SAHODAYA SCHOOL COMPLEX KOCHI
MODEL EXAMINATION 2024-2025
COMPUTER SCIENCE (083)

XII **TIME: 3 Hrs**
Marks: 70

General Instructions:

- **The paper is divided into 5 Sections- A, B, C, D and E.**
- **Section A consists of 21 questions (1 to 21),1 Mark each.**
- **Section B consists of 7 questions (22 to 28), 2 Marks each.**
- **Section C consists of 3 questions (29 to 31), 3 Marks each.**
- **Section D consists of 4 questions (32 to 35), 4 Marks each**
- **Section E consists of 2 questions (36 to 37), 5 Marks each.**

SECTION-A

1. State True or False (1)
"L.pop() used to delete the specified element from the list"

2. Consider the given Python string declaration: (1)
```
mystring = 'ProgRamming is Fun'
print(mystring[-50:10:2].swapcase())
```

3. Consider the given expression: (1)
not True and False or True
Which of the following will be correct output if the given expression is evaluated?
(a) True (b) False (c) NONE (d) NULL

4. Predict the output of the following: (1)
```
S="Good Morning Madam"
L=S.split()
for W in L:
    if W.lower()==W[::-1].lower()
print(W)
```

5. Predict the output of the following: (1)
```
S=[['A','B'],['C','D'],['E','F']]
print(S[1][1])
```
(a)'A' (b) 'B' (c) 'C' (d) 'D'

6. Predict the output: (1)
```
Tup=(3,1,2,4)
sorted(Tup)
print(Tup)
```
(a) (3,1,2,4) (b) (1,2,3,4) (c) [3,1,2,4] (d) [1,2,3,4]

7. Given the following dictionaries (1)

```
Dict1={"Exam":"AISSCE", "Year":2023}
Dict2={"Total":500, "Pass_Marks":165}
```

Which statement will merge the contents of both dictionaries?

(a) dict1.update(dict2) (b) dict1 + dict2
(c) dict1.add(dict2) (d) dict1.merge(dict2)

8. Select the correct output of the code: (1)

```
Str="I will Succeed"
lis=str.split(" ")
print(lis[-1])
```

(a) I (b) will (c) Succeed (d) "I will Succeed"

9. Which of the following is a DML command? (1)
(a) SELECT (b) Update (c) INSERT (d) All

10. Consider the Python statement: f.seek(10, 1) (1)
Choose the correct statement from the following:
(a) File pointer will move10 byte in forward direction from begin 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

11. State whether the following statement is True or False: (1)
The finally block in Python is executed only if no exception occurs in the try block.

12. Which of the following method is used to create a connection between the MySQL database and Python? (1)
(a) connector ( ) (b) connect ( ) (c) con ( ) (d)cont()

13. Which of the following function returns a list datatype? (1)
(a) d=f.read() (b) d=f.read(10) (c) d=f.readline (d) d=f.readlines()

14. In MYSQL database, if a table, Student has degree 2 and cardinality 3, and another table, Address has degree 5 and cardinality 6, what will be the degree and cardinality of the Cartesian product of student and address? (1)
(a) 6,18 (b) 7,18 (c) 10,9 (d) 12,15

15. Fill in the blanks: (1)
The SQL keyword ---------- is used in SQL expression to select records based on pattern

16. SQL applies conditions on the groups through _____ clause after groups have been formed. (1)
(a) Group by (b) Where (c) Having (d) With

17. Which device broadcasts any data to all devices on a network. (1)
(a) Router (b) Switch (c) Hub (d) Bridge

18. A _____ specifies the distinct address for each resource on the Internet. (1)
(a) FTP (b) WWW (c) URL (d) HTTP

19. Select the network device from the following, which connects, dissimilar networks (1)
(a) Bridge (b)Gateway (c)Hub (d) Router

Q-20 and Q-21 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

20. Assertion(A): Access mode 'a' opens a file for appending content at the end of the file. (1)
Reason(R): The file pointer is at the end of the file if the file exists and opens in write mode.

21. Assertion (A): SQL SELECT query can also fetch rows from multiple tables. (1)
Reason (R): A join is a query that combines rows from two or more tables.

SECTION-B

22. Write a function max_length( ) ,that takes a list of strings as argument and display the longest string from the list. (2)

23. Write the output of the queries (i) to (iv) based on the table EMPLOYEE given below: (2)

EMPID	NAME	DESIGNATION	SALARY	CITY
101	Harry	Manager	90000	Delhi
102	Sam	Director	120000	Mumbai
103	Peter	Clerk	45000	Delhi
104	Jack	Manager	85000	Kolkata
105	Robert	Clerk	55000	Mumbai

(i) SELECT DISTINCT DESIGNATION FROM EMPLOYEE;
(ii) SELECT CITY, SUM(Salary) FROM EMPLOYEE GROUP BY CITY
HAVING SALARY > 50000;
(iii)SELECT NAME, SALARY FROM EMPLOYEE WHERE CITY IN
('DELHI','KOLKATA') ORDER BY NAME DESC;
(iv)SELECT NAME, SALARY, CITY FROM EMPLOYEE WHERE NAME
LIKE 'H%'AND SALARY BETWEEN 50000 AND 90000;

24. Consider the list EXAM given below and write Python statement for the following questions: (2)

```
EXAM=['english','physics','chemistry','cs','biology']
```

i) To insert subject "maths" as last element
ii) To display the list in reverse alphabetical order

25. 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 minimum and maximum values that can be assigned to the variable End . (2)

```
import random
Colours = ["VIOLET","INDIGO","BLUE","GREEN", "YELLOW","ORANGE","RED"]
End = randrange(2)+3
Begin = randrange(End)+1
for i in range(Begin,End):
        print(Colours[i],end="&")
```

(i) INDIGO&BLUE&GREEN&
(ii) VIOLET&INDIGO&BLUE&
(iii) BLUE&GREEN&YELLOW&
(iv) GREEN&YELLOW&ORANGE&

26. Rewrite the following code in python after removing all syntax errors. Underline each correction done in the code: (2)

```
Def func(a):
        for i in (0,a):
                if i%2= =0:
                        s=s+1
                elseif i%5= =0
                        m=m+2
                else:
                        n=n+i
                        print(s,m,n)
func(15)
```

27. (i)If a database "Employee" exists, which MySql command helps you to start working in that database? (2)

(ii)An attribute A of datatype varchar(20) has the value “Amit” .The Attribute B of datatype char(20) has value ”Karanita” . How many characters are occupