STORY.TXT is :
	
	The person has a sent a lovely tweet
	Boy standing at station is very disturbed
	Even when there is no light we can see
	How lovely is the situation
	
	The expected output is :
	
	The Number of lines starting with same letter is 2
	
	Ans :
	def COUNTLINES():
	fin = open("Story.txt", 'r')
	lines = fin.readlines()
	count = 0
	for line in lines:
	if line[0].lower() == line[-1].lower():
	count+=1
	else:
	print("The Number of lines starting with same letter is",count)
	fin.close()
	
	(½ mark for correctly opening and closing the file ½ for readlines() , ½ mark for correct loop ½ for correct if statement, ½ mark for correctly incrementing count , ½ mark for displaying the correct output)
		3

OR

Write a function VOWEL_WORDS which reads a text file TESTFILE.TXT and then count and display the number of words starting with vowels 'a' or 'u' (including capital cases A and U too)

For example is the text in the file TESTFILE.txt is :

The train from Andaman has earned the name 'Floating Train'. What is so unique about this train to receive such a name?

The expected output is :

The Number of words starting with letter 'a' is : 3
The Number of words starting with letter 'u' is : 1

Ans :

```
def VOWEL_WORDS():
  fin = open("TESTFILE.TXT" , 'r')
  content = fin.read()
  words = content.split()
  acount,ucount = 0,0
  for word in words:
    if word[0] in "aA":
      acount+=1
    if word[0] in "uU":
      ucount+=1
  else:
    print("The Number of words starting with letter 'a' is :",acount)
    print("The Number of words starting with letter 'u' is :",ucount)

VOWEL_WORDS()
```

(½ mark for correctly opening and closing the file, ½ for readlines() , ½ mark for correct loops, ½ for correct if statement, ½ mark for correctly incrementing counts, ½ mark for displaying the correct output)
Note: Any other relevant and correct code may be marked

28. (a) Write the outputs of the SQL queries (i) to (iv) based on the relations Event and COMPANY given below: 3

Table : Event

EventId	EventName	Date	Organizer	Budget
101	Wedding	26/10/2019	1004	700000
102	Birthday Bash	05/11/2019	1002	70000
103	Engagement	13/11/2019	1004	200000
104	Wedding	01/12/2019	1003	800000
105	Farewell	25/11/2019	1001	20000

Table : Company

OrganizerId	Name	Phone
1001	Peter	9745684122
1002	Henry	9468731216
1003	Smith	9357861542
1004	Fred	9168734567

I) SELECT Organizer, min(date) FROM Event GROUP BY Organizer;
ii) SELECT MAX(Date),MIN(Date) FROM Event;
iii) SELECT EventName, Name, Phone FROM Event , Company WHERE Organizer = OrganizerId AND Budget<100000;
iv) SELECT Name, Date FROM Event, Company WHERE Phone like '%5_2' AND Organizer = OrganizerId;

(b) Write a command to view names of all database in MySQL server.

Ans : (a) I)

Organizer	Min(date)
1004	26/10/2019
1002	05/11/2019
1003	01/12/2019
1001	25/11/2019

(½ mark for the correct output)
(ii)

Max(date)	Min(date)
01/12/2019	26/10/2019

(½ mark for the correct output)
iii)

EventName	Name	Phone
Birthday Bash	Henry	9468731216
Farewell	Peter	9745684122

(½ mark for the correct output)
iv)

Name	Date
Smith	01/12/2019

(½ x 4 = 2)

(b) SHOW DATABASES (1 mark)

29. Write a function INDEX_LIST(L), where L is the list of elements passed as argument to the function. The function returns another list named 'indexList' that stores the indices of all Elements of L which has a even unit place digit. 3

For example:
If L contains [12,4,15,11,9,56]
The indexList will have - [0,1,5]

```
def INDEX_LIST(L):
  indexList = [ ]
  for i in range(0,len(L)):
```

	if (L[i]%10)%2 == 0:
	  indexList.append(i)
	else:
	  return indexList
	
	(½ mark for correct function header, 1 mark for correct loop , 1 mark for correct if statement, ½ mark for return statement)
	Note: Any other relevant and correct code may be marked	

30.	A dictionary contains records of a tourist place like : Tour_dict = { 'Name': 'Goa' , 'PeakSeason' : 'December' , 'Budget' : 15000 , 'Famous':'Beaches'} Write the following user defined functions to perform given operations on the stack named 'tour': (i) **Push_tour**(Tour_dict) – To Push a list containing values for Name and PeakSeason where value of budget is less than 10000 into the tour stack (ii) **Pop_tour**() – To Pop the list objects from the stack and display them. Also, display "No more tours" when there are no elements in the stack. For example if the following dictionaries are passed to Push_tour( ) function in the following sequence: { 'Name': 'Goa' , 'PeakSeason' : 'December' , 'Budget' : 15000 , 'Famous':'Beaches'} { 'Name': 'Nainital' , 'PeakSeason' : 'May' , 'Budget' : 9000 , 'Famous':'Nature'} { 'Name': 'Sikkim' , 'PeakSeason' : 'May' , 'Budget' : 9500 , 'Famous':'Mountains'} { 'Name': 'Kerala' , 'PeakSeason' : 'November' , 'Budget' : 15000 , 'Famous':'Back Waters'} { 'Name': 'Orissa' , 'PeakSeason' : 'January' , 'Budget' : 8000 , 'Famous':'Temples'} Then the stack 'tour' will contain : ['Orrisa' , 'January'] ['Sikkim', 'May'] ['Nainital' ,' May'] The output produced when calling pop_tour( ) function should be : ['Orrisa' , 'January'] ['Sikkim', 'May'] ['Nainital' ,' May'] No more tours Ans : **tour = [ ]** **def Push_tour**(tour_dict) : if tour_dict['Budget'] < 10000 : LstTour = [tour_dict['Name'] , tour_dict['PeakSeason']] tour.append(LstTour) **def Pop_tour( ) :** while tour != [ ] : T = tour.pop( )	3

```
            print(T)
    else:
          print( "No more tours")
```

(1.5 marks for correct push_element() and 1.5 marks for correct pop_element())

OR

Write a function in Python, **Push(stack, SItem)** where , SItem is a List containing the details of stationary items in a format like – [Name , price , Unit , Company , MRP].
The function should push the company names of those items in the stack whose price is 10 % percent less than its MRP. Also write a function **print_stack( )** to display the Item Names and the count of Items pushed into the stack.
For example:
If following data is passed to the function:
['Pen' , 120.00 , 'Pcs.' , 'Reynolds' , 132.00]
['Paper', 345.00 , 'Rim' , 'Camel', 500.00]
[Eraser , 100.00 , 'Box' , 'IBP' , 110.00
The stack should contain
Eraser
Pen
The output should be:
The count of elements in the stack is 2

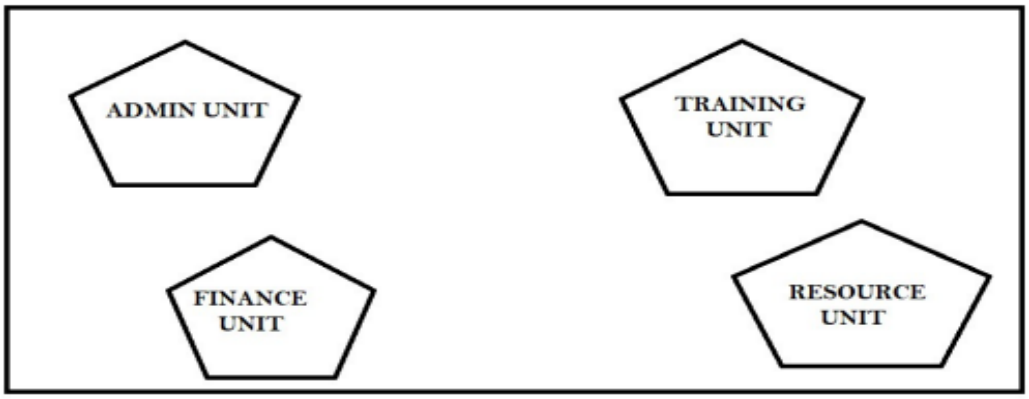
Ans :

```
def Push(stack , SItem) :
      if SItem[ 1] == SItem[4] * 0.90 :
            Stack.append(SItem)

def   print_stack( ):
      Count = len(stack)
      while  stack != [ ]:
            Item = stack.pop()
            print( Item[ 0 ] )
      else:
            print("Total items present in the stack is :", count)
```

(1 mark for correct function header, 1 mark for correct loop, ½ mark for correct If statement, ½ mark for correct display of count)

	SECTION D	
31.	"VidyaDaan" an NGO is planning to setup its new campus at Nagpur for its web-based activities. The campus has four(04) UNITS as shown below:	5



➔ **Distances between above UNITs are given here s under:**

UNIT-1	UNIT-2	DISTANCE(In mtrs.)
ADMIN	TRAINING	65
ADMIN	RESOURCE	120
ADMIN	FINANCE	100
FINANCE	TRAINING	60
FINANCE	RESOURCE	40
TRAINING	RESOURCE	50

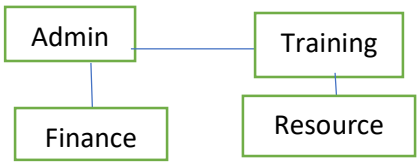
➔ **No. of Computers in various UNITs are:**

UNIT	NO. OF COMPUTERS
ADMIN	150
FINANCE	25
TRAINING	90
RESOURCE	75

i) Suggest an ideal cable layout for connecting the above UNITs.
ii) Suggest the most suitable place i.e. UNIT to install the server for the above
iii) Which network device is used to connect the computers in all UNITs?
iv) Suggest the placement of Repeater in the UNITs of above network.
v) NGO is planning to connect its Regional Office at Kota, Rajasthan. Which out of the following wired communication, will you suggest for a very high-speed Connectivity ?

(a) Twisted Pair cable (b) Ethernet cable (c) Optical Fiber

i. Layout



ii. Admin
iii. SWITCH/HUB
iv. ADMIN & FINANCE
v. (c) Optical Fiber

32. (a) Write the output of the following code : 2+3

```
R = 0
def change( A , B ) :
    global R
    A += B
    R +=3
    print(R , end='%')
```

change(10 , 2)
change(B=3 , A=2)

Ans : 3%6%
(1 mark for 3% and 1 mark for 6%)

(b) The code given below inserts the following record in the table Emp:
EmpNo – integer
EName – string
Desig – string
Salary – integer

Note the following to establish connectivity between Python and MYSQL:

- Username is admin
- Password is 22admin66
- The table exists in a MYSQL database named *company*.
- The details (EmpNo, EName, Desig and Salary) are to be accepted from the user.
- Write the following missing statements to complete the code:
  Statement 1 – to establish a connectivity to the table in the database
  Statement 2 - to form the cursor object
  Statement 3 – to execute the command that inserts the record in the table Student.

```
import mysql.connector as mysql
 def sql_data():
    con1=mysql._____(host="localhost",user = “admin” , password="22admin66",
database="company")                    #Statement1
   mycursor=_____                                                    #Statement 2
   eno=int(input("Enter Roll Number :: "))
   ename=input("Enter name :: ")
   desig=input("Enter class :: ")
   sal =int(input("Enter Marks :: "))
   querry="insert into student values( { },'{ }','{ }',{ } )".format(eno,ename,desig,sal)
    _____                                                            #Statement 3
   con1.commit( )
   print("Data Added successfully")
```

Ans : Statement 1 : Connect
Statement 2 : con1.cursor( )
Statement 3 : mycursor.execute(querry)
(1 mark for each correct answer)

OR

(a) Predict the output of the code given below:

```
def Convert(Old):
    l=len(Old)
    New=""
    for i in range(0,l):
        if Old[i].isupper():
            New=New+Old[i].lower()
        elif Old[i].islower():
            New=New+Old[i].upper()
        elif Old[i].isdigit():
            New=New+"*"
        else:
            New=New+"%"

    return New

Older="InDIa@2020"
Newer=Convert(Older)
print("New string is : ",Newer)
```

Ans : New string is : iNdiA%****
(1 mark for first 5 characters, 1 mark for next 5 characters)

(b) The code given below reads the following record from the table named product **and displays only those records which have name starting with a specific letters :**
PId – integer
PName – string
Price – integer Marks – integer
Note the following to establish connectivity between Python and MYSQL:

- **Username is admin**
- **Password is 22admin66**
- **The table exists in a MYSQL database named** inventory**.**
  Write the following missing statements to complete the code: Statement 1 – to form the cursor object
  Statement 2 – to execute the query that extracts records of those products whose name starts with a specific letters.
  Statement 3- to read the complete result of the query (records whose product name starts with a specific letters) into the object named data, from the table student in the database.

```
import mysql.connector as mysql
def sql_data( ):
    con1=mysql.connect(host="localhost", user="admin", password="22admin66",
                       database="inventory")
    mycursor=_____          #Statement 1
    startsWith = input("Enter the starting letter sequence to search a product : ")
    print("Products starting with the letter sequence",startsWith, "are :" )
    _____                   # Statement 2
    data=_____              # Statement 3
    for i in data:
        print( i )
```

	print() Ans : Statement 1 : con1.cursor( ) Statement 2 : mycursor.execute("Select * from product where PName Like '%" + startsWith +" ') " Statement 3 : mycursor.fetchall( ) (1 mark for each correct statement)	

33.	What is the significance of a delimiter symbol in a csv file? Write a Program in Python that defines and calls the following user defined functions:
	• (i) ADD_CONT() – To accept and add data of a contact to a CSV file 'address.csv'. Each record consists of a list with field elements as contId, cname and cmobile to store contact id, contact name and contact number respectively.
	• (ii) COUNT_CONT() – To count the number of records present in the CSV file named 'address.csv'.
	
	Ans: The delimiter symbol is used to separate two data elements within a line of text in the csv file. By default it is comma but can be set to any other symbol.
	import csv
	def ADD_CONT( ):
	fout=open("address.csv","a",newline="\n")
	wr=csv.writer(fout)
	contid=int(input("Enter Contact id :: "))
	cname=input("Enter Contact name :: ")
	cmobile=int(input("Enter mobile number :: "))
	lst=[contid, cname, cmobile] ---------1/2 mark
	wr.writerow(lst) ---------1/2 mark
	fout.close()
	
	def COUNT_CONT( ):
	fin=open("address.csv","r",newline="\n")
	data=csv.reader(fin)
	d=list(data)
	print(len(d))
	fin.close()
	
	ADD_CONT( )
	COUNT_CONT()
	
	(1 mark for advantage ½ mark for importing csv module , 1 ½ marks each for correct definition of ADD_CONT( ) and COUNT_CONT( ), ½ mark for function call statements)
	
	OR
		5

	How csv file is different from a binary file? Write a Program in Python that defines and calls the following user defined functions:
	(i) save() – To accept and add data of watches to a CSV file 'watchdata.csv'. Each record consists of a list with field elements as watchid, wname and wprice to store watch id, watch name and watch price respectively.
	(ii) search()- To display the records of the watch whose price is more than 6000.
	
	Ans: CSV file stores data using ASCII Plain Text Format. Or any other correct answer award one mark.
	
	import csv
	def save():
	fout=open("watchdata.csv","a",newline='\n')
	wr=csv.writer(fout)
	watchid=int(input("Enter Furniture Id :: "))
	wname=input("Enter Furniture name :: ")
	wprice=int(input("Enter price :: "))
	FD=[watchid, wname, wprice]
	wr.writerow(FD)
	fout.close( )
	
	def search():
	fin=open("watchdata.csv","r",newline='\n')
	data=csv.reader(fin)
	found=False print("The Details are")
	for i in data:
	if int(i[2])>6000:
	found=True
	print(i[0],i[1],i[2])
	if found==False:
	print("Record not found")
	fin.close()
	
	save()
	print("Now displaying")
	search()
	
	(1 mark for difference, ½ mark for importing csv module, 1 ½ marks each for correct definition of add() and search() , ½ mark for function call statements)	

	SECTION E	
34	Sagar a cloth merchant creates a table CLIENT with a set of records to maintain the client's order volume in Qtr1, Qtr2, Qtr3 and their total. After creation of the table, he has entered data of 7 clients in the table.	1+1+2

CLIENT

ClientName	Client_ID	Qtr1	Qtr2	Qtr3	Total
Suraj	C120	200	300	400	900
Radha	C650	190	356	220	766
Estha	C430	200	100	400	700
Karuna	C790	130	540	380	1050
Naresh	C660	200	400	800	1400
Varun	C233	400	300	220	920
Kritika	C540	500	100	400	1000

Based on the data given above answer the following questions:

(i) Identify the most appropriate column, which can be considered as Primary key.

(ii) What is the product of degree and cardinality of the above table ?

(iii) Write the statements to:Update a record present in the table with data for Qtr2 – 200 , Qtr3 = 600 , total – sum of all Qtrs where the Client_ID is C660

OR (option for part iii only)

(iii) (a) Delete all records where total is between 500 to 900

(b) Add a column RATINGS with datatype integer whose value must lie between 1 to 5

Ans :

(i) Client_ID (1 mark for correct answer)

(ii) 6x7 = 42 (1 Marks for correct answer)

(iii) Update Client set Qtr2 = 200 , Qtr3- 600 , total = 1000 where Client_ID = 660;

(2 marks for fully correct answer / 1 mark for partially correct answer)

OR

(iii) (a) Delete From Client where total between 500 and 900; (1 mark)

(b) ALTER TABLE Client ADD Ratings int CHECK (Ratings between 1 and 5)

(1 mark for use of ALTER and 1 mark for CHECK Constraint)

35. Vaishanavi is a budding Python programmer. She has written a code and created a binary file phonebook.dat with contactNo, name and blocked [Y/ N]. The file contains 10 records as a dictionary like {'contactNo' : 32344455 , 'name': 'kamal kant' ,'blocked' : "Y" } 4

She now wants to shift all the records which have blocked = 'Y' status from phonebook.dat to a binary file blocked.dat also all records which have blocked = 'N' status from phonebook.dat to unblocked.dat. She also wants to keep count and print the total number of blocked and unblocked records. As a Python expert, help her to complete the following code based on the requirement given above:

```
import _____    #Statement 1
def shift_contact( ):
   fin = open("phonebook.dat",'rb')
   fblock = open( _____ )  #Statement 2
   funblock = open( _____ ) #Statement 3
   while True :
    try:
      rec = _____  # Statement 4
```

```
        if rec["blocked"] == 'Y':
            pickle._____  #Statement 5
        if rec["blocked"] == 'N':
            Pickle. _____  # Statement 6
    except:
        break
```

(i) Which module should be imported in the program? (Statement 1)
(ii) Write the correct statement required to open a blocked.dat and unblocked.dat binary files (Statement 2 and 3)
(iii) which statement should Vaishnavi use in statement 4 to read the data from the binary file, phonebook.dat
(iv) which statement should Vaishnavi use in statement 5 and 6 to write data to the blocked.dat and unblocked.dat

Ans :

(i) pickle (1 mark)
(ii) open("blocked.dat" , "wb") ; open("unblocked.dat","wb") (½ + ½)
(iii) pickle.load(fin) (1 Mark)
(iv) pickle.dump(rec,fblock);pickle.dump(rec , funblock) (½ + ½)

KENDRIYA VIDYALAYA SANGATHAN
RANCHI RAGION
COMPUTER SCINCE (083)
FIRST PRE-BOARD EXAMINATION
Class-XII

Max Marks-70 Time: 3 hrs

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A have 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each. One internal choice is given in Q35 against part c only.
8. All programming questions are to be answered using Python Language only.

	SECTION A	
1	Identify the invalid Python statement from the following. (a) _b=1 (b) __b1= 1 (c) b_=1 (d) 1 = _b	1
2	Identify the valid arithmetic operator in Python from the following. (a) // (b) < (c) or (d) <>	1
3	If Statement in Python is __ (a) looping statement (b) selection statement (c) iterative (d) sequential	1
4	Predict the correct output of the following Python statement – print(4 + 3**3/2) (a) 8 (b) 9 (c) 8.0 (d) 17.5	1
5	Choose the most correct statement among the following – (a) a dictionary is a sequential set of elements (b) a dictionary is a set of key-value pairs (c) a dictionary is a sequential collection of elements key-value pairs (d) a dictionary is a non-sequential collection of elements	1
6	Consider the string state = “Jharkhand”. Identify the appropriate statement that will display the last five characters of the string state? (a) state [-5:] (b) state [4:] (c) state [:4] (d) state [:-4]	1

7	What will be the output of the following lines of Python code?
	
	if not False:
	  print(10)
	else:
	  print(20)
		1

	(a) 10 (b) 20 (c) True (d) False	
8	Consider the Python statement: f.seek(10, 1) Choose the correct statement from the following: (a) file pointer will move 10 byte in forward direction from beginning of the file (b) file pointer will move 10 byte in forward direction from end of the file (c) file pointer will move 10 byte in forward direction from current location (d) file pointer will move 10 byte in backward direction from current location	1
9	Which of the following function returns a list datatype? a) d=f.read() b) d=f.read(10) c) d=f.readline() d) d=f.readlines()	1
10	Identify the device on the network which is responsible for forwarding data from one device to another (a) NIC (b) Router (c) RJ45 (d) Repeater	1
11	A table has initially 5 columns and 8 rows. Consider the following sequence of operations performed on the table – i. 8 rows are added ii. 2 columns are added iii. 3 rows are deleted iv. 1 column is added What will be the cardinality and degree of the table at the end of above operations? (a) 13,8 (b) 8, 13 (c) 14,5 (d) 5,8	1
12	Which of the following constraint is used to prevent a duplicate value in a record? (a) Empty (b) check (c) primary key (d) unique	1
13	The structure of the table/relation can be displayed using _____ command. (a) view (b) describe (c) show (d) select	1
14	Which of the following clause is used to remove the duplicating rows from a select statement? (a) or (b) distinct (c) any (d)unique	1
15	How do you change the file position to an offset value from the start? (a) fp.seek(offset, 0) (b) fp.seek(offset, 1) (c) fp.seek(offset, 2) (d) None of them	1
16	Which of the following method is used to create a connection between the MySQL database and Python? (a) connector ( ) (b) connect ( ) (c) con ( ) (d) cont ( )	1

Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as

(a) Both A and R are true and R is the correct explanation for A
(b) Both A and R are true and R is not the correct explanation for A
(c) A is True but R is False
(d) A is false but R is True

17	Assertion (A): The function definition calculate(a, b, c=1,d) will give error. Reason (R): All the non-default arguments must precede the default arguments.	1
18	Assertion (A): CSV files are used to store the data generated by various social media platforms. Reason (R): CSV file can be opened with MS Excel.	1
	SECTION - B	

19	Find error in the following code(if any) and correct code by rewriting code and underline the correction;-
	
	x= int("Enter value of x:")
	for in range [0,10]:
	  if x=y
	print(x + y)
	  else:
	  print(x-y)
		2

20	(a) Find output generated by the following code: Str = "Computer" Str = Str[-4:] print(Str*2) OR Consider the following lines of codes in Python and write the appropriate output: student = {'rollno':1001, 'name':'Akshay', 'age':17} student['name']= "Abhay" print(student)	2
21	What do you mean by Foreign key? How it is related with Referential Integrity?	2

22	Find output generated by the following code:
	string="aabbcc"
	count=3
	while True:
	  if string[0]=='a':
	  string=string[2:]
	  elif string[-1]=='b':
	  string=string[:2]
	  else:
	  count+=1
	  break
	print(string)
	print(count)
		2

23	Expand the following terms: i. NIC ii. TCP/IP iii. POP iv. SMTP	2

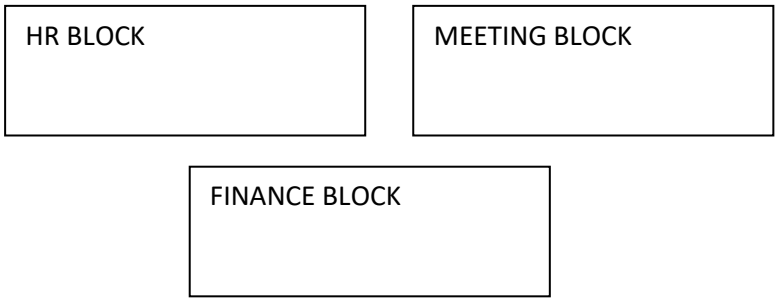
24	Write one advantage and one disadvantage of each – STAR Topology and Tree Topology OR What do you mean by Guided Media? Name any three guided media?	2
25	Differentiate between DDL and DML? OR Write the main difference between INSERT and UPDATE Commands in SQL	2

SECTION - C

26	Write definition of a method/function AddOdd(VALUES) to display sum of odd values from the list of VALUES	3
27	Define a function SHOWWORD () in python to read lines from a text file STORY.TXT, and display those words, whose length is less than 5. OR Write a user defined function in python that displays the number of lines starting with 'H' in the file para.txt	3
28	Write the outputs of the SQL queries (a) to (c) based on the relation **Furniture** **No** **Itemname** **Type** **Dateofstock** **Price** **Discount** 1 White lotus Double Bed 23/02/2002 30000 25 2 Pink feather Baby Cot 20/01/2002 7000 20 3 Dolphin Baby Cot 19/02/2002 9500 20 4 Decent Office Table 01/01/2002 25000 30 5 Comfort Zone Double Bed 12/01/2002 25000 25 6 Donald Baby Cot 24/02/2002 6500 15 7 Royal finish Office Table 20/02/2002 18000 30 8 Royal tiger Sofa 22/02/2002 31000 30 9 Econo sitting Sofa 13/12/2001 9500 25 10 paradise Dining Table 19/02/2002 11500 25 11 Wood Comfort Double Bed 23/03/2003 25000 25 12 Old Fox Sofa 20/02/2003 17000 20 13 Micky Baby Cot 21/02/2003 7500 15 (a) SELECT Itemname FROM Furniture WHERE Type="Double Bed"; (b) SELECT MONTHNAME(Dateofstock) FROM Furniture WHERE Type="Sofa"; (c) SELECT Price*Discount FROM Furniture WHERE Dateofstock>31/12/02;	3
29	Consider the following table GAMES GCode GameName Number PrizeMoney ScheduleDate 101 Carom Board 2 5000 23-Jan-2004 102 Badminton 2 12000 12-Dec-2003 103 Table Tennis 4 8000 14-Feb-2004 105 Chess 2 9000 01-Jan-2004 108 Lawn Tennis 4 25000 19-Mar-2004 Write the output for the following queries :	3

	(i) SELECT COUNT(DISTINCT Number) FROM GAMES; (ii) SELECT MAX(ScheduleDate),MIN(ScheduleDate) FROM GAMES; (iii) SELECT SUM(PrizeMoney) FROM GAMES;	
30	Write PushOn(Book) and Pop(Book) methods/functions in Python to add a new Book and delete a Book from a list of Book titles, considering them to act as push and pop operations of the Stack data structure. OR Mr.Ajay has created a list of elements. Help him to write a program in python with functions, PushEl(element) and PopEl(element) to add a new element and delete an element from a List of element Description, considering them to act as push and pop operations of the Stack data structure . Push the element into the stack only when the element is divisible by 4. For eg:if L=[2,5,6,8,24,32] then stack content will be 32 24 8	3

SECTION - D

31	India Tech Solutions (ITS) is a professional consultancy company. The company is planning to set up their new offices in India with its hub at Hyderabad. As a network adviser, you have to understand their requirement and suggest them the best available solutions. Their queries are mentioned as (i) to (v) below. **Physical locations of the blocks of TTC**  **Block to block distance (in m)** **Block (From) Block (To) Distance** HR Block MEETING 110 HR Block Finance 40 MEETING Finance 80 **Expected number of computers** **Block Computers** HR 25 Finance 120 MEETING 90 (i)Which will be the most appropriate block, where TTC should plan to install their server? (ii) Draw a block to block cable layout to connect all the buildings in the most appropriate manner for efficient communication. (iii)What will be the best possible connectivity out of the following, you will suggest to connect the new set up of offices in Bengalore with its London based office. • Satellite Link • lInfrared	5

- Ethernet

(iv)Which of the following device will be suggested by you to connect each computer in each of the buildings?

- l Switch
- l Modem
- l Gateway

(v) Company is planning to connect its offices in Hyderabad which is less than 1 km. Which type of network will be formed?

32 (a) Find the output of the following: 2

```
fruit_list1 = ['Apple', 'Berry', 'Cherry', 'Papaya']
fruit_list2 = fruit_list1
fruit_list3 = fruit_list1[:]
fruit_list2[0] = 'Guava'
fruit_list3[1] = 'Kiwi'
sum = 0
for ls in (fruit_list1, fruit_list2, fruit_list3):
   if ls[0] == 'Guava':
      sum += 1
   if ls[1] == 'Kiwi':
      sum += 20
print (sum)
```

(b) Consider the table 3

TRAINER

TID	TNAME	CITY	HIREDATE	SALARY
101	SUNAINA	MUMBAI	1998-10-15	90000
102	ANAMIKA	DELHI	1994-12-24	80000
103	DEEPTI	CHANDIGARG	2001-12-21	82000
104	MEENAKSHI	DELHI	2002-12-25	78000
105	RICHA	MUMBAI	1996-01-12	95000
106	MANIPRABHA	CHENNAI	2001-12-12	69000

The Following program code is used to increase the salary of Trainer SUNAINA by 2000.

Note the following to establish connectivity between Python and MYSQL:
 Username is root
 Password is system
 The table exists in a MYSQL database named Admin.

Write the following missing statements to complete the code:
Statement 1 – to form the cursor object
Statement 2 – to execute the command that inserts the record in the table Student.
Statement 3- to add the record permanently in the database

```
import mysql.connector as mydb
mycon = mydb.connect
      (host = "localhost",
      user = "root",
```

```
        passwd = "system",
        database = "Admin")
cursor = _____ #Statement 1
sql = "UPDATE TRAINER SET SALARY = SALARY + 2000
      WHERE TNAME = 'SUNAINA'"
cursor. _____ #Statement 2
_____ #Statement 3
mycon.close( )
```

OR

(a) Write the output of the following Python program code: 2

```
my_dict = {}
my_dict[(1,2,4)] = 8
my_dict[(4,2,1)] = 10
my_dict[(1,2)] = 12
sum = 0
for k in my_dict:
   sum += my_dict[k]
print (sum)
print(my_dict)
```

(b) Consider the table 3

TABLE : **GRADUATE**

S.NO	NAME	STIPEND	SUBJECT	AVERAGE	DIV
1	KARAN	400	PHYSICS	68	I
2	DIWAKAR	450	COMP Sc	68	I
3	DIVYA	300	CHEMISTRY	62	I
4	REKHA	350	PHYSICS	63	I
5	ARJUN	500	MATHS	70	I
6	SABINA	400	CHEMISTRY	55	II
7	JOHN	250	PHYSICS	64	I
8	ROBERT	450	MATHS	68	I
9	RUBINA	500	COMP Sc	62	I
10	VIKAS	400	MATHS	57	II

The Following program code is used to view the details of the graduate whose subject is PHYSICS.

Note the following to establish connectivity between Python and MYSQL:
- Username is root
- Password is system
- The table exists in a MYSQL database named Admin.

Write the following missing statements to complete the code:
Statement 1 – to import the proper module
Statement 2 – to create the cursor object.
Statement 3- to Close the connection

```
import _____ as mydb    #Statement 1
mycon = mydb.connect
      (host = "localhost",
      user = "root",
      passwd = "system",
      database = "Admin")
cursor = _____    #Statement 2
sql = "SELECT * FROM GRADUATE WHERE SUBJECT = 'PHYSICS'"
cursor. execute(sql)
mycon.commit ( )
_____    #Statement 3
```

33 Sumit is a programmer who is working on a project that requires student data of a school to be stored in a CSV file. Student data consists of roll no, name, class and section. He has written a program to obtain the student data from user and write it to a CSV file. After getting errors in the program he left five statements blank in the program as shown below. Help him to find the answer of the following questions to find the correct code for missing statements. 5

```
#Incomplete Code
import_____                          #Statement 1
fh = open(_____, _____, newline=' ') #Statement 2
stuwriter = csv._____                #Statement 3
data = []
header = ['ROLL_NO', 'NAME', 'CLASS', 'SECTION']
data.append(header)

for i in range(5):
   roll_no = int(input("Enter Roll Number : "))
   name = input("Enter Name : ")
   Class = input("Class : ")
   section = input("Enter Section : ")
   rec = [_____]                     #Statement 4
   data.append(rec)
stuwriter. _____ (data)              #Statement 5
fh.close()
```

(i) Identify the suitable code for blank space in line marked as Statement 1.
(ii) Identify the missing code for blank space in line marked as Statement 2.
(iii) Choose the function name (with argument) that should be used in the blank space of line marked as Statement 3.
(iv) Identify the suitable code for blank space in line marked as Statement 4.
(v) Choose the function name that should be used in the blank space of line marked as Statement 5 to create the desired CSV file?

OR

What are the advantages of binary file over text file? Write a Python program in Python to search the details of the employees (name, designation and salary) whose salary is greater than 5000. The records are stored in the file emp.dat. consider each record in the file emp.dat as a list containing name, designation and salary.

SECTION - E

34 Based on given table "DITERGENTS" answer following questions.

PID	PName	Price	Category	Manufacturer

	1	Nirma	40	Detergent Powder	Nirma Group
	2	Surf	80	Detergent Powder	HL
	3	Vim Bar	20	Disc washing Bar	HL
	4	Neem Face Wash	50	Face Wash	Himalaya

a) Write SQL statement to display details of all the products not manufactured by HL. 1

b) Write SQL statement to display name of the detergent powder manufactured by HL. 1

c) Write SQL statement to display the name of the Product whose price is more than 0.5 hundred. 2

OR

c) Write SQL statement to display name of all such Product which start with letter 'N'

35 Arun is a class XII student of computer science. The CCA in-charge of his school wants to display the words form a text files which are less than 4 characters. With the help of his computer teacher Arun has developed a method/function FindWords() for him in python which read lines from a text file Thoughts. TXT, and display those words, which are lesser than 4 characters. His teachers kept few blanks in between the code and asked him to fill the blanks so that the code will run to find desired result. Do the needful with the following python code. 1+1+2

```
def FindWords():
    c=0
    file=open('NewsLetter.TXT', '_____') #Statement-1
    line = file._____ #Statement-2
    word = _____ #Statement-3
    for c in word:
        if _____: #Statement-4
            print(c)
    _________ #Statement-5
FindWords()
```

(i) Write mode of opening the file in statement-1?
(ii) Fill in the blank in statement-2 to read the data from the file.
(iii) Fill in the blank in statement-3 to read data word by word
(iv) Fill in the blank in statement-4, which display the word having lesser than 4 characters

OR (Only for iii and iv above)

(v) Fill in the blank in Statement-5 to close the file.
(vi) Which method of text file will read only one line of the file?

KENDRIYA VIDYALAYA SANGATHAN
RANCHI RAGION
FIRST PREBOARD EXAMINATION
COMPUTER SCIENCE (083)
CLASS XII

MAX MARKS-70 TIME: 3 hrs

MARKING ACHEME

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A have 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each. One internal choice is given in Q35 against part c only.
8. All programming questions are to be answered using Python Language only.

	SECTION A	
1	Identify the invalid Python statement from the following. (a) _b=1 (b) __b1= 1 (c) b_=1 (d) 1 = _b Ans – (d) 1 = _b	1

2	Identify the valid arithmetic operator in Python from the following.
	(a) // (b) < (c) or (d) <>
	
	Ans – (a) // floor division
		1

3	If Statement in Python is __ (a) looping statement (b) selection statement (c) iterative (d) sequential Ans – (b) selection statement	1
4	Predict the correct output of the following Python statement – print(4 + 3**3/2) (a) 8 (b) 9 (c) 8.0 (d) 17.5 Ans – (d) 17.5	1
5	Choose the most correct statement among the following – (a) a dictionary is a sequential set of elements (b) a dictionary is a set of key-value pairs (c) a dictionary is a sequential collection of elements key-value pairs (d) a dictionary is a non-sequential collection of elements Ans – (b) a dictionary is a set of key-value pairs	1
6	Consider the string state = “Jharkhand”. Identify the appropriate statement that will display the last five characters of the string state? (a) state [-5:] (b) state [4:] (c) state [:4] (d) state [:-4] Ans – (a) state [-5:]	1
7	What will be the output of the following lines of Python code?	1

	if not False:
	  print(10)
	else:
	  print(20)
	
	(a) 10 (b) 20 (c) True (d) False
	
	Ans – (a) 10	

8	Consider the Python statement: f.seek(10, 1) Choose the correct statement from the following: (a) file pointer will move 10 byte in forward direction from beginning of the file (b) file pointer will move 10 byte in forward direction from end of the file (c) file pointer will move 10 byte in forward direction from current location (d) file pointer will move 10 byte in backward direction from current location Ans: (c) file pointer will move 10 byte in forward direction from current location	1
9	Which of the following function returns a list datatype? a) d=f.read() b) d=f.read(10) c) d=f.readline() d) d=f.readlines() Ans: d) d=f.readlines()	1
10	Identify the device on the network which is responsible for forwarding data from one device to another (a) NIC (b) Router (c) RJ45 (d) Repeater Ans: (b) Router	1
11	A table has initially 5 columns and 8 rows. Consider the following sequence of operations performed on the table – i. 8 rows are added ii. 2 columns are added iii. 3 rows are deleted iv. 1 column is added What will be the cardinality and degree of the table at the end of above operations? (a) 13,8 (b) 8, 13 (c) 14,5 (d) 5,8 Ans: (a) 13,8	1
12	Which of the following constraint is used to prevent a duplicate value in a record? (a) Empty (b) check (c) primary key (d) unique Ans: (d) unique	1
13	The structure of the table/relation can be displayed using _____ command. (a) view (b) describe (c) show (d) select Ans: (b) describe	1
14	Which of the following clause is used to remove the duplicating rows from a select statement? (a) or (b) distinct (c) any (d)unique	1

	Ans: (b) distinct	
15	How do you change the file position to an offset value from the start? (a) fp.seek(offset, 0) (b) fp.seek(offset, 1) (c) fp.seek(offset, 2) (d) None of them Ans: (a) fp.seek(offset, 0)	1
16	Which of the following method is used to create a connection between the MySQL database and Python? (a) connector ( ) (b) connect ( ) (c) con ( ) (d) cont ( ) Ans: (b) connect ( )	1
Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as (a) Both A and R are true and R is the correct explanation for A (b) Both A and R are true and R is not the correct explanation for A (c) A is True but R is False (d) A is false but R is True		
17	Assertion (A): The function definition calculate(a, b, c=1,d) will give error. Reason (R): All the non-default arguments must precede the default arguments. Ans: (a) Both A and R are true and R is the correct explanation for A	1
18	Assertion (A): CSV files are used to store the data generated by various social media platforms. Reason (R): CSV file can be opened with MS Excel. Ans: (b) Both A and R are true and R is not the correct explanation for A	1
SECTION - B		

19	Find error in the following code(if any) and correct code by rewriting code and underline the correction;-
	
	x= int("Enter value of x:")
	for in range [0,10]:
	if x=y
	print(x + y)
	else:
	print(x-y)
	
	Ans . Correct code:-
	x= int(input("Enter value of x:"))
	for in range (0,10):
	if x==y:
	print(x+y)
	else:
	print (x-y)
	
	½ mark for each correction
		2

20	(a) Find output generated by the following code: Str = "Computer" Str = Str[-4:] print(Str*2) Ans:	2

	uteruter OR Consider the following lines of codes in Python and write the appropriate output: student = {'rollno':1001, 'name':'Akshay', 'age':17} student['name']= “Abhay” print(student) Ans: {'rollno': 1001, 'name': 'Abhay', 'age': 17}	
21	What do you mean by Foreign key? How it is related with Referential Integrity? Ans: A foreign key is a non-key attribute whose value is derived from the primary key of another table. The relationship between two tables is established with the help of foreign key. Referential integrity is implemented on foreign key. 1 mark for explanation and 1 mark for relation with referential integrity.	2

22	Find output generated by the following code:
	string="aabbcc"
	count=3
	while True:
	  if string[0]=='a':
	  string=string[2:]
	  elif string[-1]=='b':
	  string=string[:2]
	  else:
	  count+=1
	  break
	print(string)
	print(count)
	
	Ans:
	bbcc
	4
		2

23	Expand the following terms: i. NIC ii. TCP/IP iii. POP iv. SMTP Ans: i. Network Interface Card ii. Transmission Control Protocol/ Internet Protocol iii. Post Office Protocol iv. Simple Mail Transfer Protocol ½ mark for each expansion	2
24	Write one advantage and one disadvantage of each – STAR Topology and Tree Topology ½ marks for each advantage and disadvantage OR	2

	What do you mean by Guided Media? Name any three guided media? Ans – Guided media – Physical Connection – ½ mark Twisted pair cable, Co-axial cable, Fiber-optic cable) ½ mark for each name	
25	Differentiate between DDL and DML? Ans: Data Definition Language (DDL): This is a category of SQL commands. All the commands which are used to create, destroy, or restructure databases and tables come under this category. Examples of DDL commands are - CREATE, DROP, ALTER. Data Manipulation Language (DML): This is a category of SQL commands. All the commands which are used to manipulate data within tables come under this category. Examples of DML commands are - INSERT, UPDATE, DELETE. OR Write the main difference between INSERT and UPDATE Commands in SQL Ans: INSERT used to insert data into a table. UPDATE used to update existing data within a table.	2
	SECTION - C	

26	Write definition of a method/function AddOdd(VALUES) to display sum of odd values from the list of VALUES
	
	Ans:
	def AddOdd(Values):
	n=len(NUMBERS)
	s=0
	for i in range(n):
	if (i%2!=0):
	s=s+NUMBERS[i]
	print(s)
	
	(2 Marks for Logic 1 mark for function definition)
		3

27	Define a function SHOWWORD () in python to read lines from a text file STORY.TXT, and display those words, whose length is less than 5.
	
	Ans:
	def SHOWWORD () :
	c=0
	file=open('STORY.TXT,'r')
	line = file.read()
	word = line.split()
	for w in word:
	if len(w)<5:
	print(w)
	file.close()
		3

(½ Mark for opening the file)
(½ Mark for reading line and/or splitting)
(½ Mark for checking condition)
(½ Mark for printing word)

OR

Write a user defined function in python that displays the number of lines starting with 'H' in the file para.txt

Ans:

```
def count H( ):
   f = open (“para.txt” , “r” )
   lines =0
   l=f. readlines ()
   for i in L:
      if i [0]== ‘H’:
         lines +=1
   print (“No. of lines are: “ , lines)
```

(½ Mark for opening the file)
(½ Mark for reading line and/or splitting)
(½ Mark for checking condition)
(½ Mark for printing word)

28 Write the outputs of the SQL queries (a) to (c) based on the relation **Furniture** 3

No	Itemname	Type	Dateofstock	Price	Discount
1	White lotus	Double Bed	23/02/02	30000	25
2	Pink feather	Baby Cot	20/01/02	7000	20
3	Dolphin	Baby Cot	19/02/02	9500	20
4	Decent	Office Table	01/01/02	25000	30
5	Comfort Zone	Double Bed	12/01/02	25000	25
6	Donald	Baby Cot	24/02/02	6500	15
7	Royal finish	Office Table	20/02/02	18000	30
8	Royal tiger	Sofa	22/02/02	31000	30
9	Econo sitting	Sofa	13/12/01	9500	25
10	paradise	Dining Table	19/02/02	11500	25
11	Wood Comfort	Double Bed	23/03/03	25000	25
12	Old Fox	Sofa	20/02/03	17000	20
13	Micky	Baby Cot	21/02/03	7500	15

(a) SELECT Itemname FROM Furniture WHERE Type="Double Bed";
(b) SELECT MONTHNAME(Dateofstock) FROM Furniture WHERE Type="Sofa";
(c) SELECT Price*Discount FROM Furniture WHERE Dateofstock>31/12/02;

Ans:

(a) Itemane White lotus Comfort Zone Wood Comfort	(b) MONTHNAME(Dateofstock) February December February	(c) Price*DIscount 625000 340000 112500

(1 mark for correct Answer)

29 | Consider the following table GAMES | 3

GCode	GameName	Number	PrizeMoney	ScheduleDate
101	Carom Board	2	5000	23-Jan-2004
102	Badminton	2	12000	12-Dec-2003
103	Table Tennis	4	8000	14-Feb-2004
105	Chess	2	9000	01-Jan-2004
108	Lawn Tennis	4	25000	19-Mar-2004

Write the output for the following queries :

(i) SELECT COUNT(DISTINCT Number) FROM GAMES;

(ii) SELECT MAX(ScheduleDate),MIN(ScheduleDate) FROM GAMES;

(iii) SELECT SUM(PrizeMoney) FROM GAMES;

Ans:

(i) 2

(ii) 19-Mar-2004 12-Dec-2003

(iii)59000

30 | Write PushOn(Book) and Pop(Book) methods/functions in Python to add a new Book and delete a Book from a list of Book titles, considering them to act as push and pop operations of the Stack data structure. | 3

Ans:

```
def PushOn(Book):
    a=input("enter book title :")
    Book.append(a)

def Pop(Book):
    if (Book = =[ ]):
        print("Stack empty")
    else:
        print("Deleted element :")
        Book.pop()
```

OR

Mr.Ajay has created a list of elements. Help him to write a program in python with functions, PushEl(element) and PopEl(element) to add a new element and delete an element from a List of element Description, considering them to act as push and pop operations of the Stack data structure . Push the element into the stack only when the element is divisible by 4.

For eg:if L=[2,5,6,8,24,32]
then stack content will be 32 24 8

Ans:

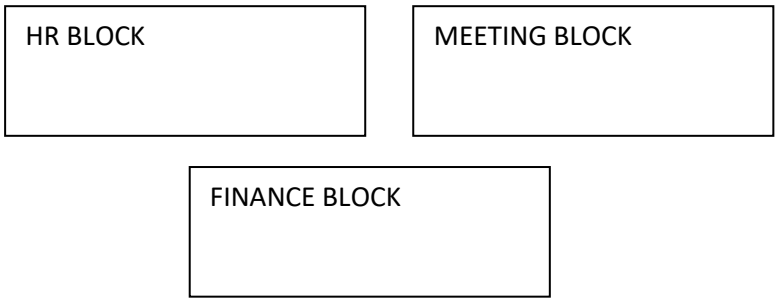
```
N=[12, 13, 34, 56, 21, 79, 98, 22, 35, 38]
def PUSHEl(S,N):
  S.append(N)
def POPEl(S):
  if S!=[]:
    return S.pop()
  else:
```

```
    return None
ST=[]
for k in N:
  if k%4==0:
     PUSH(ST,k)
while True:
  if ST!=[]:
    print(POP(ST),end=" ")
  else: break
```

SECTION - D

31 India Tech Solutions (ITS) is a professional consultancy company. The company is planning to set up their new offices in India with its hub at Hyderabad. As a network adviser, you have to understand their requirement and suggest them the best available solutions. Their queries are mentioned as (i) to (v) below. 5

Physical locations of the blocks of TTC



Block to block distance (in m)

Block (From)	Block (To)	Distance
HR Block	MEETING	110
HR Block	Finance	40
MEETING	Finance	80

Expected number of computers

Block	Computers
HR	25
Finance	120
MEETING	90

(i)Which will be the most appropriate block, where TTC should plan to install their server?
(ii) Draw a block to block cable layout to connect all the buildings in the most appropriate manner for efficient communication.
(iii)What will be the best possible connectivity out of the following, you will suggest to connect the new set up of offices in Bengalore with its London based office.

- Satellite Link
- lInfrared
- Ethernet

(iv)Which of the following device will be suggested by you to connect each computer in each of the buildings?

- l Switch
- l Modem
- l Gateway

(v) Company is planning to connect its offices in Hyderabad which is less than 1 km. Which type of network will be formed?

Ans:
(i) TTC should install its server in finance block as it is having maximum number of computers.
(ii) Any suitable lyout
(iii) Satellite Link.
(iv) Switch.
(v) LAN

32 (a) Find the output of the following: 2

```
fruit_list1 = ['Apple', 'Berry', 'Cherry', 'Papaya']
fruit_list2 = fruit_list1
fruit_list3 = fruit_list1[:]
fruit_list2[0] = 'Guava'
fruit_list3[1] = 'Kiwi'
sum = 0
for ls in (fruit_list1, fruit_list2, fruit_list3):
   if ls[0] == 'Guava':
      sum += 1
   if ls[1] == 'Kiwi':
      sum += 20
print (sum)
```

Ans. Output is:
22

(b) Consider the table 3

TRAINER

TID	TNAME	CITY	HIREDATE	SALARY
101	SUNAINA	MUMBAI	1998-10-15	90000
102	ANAMIKA	DELHI	1994-12-24	80000
103	DEEPTI	CHANDIGARG	2001-12-21	82000
104	MEENAKSHI	DELHI	2002-12-25	78000
105	RICHA	MUMBAI	1996-01-12	95000
106	MANIPRABHA	CHENNAI	2001-12-12	69000

The Following program code is used to increase the salary of Trainer SUNAINA by 2000.

Note the following to establish connectivity between Python and MYSQL:
- Username is root
- Password is system
- The table exists in a MYSQL database named Admin.

Write the following missing statements to complete the code:
Statement 1 – to form the cursor object
Statement 2 – to execute the command that inserts the record in the table Student.
Statement 3- to add the record permanently in the database

```
import mysql.connector as mydb
mycon = mydb.connect
      (host = "localhost",
      user = "root",
      passwd = "system",
```

database = "Admin")
cursor = _____ **#Statement 1**
sql = "UPDATE **TRAINER** SET SALARY = SALARY + 2000
WHERE TNAME = 'SUNAINA'"
cursor. _____ **#Statement 2**
_____ **#Statement 3**
mycon.close( )

Ans:
Statement 1 – `mycon.cursor ( )`
Statement 2 – `execute(sql).`
Statement 3- `mycon.commit ( )`

OR

(a) Write the output of the following Python program code: 2

```
my_dict = {}
my_dict[(1,2,4)] = 8
my_dict[(4,2,1)] = 10
my_dict[(1,2)] = 12
sum = 0
for k in my_dict:
   sum += my_dict[k]
print (sum)
print(my_dict)
```

Ans. Output is:
30
{(1, 2, 4): 8, (4, 2, 1): 10, (1, 2): 12}

(b) Consider the table 3

TABLE : **GRADUATE**

S.NO	NAME	STIPEND	SUBJECT	AVERAGE	DIV
1	KARAN	400	PHYSICS	68	I
2	DIWAKAR	450	COMP Sc	68	I
3	DIVYA	300	CHEMISTRY	62	I
4	REKHA	350	PHYSICS	63	I
5	ARJUN	500	MATHS	70	I
6	SABINA	400	CHEMISTRY	55	II
7	JOHN	250	PHYSICS	64	I
8	ROBERT	450	MATHS	68	I
9	RUBINA	500	COMP Sc	62	I
10	VIKAS	400	MATHS	57	II

The Following program code is used to view the details of the graduate whose subject is PHYSICS.

Note the following to establish connectivity between Python and MYSQL:
- Username is root
- Password is system
- The table exists in a MYSQL database named Admin.

Write the following missing statements to complete the code:
Statement 1 – to import the proper module

	Statement 2 – to create the cursor object. Statement 3- to Close the connection import _____ as mydb **#Statement 1** mycon = mydb.connect (host = "localhost", user = "root", passwd = "system", database = "Admin") cursor = _____ **#Statement 2** sql = "SELECT * FROM GRADUATE WHERE SUBJECT = 'PHYSICS'" cursor. execute(sql) mycon.commit ( ) _____ **#Statement 3** Ans: Statement 1 – mysql.connector Statement 2 –. mycon.cursor ( ) Statement 3- mycon.close( )	

33	Sumit is a programmer who is working on a project that requires student data of a school to be stored in a CSV file. Student data consists of roll no, name, class and section. He has written a program to obtain the student data from user and write it to a CSV file. After getting errors in the program he left five statements blank in the program as shown below. Help him to find the answer of the following questions to find the correct code for missing statements.
	
	#Incomplete Code
	import_____ #Statement 1
	fh = open(_____, _____, newline=' ') #Statement 2
	stuwriter = csv._____ #Statement 3
	data = []
	header = ['ROLL_NO', 'NAME', 'CLASS', 'SECTION']
	data.append(header)
	
	for i in range(5):
	roll_no = int(input("Enter Roll Number : "))
	name = input("Enter Name : ")
	Class = input("Class : ")
	section = input("Enter Section : ")
	rec = [_____] #Statement 4
	data.append(rec)
	stuwriter. _____ (data) #Statement 5
	fh.close()
	
	(i) Identify the suitable code for blank space in line marked as Statement 1.
	(ii) Identify the missing code for blank space in line marked as Statement 2.
	(iii) Choose the function name (with argument) that should be used in the blank space of line marked as Statement 3.
	(iv) Identify the suitable code for blank space in line marked as Statement 4.
	(v) Choose the function name that should be used in the blank space of line marked as Statement 5 to create the desired CSV file?
	
	Ans.
	(i) csv
	(ii) "Student.csv","w"
		5

(iii) writer(fh)
(iv) roll_no,name,Class,section
(v) writerows()

OR

What are the advantages of binary file over text file? Write a Python program in Python to search the details of the employees (name, designation and salary) whose salary is greater than 5000. The records are stored in the file emp.dat. consider each record in the file emp.dat as a list containing name, designation and salary.

Ans.
In binary file, there is no terminator for a line and the data is stored after converting it into machine understandable binary language. A binary file stores the data in the same way as stored in the memory. Like text file we can't read a binary file using a text editor.
---------- 2 marks (any suitable difference)

```
import pickle as p
L=[]
with open('emp.dat','rb') as f:
    L=p.load(f)
for r in L:
    if r[2]>5000:
        print("name=",r[0])
        print("designation=",r[1])
        print("salary=",r[2])
```
----------3 marks (any suitable code)

SECTION - E

34 Based on given table "DITERGENTS" answer following questions.

PID	PName	Price	Category	Manufacturer
1	Nirma	40	Detergent Powder	Nirma Group
2	Surf	80	Detergent Powder	HL
3	Vim Bar	20	Disc washing Bar	HL
4	Neem Face Wash	50	Face Wash	Himalaya

a) Write SQL statement to display details of all the products not manufactured by HL. 1
b) Write SQL statement to display name of the detergent powder manufactured by HL. 1
c) Write SQL statement to display the name of the Product whose price is more than 0.5 hundred. 2

OR

c) Write SQL statement to display name of all such Product which start with letter 'N'

Ans:

a) Select * from DITERGENTS where manufacturer = 'HL';
b) Select Pname from DITERGENTS where manufacturer != 'HL';
c) Select Pname from DITERGENTS where price > price/100;

or

c) Select Pname from DITERGENTS where left(pname) = 'N';

35	Arun is a class XII student of computer science. The CCA in-charge of his school wants to display the words form a text files which are less than 4 characters. With the help of his computer teacher Arun has developed a method/function FindWords() for him in python which read lines from a text file Thoughts. TXT, and display those words, which are lesser than 4 characters. His teachers kept few blanks in between the code and asked him to fill the blanks so that the code will run to find desired result. Do the needful with the following python code.
	
	def FindWords():
	  c=0
	  file=open('NewsLetter.TXT', '_____') #Statement-1
	  line = file._____ #Statement-2
	  word = _____ #Statement-3
	  for c in word:
	  if _____: #Statement-4
	  print(c)
	  _____ #Statement-5
	FindWords()
	
	(i) Write mode of opening the file in statement-1?
	(ii) Fill in the blank in statement-2 to read the data from the file.
	(iii) Fill in the blank in statement-3 to read data word by word
	(iv) Fill in the blank in statement-4, which display the word having lesser than 4 characters
	
	OR (Only for iii and iv above)
	(v) Fill in the blank in Statement-5 to close the file.
	(vi) Which method of text file will read only one line of the file?
	
	Ans:
	(i) r
	(ii) read()
	(iii) line.split()
	(iv) len(c)<4
	
	OR (Only for iii and iv above)
	(iii) file.close()
	(iv) readline()
		1+1+2

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SQP1/CS (083)/XII/2022-23/Full Syllabus

Maximum Marks: 70 **Time Allowed: 3 hours**

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A has 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each. One internal choice is given in Q35 against part C only.
8. All programming questions are to be answered using Python Language only.

SECTION A		
1.	State True or False "In Python, data type of a variable depends on its value"	(1)
2.	Which of the following datatype in Python supports concatenation? a) int b) float c) bool d) str	(1)

3.	What will be output of the following code:
	`d1={1:2,3:4,5:6}`
	`d2=d1.popitem()`
	`print(d2)`
	
	a) `{1:2}` b) `{5:6}` c) `(1,2)` d) `(5,6)`
		(1)

4.	Consider the given expression: `(not True) and False or True` Which of the following is the correct value of the expression? a) True b) False c) None d) NULL	(1)
5.	Fill in the blank: _____ command is used to add a new column in a table in SQL. a) update b) remove c) alter d)drop	(1)
6.	Which of the following mode in file opening statement generates an error if the file exists? a) a+ b) r+ c) w+ d) None of these	(1)
7.	Which of the following commands can remove all the data from a table in a MYSQL database? a) DELETE b) DROP c) REMOVE d) ALTER	(1)
8.	Fill in the blank: A candidate key, which is not the primary key of a table, is a/an _____. a) Primary Key b) Foreign Key c) Candidate Key d) Alternate Key	(1)

9.	Select the correct output of the code:
	`a = "Year 2022 at all the best"`
	`a = a.split('a')`
	`b = a[0] + "-" + a[1] + "-" + a[3]`
	`print (b)`
	
	a) `Year - 0- at All the best`
	b) `Ye-r 2022 -ll the best`
	c) `Year - 022- at All the best`
	d) `Year - 0- at all the best`
		(1)

10.	Which of the following statement(s) would give an error during execution?
	`S=["CBSE"]  # Statement 1`
	`S+="Delhi"  # Statement 2`
	`S[0]= '@'  # Statement 3`
	`S=S+"Thank you"  # Statement 4`
	a) Statement 1 b) Statement 2 c) Statement 3 d) Statement 4
		(1)

11.	The method seek() returns: a) an integer b) a file object c) a record d) None	(1)
12.	Select the correct statement, with reference to SQL: a) Aggregate functions ignore NULL b) Aggregate functions consider NULL as zero or False c) Aggregate functions treat NULL as a blank string d) NULL can be written as 'NULL' also.	(1)
13.	Which protocol is used for sending, but can also be used for receiving e-mail? a) VoIP b) SMTP c) PPP d)HTTP	(1)
14.	What will the following expression be evaluated to in Python? `15.0 // 4 * 5 / 3` a) 6.25 b) 5 c) 5.0 d) 0.25	(1)
15.	Which function is used to display the total number of data values (except NULL) from a column in a table? a) sum() b) total() c) count() d) IS NOT NULL	(1)
16.	In context of Python - Database connectivity, the function `fetchone()` is a method of which object? a) connection b) database c) cursor d) query	(1)
	Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as a) Both A and R are true and R is the correct explanation for A b) Both A and R are true and R is not the correct explanation for c) A is True but R is False d) A is false but R is True	
17.	Assertion (A):- The number of actual parameters in a function call may not be equal to the number of formal parameters of the function. Reasoning (R):- During a function call, it is optional to pass the values to default parameters.	(1)
18.	Assertion (A): A tuple can be concatenated to a list, but a list cannot be concatenated to a tuple. Reason (R): Lists are mutable and tuples are immutable in Python.	(1)

SECTION B

19. Mohini has written a code to input a positive integer and display all its even factors in descending order. Her code is having errors. Rewrite the correct code and underline the corrections made. (2)

```
n=input("Enter a positive integer: ")
for i in range(n):
    if i%2:
    if n%i==0:
    print(i,end=' ')
```

20. Write two points of difference between twisted pair cable and optical fiber cable. (2)

OR

Write two points of difference between radio waves and micro waves.

21. (a) Given is a Python string declaration: (1)

```
myexam="Russia Ukrain"
```

Write the output of: `print(myexam[-2:2:-2])`

(b) Write the output of the code given below: (1)

```
d1 = {"name": "Aman", "age": 26}
d2 = {27:'age','age':28}
d1.update(d2)
print(d1.values())
```

22. Explain the use of 'Foreign Key' in a Relational Database. Give an example to support your answer. (2)

23. (a) Write the full forms of the following: (i) POP (ii) HTTPS (1)
(b) Name the protocol used for remote login. (1)

24. Predict the output of the Python code given below: (2)

```
def Alpha(N1,N2):
    if N1>N2:
        print(N1%N2)
    else: print(N2//N1,'#',end=' ')
NUM=[10,23,14,54,32]
for C in range (4,0,-1):
    A=NUM[C]
    B=NUM[C-1]
     Alpha(A,B)
```

OR

Predict the output of the Python code given below:

```
List1 = list("Examination")
List2 =List1[1:-1]
new_list = []
for i in List2:
    j=List2.index(i)
    if j%2==0:
        List1.remove(i)
print(List1)
```

25. Consider the following two commands with reference to a table, named Students, having a column named Section: (2)

(a) `Select count(Section) from Students;`

(b) `Select count(*) from Students;`

If these two commands are producing different results,

(i) What may be the possible reason?

(ii) Which command, (a) or (b), might be giving higher value?

OR

Name the aggregate functions which work only with numeric data, and those that work with any type of data.

SECTION C

26. (a) Consider the following tables – Bank_Account and Branch: (1)

Table: Bank_Account

ACode	Name	Type
A01	Amrita	Savings
A02	Parthodas	Current
A03	Miraben	Current

Table: Branch

ACode	City
A01	Delhi
A02	Mumbai
A01	Nagpur

What will be the degree and cardinality of the Cartesian product and the Natural join of these tables?

(b) Write the output of the queries (i) to (iv) based on the table TECH_COURSE given below: (2)

Table: TECH_COURSE

CID	CNAME	FEES	STARTDATE	TID
C201	Animation and VFX	12000	2022-07-02	101
C202	CADD	15000	2021-11-15	NULL
C203	DCA	10000	2020-10-01	102
C204	DDTP	9000	2021-09-15	104
C205	Mob App Development	18000	2022-11-01	101
C206	Digital marketing	16000	2022-07-25	103

```
(i)     SELECT TID FROM TECH_COURSE;
(ii)    SELECT TID, sum(fees), MIN(FEES) FROM TECH_COURSE
        GROUP BY TID HAVING COUNT(TID)=1;
(iii)   SELECT CNAME FROM TECH_COURSE WHERE FEES>15000
        and Cname like 'D%';
(iv)    SELECT MAX(FEES) FROM TECH_COURSE WHERE FEES
        BETWEEN 15000 AND 17000;
```

27. (3)

Write a method `SHOWLINES()` in Python to read lines from text file 'TESTFILE.TXT' and display the lines which do not contain 'ke'.

Example: If the file content is as follows:
An apple a day keeps the doctor away.
We all pray for everyone's safety.
A marked difference will come in our country.

The `SHOWLINES()` function should display the output as:
We all pray for everyone's safety.

OR

Write a function `RainCount()` in Python, which should read the content of a text file "TESTFILE.TXT" and then count and display the count of occurrence of word RAIN (case-insensitive) in the file.

Example: If the file content is as follows:
It rained yesterday
It might rain today
I wish it rains tomorrow too
I love Rain

The `RainCount()` function should display the output as: Rain - 2

28. (3)

(a) Write the outputs of the SQL queries (i) to (iv) based on the relations Teacher and Placement given below:

Table : Teacher

T_ID	Name	Age	Department	Date_of_join	Salary	Gender
1	Arunan	34	Computer Sc	2019-01-10	12000	M
2	Saman	31	History	2017-03-24	20000	F
3	Randeep	32	Mathematics	2020-12-12	30000	M
4	Samira	35	History	2018-07-01	40000	F
5	Raman	42	Mathematics	2021-09-05	25000	M
6	Shyam	50	History	2019-06-27	30000	M
7	Shiv	44	Computer Sc	2019-02-25	21000	M
8	Shalakha	33	Mathematics	2018-07-31	20000	F

Table : Placement

P_ID	Department	Place
1	History	Ahmedabad
2	Mathematics	Jaipur
3	Computer Sc	Nagpur

```
(i)     SELECT Department, max(salary) FROM Teacher
        GROUP BY Department;
(ii)    SELECT MAX(Date_of_Join),MIN(Date_of_Join) FROM
        Teacher;
(iii)   SELECT Name, Salary, T.Department, Place FROM
        Teacher T, Placement P WHERE T.Department =
        P.Department AND P.Department='History';
(iv)    SELECT Name, Place FROM Teacher natural join
        Placement where Gender='F';
```

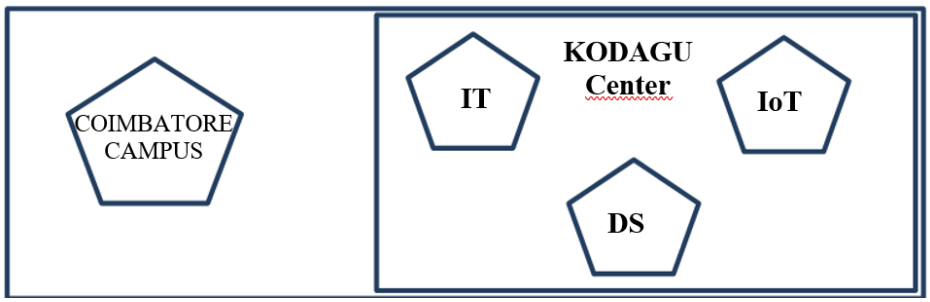
(b) Write the command to view all the databases in an RDBMS.

29.	Write a function `INDEX_LIST(S)`, where S is a string. The function returns a list named 'indexList' that stores the indices of all vowels of S. For example: If S is "Computer", then indexList should be [1,4,6]	(3)

30.	A list contains following record of a doctor:
	[Doc_ID, Doc_name, Phone_number, Speciality]
	
	Write the following user defined functions to perform given operations on the stack named "**status**":
	(i) Push_element() - To Push an object containing Doc_ID and Doc_name of doctors who specialize in Anesthesia to the stack.
	
	(ii) Pop_element() - To Pop the objects from the stack and display them. Also, display "Stack Empty" when there are no elements in the stack.
	
	For example: If the lists of Doctors' details are:
	
	['D01', "Gurdas", "99999999999","Anesthesia"]
	["D02", "Julee", "8888888888","cardiology"]
	["D03","Murugan","77777777777","Anesthesia"]
	["D04","Ashmit", "1010101010","Medicine"]
	
	The stack should contain
	['D03', 'Murugan']
	['D01', 'Gurdas']
	
	The output should be:
	['D03', 'Murugan']
	['D01', 'Gurdas']
	Stack Empty
	
	OR
	
	Write a function in Python, Push(KItem), where KItem is a dictionary containing the details of Kitchen items- {Item:price}.
	
	The function should push the names of those items in a stack which have price less than 100. Also display the average price of elements pushed into the stack.
	
	For example: If the dictionary contains the following data:
	`{"Spoons":116,"Knife":50,"Plates":180,"Glass":60}`
	
	The stack should contain
	Glass
	Knife
	The output should be:
	`The average price of an item is 55.0`
		(3)

SECTION D

31. Total-IT Corporation, a Karnataka based IT training company, is planning to set up training centers in various cities in next 2 years. Their first campus is coming up in Kodagu district. At Kodagu campus, they are planning to have 3 different blocks, one for AI, IoT and DS (Data Sciences) each. Each block has number of computers, which are required to be connected in a network for communication, data and resource sharing. As a network consultant of this company, you have to suggest the best network related solutions for them for issues/problems raised in question nos. (i) to (v), keeping in mind the distances between various blocks/locations and other given parameters.



Distance between various blocks/locations:

Block	Distance
IT to DS	28 m
IT to IoT	55 m
DS to IoT	32 m
Kodagu Campus to Coimbatore Campus	304 km

Number of computers:

Block	Number of Computers
IT	75
DS	50
IoT	80

(i) Suggest the most appropriate block/location to house the SERVER in the Kodagu campus (out of the 3 blocks) to get the best and effective connectivity. Justify your answer. (1)

(ii) Suggest a device/software to be installed in the Kodagu Campus to take care of data security. (1)

(iii) Suggest the best wired medium and draw the cable layout (Block to Block) to most efficiently connect various blocks within the Kodagu Campus. (1)

(iv) Suggest the placement of the following devices with appropriate reasons: a) Switch/Hub b) Router (1)

(v) Suggest a protocol that shall be needed to provide Video Conferencing solution between Kodagu Campus and Coimbatore Campus. (1)

32. (a) Write the output of the code given below: (2)

```
p=8
def sum(q,r=5):
   global p
   p=(r+q)**2
   print(p, end= '#')
a=2; b=5; sum(b,a)
sum(r=3,q=2)
```

(b) The code given below accepts the roll number of a student and increases the marks of that student by 5 in the table Student. The structure of a record of table Student is: (3)

RollNo - integer; Name - string; Clas - integer; Marks - integer

Note the following to establish connectivity between Python and MYSQL:

- Username is root
- Password is abc
- The table exists in a MYSQL database named **school**.

Write the following missing statements to complete the code:

```
import mysql.connector as mysql def sql_data():
con1=mysql.connect(host="localhost",user="root",
password="abc")
mycursor= con1.cursor()
____________________   #Statement 1
rno=int(input("Enter Roll Number :: "))
name=input("Enter name :: ")
querry="update student set marks=marks+5 where
RollNo={}".format(rno)
____________________________     #Statement 2
____________________________     # Statement 3
print("Data updated successfully")
```

Statement 1 - to open/activate the **school** database.
Statement 2 - to execute the command that updates the record in the table Student.
Statement 3- to make the updation in the database permanent

OR

(a) Predict the output of the code given below:

```
s="3 & Four"
n = len(s)
m=""
for i in range(0, n):
    if (s[i] >= 'A' and s[i] <= 'Z'):
        m =   m +s[i].upper()
    elif (s[i] >= 'a' and s[i] <= 'z'):
        m = m +s[i-1]
    if (s[i].isdigit()):
        m = m + s[i].lower()
    else: m = m +'-'
print(m)
```

	(b) The code given below reads records from the table named student and displays only those records who have marks greater than 75. The structure of a record of table Student is:
	RollNo – integer; Name – string; Clas – integer; Marks – integer
	
	Note the following to establish connectivity between Python and MYSQL:
	• Username is root
	• Password is abc
	• The table exists in a MYSQL database named **school**.
	• The details (RollNo, Name, Clas and Marks) are to be accepted from the user.
	Write the following missing statements to complete the code:
	Statement 1 – to create the cursor object
	Statement 2 – to execute the query that extracts records of those students whose marks are greater than 75.
	Statement 3 - to read the complete result of the query (records whose marks are greater than 75) into the object named data, from the table student in the database.
	
	`import mysql.connector as mysql`
	`def sql_data():`
	`  con1=mysql.connect(host="localhost",user="root",`
	`  password="abc", database="school")`
	`  mycursor= _____ #Statement 1`
	`  print("Students with marks greater than 75 are : ")`
	`  _____ #Statement 2`
	`  data= _____ #Statement 3`
	`  for i in data:`
	`  print(i)`	

33.	(a) What is the advantage of using a csv file for permanent storage? (b) Write a Program in Python that defines and calls the following user defined functions: (i) ADD() – To accept and add data of an item to a CSV file 'furniture.csv'. Each record consists of Fur_id, Description, Price, and Discount. (ii) COUNTR() – To count the number of records present in 'furniture.csv' whose price is less than 5000. **OR** (a) Give any one point of difference between a binary file and a csv file. (b) Write a Program in Python that defines and calls the following user defined functions: (i) ADD() – To accept and add data of an item to a binary file 'furniture.dat'. Each record of the file is a list [Fur_id, Description, Price, and Discount]. Fur_Id and Description are of str type, Price is of int type, and Discount is of float type. (ii) COUNTR() – To count the number of records present in 'furniture.dat' whose price is less than 5000.	(5)

SECTION E

34. Tushar is a Python programmer. He has written a code and created a binary file record.dat with employeeid, ename and salary. The file contains 10 records. (4)

He now has to delete a record based on the employee id entered by the user. For this purpose, he creates a temporary file, named temp.dat, to store all the records other than the record to be deleted. If the employee id is not found, an appropriate message should to be displayed.

As a Python expert, help him to complete the following code (by completing statements 1, 2, 3, and 4) based on the requirement given above:

(i) Complete Statement#1 to import the required module.
(ii) Write the correct statement required to open a temporary file named temp.dat. (#Statement 2)
(iii) Which statement should Aman fill in Statement 3 to read the data from the binary file, record.dat
(iv) What should be written in Statement 4 to write the required records in the file temp.dat?

```
import  ___________                #Statement 1
def update_data():
   rec={}
   fin=open("record.dat","rb")
   fout=open("_____________","___")    #Statement 2
   found=False
   eid=int(input("Enter employee id: "))
   while True:
      try:
         rec= _________________   #Statement 3
         if rec["Employee id"]==eid:
            found=True
         else:
            _____________________    #Statement 4
      except:
         break
   if found==True:
      print("Record deleted.")
   else:
      print("Employee with such id is not found")
   fin.close()
fout.close()
```

35. Navdeep creates a table RESULT with a set of records to maintain the marks secured by students in Sem1, Sem2, Sem3 and their division. After creation of the table, he has entered data of 7 students in the table. (4)

ROLL_NO	SNAME	SEM1	SEM2	SEM3	DIVISION
101	KARAN	366	410	402	I
102	NAMAN	300	350	325	I
103	ISHA	400	410	415	I
104	RENU	350	357	415	I
105	ARPIT	100	75	178	IV
106	SABINA	100	205	217	II
107	NEELAM	470	450	471	I

Based on the data given above answer the following questions:

(i) Can Name be a candidate key of the table? Justify your answer.

(ii) If a column is added and 3 rows are deleted from the table result, what will be the new degree and cardinality of the above table?

(iii) Write the statements to:

a) Insert the following record into the table
Roll_No- 108, Name- Aadit, Sem1- 470, Sem2-444, Sem3-475, Div- I.

b) Increase the SEM2 marks of the students by 3% whose Name ends with 'A'.

OR (Option for part iii only)

(iii) Write the statements to:

a) Delete the record of students securing IV division.

b) Add a column GRADE, of type char of length 3 characters to the RESULT table.

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AnsKey/SQP1/CS (083)/XII/2022-23/Full Syllabus

SECTION A		
1.	State True or False "In Python, data type of a variable depends on its value" **True**	(1)
2.	Which of the following datatype in Python supports concatenation? a) int b) float c) bool **d) str**	(1)

3.	What will be output of the following code:
	`d1={1:2,3:4,5:6}`
	`d2=d1.popitem()`
	`print(d2)`
	a) `{1:2}` b) `{5:6}` c) `(1,2)` **d) (5,6)**
		(1)

4.	Consider the given expression: `(not True) and False or True` Which of the following is the correct value of the expression? **a) True** b) False c) None d) NULL	(1)
5.	Fill in the blank: _____ command is used to add a new column in a table in SQL. a) update b) remove **c) alter** d)drop	(1)
6.	Which of the following mode in file opening statement generates an error if the file exists? a) a+ b) r+ c) w+ **d) None of these**	(1)
7.	Which of the following commands can remove all the data from a table in a MYSQL database? **a) DELETE** b) DROP c) REMOVE d) ALTER	(1)
8.	Fill in the blank: A candidate key, which is not the primary key of a table, is a/an _____. a) Primary Key b) Foreign Key c) Candidate Key **d) Alternate Key**	(1)

9.	Select the correct output of the code:
	`a = "Year 2022 at all the best"`
	`a = a.split('a')`
	`b = a[0] + "-" + a[1] + "-" + a[3]`
	`print (b)`
	a) `Year - 0- at All the best`
	b) `Ye-r 2022 -ll the best`
	c) `Year - 022- at All the best`
	d) `Year - 0- at all the best`
		(1)

10.	Which of the following statement(s) would give an error during execution?
	`S=["CBSE"] # Statement 1`
	`S+="Delhi" # Statement 2`
	`S[0]= '@' # Statement 3`
	`S=S+"Thank you" # Statement 4`
	a) Statement 1 b) Statement 2 c) Statement 3 **d) Statement 4**
		(1)

11.	The method seek() returns: **a) an integer** b) a file object c) a record d) None	(1)
12.	Select the correct statement, with reference to SQL: **a) Aggregate functions ignore NULL** b) Aggregate functions consider NULL as zero or False c) Aggregate functions treat NULL as a blank string d) NULL can be written as 'NULL' also.	(1)
13.	Which protocol is used for sending, but can also be used for receiving e-mail? a) VoIP **b) SMTP** c) PPP d)HTTP	(1)
14.	What will the following expression be evaluated to in Python? `15.0 // 4 * 5 / 3` a) 6.25 b) 5 **c) 5.0** d) 0.25	(1)
15.	Which function is used to display the total number of data values (except NULL) from a column in a table? a) sum() b) total() **c) count()** d) IS NOT NULL	(1)
16.	In context of Python - Database connectivity, the function `fetchone()` is a method of which object? a) connection b) database **c) cursor** d) query	(1)
	Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as a) Both A and R are true and R is the correct explanation for A b) Both A and R are true and R is not the correct explanation for c) A is True but R is False d) A is false but R is True	
17.	Assertion (A):- The number of actual parameters in a function call may not be equal to the number of formal parameters of the function. Reasoning (R):- During a function call, it is optional to pass the values to default parameters. **a)**	(1)
18.	Assertion (A): A tuple can be concatenated to a list, but a list cannot be concatenated to a tuple. Reason (R): Lists are mutable and tuples are immutable in Python. **d)**	(1)
	SECTION B	

19.	Mohini has written a code to input a positive integer and display all its even factors in descending order. Her code is having errors. Rewrite the correct code and underline the corrections made.
	`n=input("Enter a positive integer: ")`
	`for i in range(n):`
	`  if i%2:`
	`  if n%i==0:`
	`  print(i,end=' ')`
	
	`n=int(input("Enter a positive integer: "))`
	`for i in range(n,1,-1):`
	`  if i%2==0:`
	`  if n%i==0:  #indent`
	`  print(i,end=' ')  #indent`
		(2)

20. Write two points of difference between twisted pair cable and optical fiber cable. **(2)**

Twisted Pair Cable	Optical Fiber Cable
It is made of metal (copper)	It is made of glass
Data gets affected by electromagnetic fields.	Data is not affected by electromagnetic fields.
Attenuation is very large.	Attenuation is very less.
(Any two differences)	

OR

Write two points of difference between radio waves and micro waves.

Radio Waves	Micro Waves
Travel in all the directions.	Travel in a single direction.
Can cross solid obstacles.	Cannot cross solid obstacles.
Data can be hacked easily.	Data cannot be hacked easily.
(Any two differences)	

21. (a) Given is a Python string declaration: **(1)**

```
myexam="Russia Ukrain"
```

Write the output of: `print(myexam[-2:2:-2])`

irUas

(b) Write the output of the code given below: **(1)**

```
d1 = {"name": "Aman", "age": 26}
d2 = {27:'age','age':28}
d1.update(d2)
print(d1.values())
```

dict_values(['Aman', 28, 'age'])

22. Explain the use of 'Foreign Key' in a Relational Database. Give an example to support your answer. **(2)**

Foreign key is used to ensure referential integrity in a Relational Database.
Example:
Let a table, named student, stores the data of all the students of a school with the field AdmNo as the Primary Key. Let another table, named Cocurry, in the same database stores the data of all the participants of co-curricular activities. Let AdmNo is a foreign key in Activity and it references AdmNo of table Student. Now, this foreign key will ensure that no invalid AdmNo is entered in the Cocurry table, thus ensuring the referential integrity.

OR

Consider the following tables in a database:
Table Student with fields: AdmNo (Primary Key), Name, Class, Section, Phone
Table Cocurry with fields: AdmNo (Foreign key reference Student(AdmNo)), Activity, Grade
The foreign key will ensure that no invalid AdmNo is entered in the Cocurry table, thus ensuring the referential integrity.

23.	(a) Write the full forms of the following: (i) POP (ii) HTTPS **(i) POP - Post Office Protocol** **(ii) HTTPS: Hyper Text Transfer Protocol Secure** (b) Name the protocol used for remote login. **Telnet**	(1) (1)

24.	Predict the output of the Python code given below:
	`def Alpha(N1,N2):`
	`  if N1>N2:`
	`  print(N1%N2)`
	`  else: print(N2//N1,'#',end=' ')`
	`NUM=[10,23,14,54,32]`
	`for C in range (4,0,-1):`
	`  A=NUM[C]`
	`  B=NUM[C-1]`
	`  Alpha(A,B)`
	
	1 # 12
	1 # 3
	
	OR
	
	Predict the output of the Python code given below:
	`List1 = list("Examination")`
	`List2 =List1[1:-1]`
	`new_list = []`
	`for i in List2:`
	`  j=List2.index(i)`
	`  if j%2==0:`
	`  List1.remove(i)`
	`print(List1)`
	
	['E', 'a', 'i', 'a', 'i', 'n']
		(2)

25.	Consider the following two commands with reference to a table, named Students, having a column named Section: (a) `Select count(Section) from Students;` (b) `Select count(*) from Students;` If these two commands are producing different results, (i) What may be the possible reason? (ii) Which command, (a) or (b), might be giving higher value? **(i) The Section column has some NULL entries** **(ii) (b) might give higher value** **OR** Name the aggregate functions which work only with numeric data, and those that work with any type of data. **sum(), avg() work only with numeric data.** **max(), and count() work with any type of data.**	(2)

SECTION C

26. (a) Consider the following tables – Bank_Account and Branch:

Table: Bank_Account

ACode	Name	Type
A01	Amrita	Savings
A02	Parthodas	Current
A03	Miraben	Current

Table: Branch

ACode	City
A01	Delhi
A02	Mumbai
A01	Nagpur

What will be the degree and cardinality of the Cartesian product and the Natural join of these tables?

	Degree	cardinality
Cartesian Product	5	9
Natural Join	4	3

(b) Write the output of the queries (i) to (iv) based on the table TECH_COURSE given below: (1)

Table: TECH_COURSE

CID	CNAME	FEES	STARTDATE	TID
C201	Animation and VFX	12000	2022-07-02	101
C202	CADD	15000	2021-11-15	NULL
C203	DCA	10000	2020-10-01	102
C204	DDTP	9000	2021-09-15	104
C205	Mob App Development	18000	2022-11-01	101
C206	Digital marketing	16000	2022-07-25	103

(i)
```
SELECT TID FROM TECH_COURSE;
+------+
| TID  |
+------+
|  101 |
| NULL |
|  102 |
|  104 |
|  101 |
|  103 |
+------+
```

(ii)
```
SELECT TID, sum(fees), MIN(FEES) FROM TECH_COURSE
GROUP BY TID HAVING COUNT(TID)=1;
+------+-----------+-----------+
| TID  | sum(fees) | MIN(FEES) |
+------+-----------+-----------+
|  102 |     10000 |     10000 |
|  104 |      9000 |      9000 |
|  103 |     16000 |     16000 |
+------+-----------+-----------+
```

(2)

(iii)
```
SELECT CNAME FROM TECH_COURSE WHERE FEES>15000
and Cname like 'D%';
```

```
+--------------------+
| CNAME              |
+--------------------+
| Digital Marketing  |
+--------------------+
```

(iv)
```
SELECT MAX(FEES) FROM TECH_COURSE WHERE FEES
BETWEEN 15000 AND 17000;
```

```
+------------+
| MAX(FEES)  |
+------------+
|      16000 |
+------------+
```

27. Write a method SHOWLINES() in Python to read lines from text file 'TESTFILE.TXT' and display the lines which do not contain 'ke'. (3)

Example: If the file content is as follows:
An apple a day keeps the doctor away.
We all pray for everyone's safety.
A marked difference will come in our country.

The SHOWLINES() function should display the output as:
We all pray for everyone's safety.

```
def SHOWLINES():
    f=open("testfile.txt")
    for line in f:
        if 'ke' not in line:
            print(line.strip())
    f.close()
```

OR

Write a function RainCount() in Python, which should read the content of a text file "RAIN.TXT" and then count and display the count of occurrence of word RAIN (case-insensitive) in the file.

Example: If the file content is as follows:
It rained yesterday
It might rain today
I wish it rains tomorrow too
I love Rain

The RainCount() function should display the output as: Rain - 2

```
def RainCount():
    f=open('rain.txt')
    data=f.read()
    data=data.upper()
    data=data.split()
    c=data.count('RAIN')
    print('Rain -',c)
```

28. (a) Write the outputs of the SQL queries (i) to (iv) based on the relations Teacher and Placement given below: (3)

Table : Teacher

T_ID	Name	Age	Department	Date_of_join	Salary	Gender
1	Arunan	34	Computer Sc	2019-01-10	12000	M
2	Saman	31	History	2017-03-24	20000	F
3	Randeep	32	Mathematics	2020-12-12	30000	M
4	Samira	35	History	2018-07-01	40000	F
5	Raman	42	Mathematics	2021-09-05	25000	M
6	Shyam	50	History	2019-06-27	30000	M
7	Shiv	44	Computer Sc	2019-02-25	21000	M
8	Shalakha	33	Mathematics	2018-07-31	20000	F

Table : Placement

P_ID	Department	Place
1	History	Ahmedabad
2	Mathematics	Jaipur
3	Computer Sc	Nagpur

(i)
```
SELECT Department, max(salary) FROM Teacher
GROUP BY Department;
```

Department	max(salary)
Computer Sc	21000
History	40000
Mathematics	30000

(ii)
```
SELECT MAX(Date_of_Join),MIN(Date_of_Join) FROM
Teacher;
```

MAX(Date_of_Join)	MIN(Date_of_Join)
2021-09-05	2017-03-24

(iii)
```
SELECT Name, Salary, T.Department, Place FROM
Teacher T, Placement P WHERE T.Department =
P.Department AND P.Department='History';
```

Name	Salary	Department	Place
Saman	20000	History	Ahmedabad
Sameera	40000	History	Ahmedabad
Shyam	30000	History	Ahmedabad

(iv)
```
SELECT Name, Place FROM Teacher natural join
Placement where Gender='F';
```

Name	Place
Saman	Ahmedabad
Sameera	Ahmedabad
Shalakha	Jaipur

(b) Write the command to view all the databases in an RDBMS.

```
Show tables;
```

29. (3)

Write a function `INDEX_LIST(S)`, where S is a string. The function returns a list named 'indexList' that stores the indices of all vowels of S.

For example: If S is "Computer", then indexList should be [1,4,6]

```
def INDEX_LIST(S):
    indexList=[]
    for i in range(len(S)):
        if S[i] in 'aeiouAEIOU':
            indexList.append(i)
    return indexList
```

30. (3)

A list contains following record of a doctor:
[Doc_ID, Doc_name, Phone_number, Speciality]

Write the following user defined functions to perform given operations on the stack named "**status**":

(i) Push_element() - To Push an object containing Doc_ID and Doc_name of doctors who specialize in Anesthesia to the stack.

(ii) Pop_element() - To Pop the objects from the stack and display them. Also, display "Stack Empty" when there are no elements in the stack.

For example: If the lists of Doctors' details are:
['D01', "Gurdas", "99999999999","Anesthesia"]
["D02", "Julee", "8888888888","cardiology"]
[D03","Murugan","77777777777","Anesthesia"]
["D04","Ashmit", "1010101010","Medicine"]

The stack should contain
['D03', 'Murugan']
['D01', 'Gurdas']

The output should be:
['D03', 'Murugan']
['D01', 'Gurdas']
Stack Empty

```
def Push_element(D):
    if D[-1]=="Anesthesia":
        status.append([D[0],D[1]])
def Pop_element():
    while status:
        print(status.pop())
    print("Stack Empty")
```

OR

Write a function in Python, Push(KItem), where KItem is a dictionary containing the details of Kitchen items- {Item:price}.
The function should push the names of those items in a stack which have price less than 100. Also display the average price of elements pushed into the stack.
For example: If the dictionary contains the following data:

```
{"Spoons":116,"Knife":50,"Plates":180,"Glass":60}
```

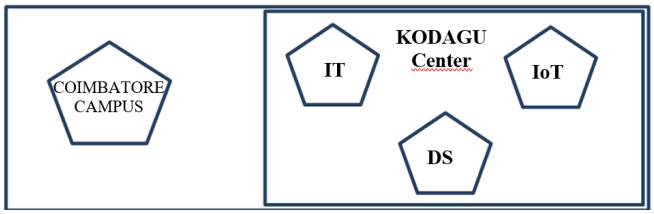
The stack should contain
Glass
Knife
The output should be:

```
The average price of an item is 55.0
```

```
def Push(KItem):
    st=[]   #stack
    c,s=0,0
    for k,v in KItem.items():
        if v<100:
            st.append(k)
            c+=1
            s+=v
    if c!=0:
        av=s/c
        print("The average price of an item is",av)
```

SECTION D

31. Total-IT Corporation, a Karnataka based IT training company, is planning to set up training centers in various cities in next 2 years. Their first campus is coming up in Kodagu district. At Kodagu campus, they are planning to have 3 different blocks, one for AI, IoT and DS (Data Sciences) each. Each block has number of computers, which are required to be connected in a network for communication, data and resource sharing. As a network consultant of this company, you have to suggest the best network related solutions for them for issues/problems raised in question nos. (i) to (v), keeping in mind the distances between various blocks/locations and other given parameters.



Distance between various blocks/locations:

Block	Distance
IT to DS	28 m
IT to IoT	55 m
DS to IoT	32 m
Kodagu Campus to Coimbatore Campus	304 km

Number of computers:

Block	Number of Computers
IT	75
DS	50
IoT	80

(i) Suggest the most appropriate block/location to house the SERVER in the Kodagu campus (out of the 3 blocks) to get the best and effective connectivity. Justify your answer. (1)

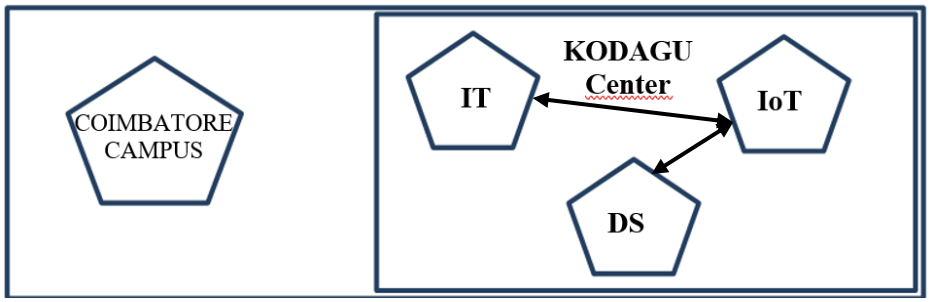
IoT block, as it has the maximum number of computers.

(ii) Suggest a device/software to be installed in the Kodagu Campus to take care of data security. (1)

Firewall

(iii) Suggest the best wired medium and draw the cable layout (Block to Block) to most efficiently connect various blocks within the Kodagu Campus. (1)

Optical fiber



(1)

(1)

(iv) Suggest the placement of the following devices with appropriate reasons: a) Switch/Hub b) Router

a) Switch/Hub: In each block to interconnect the computers in that block.

b) Router: In IoT block (with the server) to interconnect all the three blocks.

(v) Suggest a protocol that shall be needed to provide Video Conferencing solution between Kodagu Campus and Coimbatore Campus.

VoIP

32. (a) Write the output of the code given below: (2)

```
p=8
def sum(q,r=5):
   global p
   p=(r+q)**2
   print(p, end= '#')
a=2; b=5; sum(b,a)
sum(r=3,q=2)
```

49#25#

(3)

(b) The code given below accepts the roll number of a student and increases the marks of that student by 5 in the table Student. The structure of a record of table Student is:

RollNo - integer; Name - string; Clas - integer; Marks - integer

Note the following to establish connectivity between Python and MYSQL:

- Username is root
- Password is abc
- The table exists in a MYSQL database named **school**.

Write the following missing statements to complete the code:

```
import mysql.connector as mysql def sql_data():
con1=mysql.connect(host="localhost",user="root",
password="abc")
mycursor= con1.cursor()
mycursor.execute("use school;")  #Statement 1
rno=int(input("Enter Roll Number :: "))
name=input("Enter name :: ")
querry="update student set marks=marks+5 where
RollNo={}".format(rno)
mycursor.execute(querry)  #Statement 2
con1.commit()      # Statement 3
print("Data updated successfully")
```

Statement 1 - to open/activate the **school** database.

Statement 2 - to execute the command that updates the record in the table Student.
Statement 3- to make the updation in the database permanent

OR

(a) Predict the output of the code given below:

```
s="3 & Four"
n = len(s)
m=""
for i in range(0, n):
    if (s[i] >= 'A' and s[i] <= 'Z'):
        m =   m +s[i].upper()
    elif (s[i] >= 'a' and s[i] <= 'z'):
        m = m +s[i-1]
    if (s[i].isdigit()):
        m = m + s[i].lower()
    else: m = m +'-'
print(m)
```

3---F-F-o-u-

(b) The code given below reads records from the table named student and displays only those records who have marks greater than 75. The structure of a record of table Student is:
RollNo - integer; Name - string; Clas - integer; Marks - integer

Note the following to establish connectivity between Python and MYSQL:

- Username is root
- Password is abc
- The table exists in a MYSQL database named **school**.
- The details (RollNo, Name, Clas and Marks) are to be accepted from the user.

Write the following missing statements to complete the code:
Statement 1 - to create the cursor object
Statement 2 - to execute the query that extracts records of those students whose marks are greater than 75.
Statement 3 - to read the complete result of the query (records whose marks are greater than 75) into the object named data, from the table student in the database.

```
import mysql.connector as mysql
def sql_data():
   con1=mysql.connect(host="localhost",user="root",
        password="tiger", database="school")
   mycursor= con1.cursor()          #Statement 1
   print("Students with marks greater than 75 are : ")
   mycursor.execute("select * from student where
   marks>75"                        #Statement 2
   data= mycursor.fetchall()        #Statement 3
   for i in data:
      print(i)
```

33. (5)

(a) What is the advantage of using a csv file for permanent storage?

A csv file can be managed using any text editor, spreadsheet program, or a program.

(b) Write a Program in Python that defines and calls the following user defined functions:

(i) ADD() – To accept and add data of an item to a CSV file 'furniture.csv'. Each record consists of Fur_id, Description, Price, and Discount.

```
import csv
def ADD():
    with open('furniture.csv','a',newline='') as f:
        fid=input("Enter furniture ID: ")
        desc=input("Enter Description: ")
        pr=input("Enter Price: ")
        disc=input("Enter discount: ")
        rec=[fid,desc,pr,disc]
        w=csv.writer(f)
        w.writerow(rec)
```

(ii) COUNTR() – To count the number of records present in 'furniture.csv' whose price is less than 5000.

```
import csv
def COUNTR():
    with open('furniture.csv') as f:
        r=csv.reader(f)
        c=0
        for rec in r:
            if eval(rec[2])<5000:
                c+=1
        print("Number of such records =",c)
```

OR

(a) Give any one point of difference between a binary file and a csv file.

A binary file can be managed only by some specific applications/program whereas a csv file can be managed using multiple general purpose applications/programs.

(b) Write a Program in Python that defines and calls the following user defined functions:

(i) ADD() – To accept and add data of an item to a binary file 'furniture.dat'. Each record of the file is a list [Fur_id, Description, Price, and Discount]. Fur_Id and Description are of str type, Price is of int type, and Discount is of float type.

```
def ADD():
    with open('furniture.dat','ab') as f:
        fid=input("Enter furniture ID: ")
        desc=input("Enter Description: ")
        pr=eval(input("Enter Price: "))
        disc=eval(input("Enter discount: "))
        rec=[fid,desc,pr,disc]
        pickle.dump(rec,f)
```

(ii) COUNTR() – To count the number of records present in 'furniture.dat' whose price is less than 5000.

```
def COUNTR():
    with open('furniture.dat','rb') as f:
        c=0
        try:
```

```
                    while True:
                        rec=pickle.load(f)
                        if rec[2]<5000:
                            c+=1
                except:
                    pass
                print("Number of such records =",c)
```

SECTION E

34. Tushar is a Python programmer. He has written a code and created a binary file record.dat with employeeid, ename and salary. The file contains 10 records. (4)

He now has to delete a record based on the employee id entered by the user. For this purpose, he creates a temporary file, named temp.dat, to store all the records other than the record to be deleted. If the employee id is not found, an appropriate message should to be displayed.

As a Python expert, help him to complete the following code (by completing statements 1, 2, 3, and 4) based on the requirement given above:

(i) Complete Statement#1 to import the required module.
(ii) Write the correct statement required to open a temporary file named temp.dat. (#Statement 2)
(iii) Which statement should Aman fill in Statement 3 to read the data from the binary file, record.dat
(iv) What should be written in Statement 4 to write the required records in the file temp.dat?

```
Import pickle              #Statement 1
def update_data():
   rec={}
   fin=open("record.dat","rb")
   fout=open("temp.dat","wb")    #Statement 2
   found=False
   eid=int(input("Enter employee id: "))
   while True:
      try:
         rec= pickle.load(fin) #Statement 3
         if rec["Employee id"]==eid:
            found=True
         else:
            pickle.dump(rec,fout) #Statement 4
      except:
         break
   if found==True:
      print("Record deleted.")
   else:
      print("Employee with such id is not found")
   fin.close()
fout.close()
```

35. Navdeep creates a table RESULT with a set of records to maintain the marks secured by students in Sem1, Sem2, Sem3 and their division. After creation of the table, he has entered data of 7 students in the table. (4)

ROLL_NO	SNAME	SEM1	SEM2	SEM3	DIVISION
101	KARAN	366	410	402	I
102	NAMAN	300	350	325	I
103	ISHA	400	410	415	I
104	RENU	350	357	415	I
105	ARPIT	100	75	178	IV
106	SABINA	100	205	217	II
107	NEELAM	470	450	471	I

Based on the data given above answer the following questions:

(i) Can Name be a candidate key of the table? Justify your answer.
Yes. Based on the given data we observe that each entry in SNAME column is unique. Therefore, SNAME can be the a Candidate key.

(ii) If a column is added and 3 rows are deleted from the table result, what will be the new degree and cardinality of the above table?
Degree: 7, Cardinality: 4

(iii) Write the statements to:
a) Insert the following record into the table
Roll_No- 108, Name- Aadit, Sem1- 470, Sem2-444, Sem3-475, Div- I.

```
insert into RESULT values(108,'Aadit',470,444,475,'I' );
```

b) Increase the SEM2 marks of the students by 3% whose Name ends with 'A'.

```
update result set sem2=sem2*1.03 where sname like '%A';
```

OR (Option for part iii only)

(iii) Write the statements to:
a) Delete the record of students securing IV division.

```
delete from result where division='IV';
```

b) Add a column GRADE, of type char of length 3 characters to the RESULT table.

```
Alter table RESULT add column GRADE char(3);
```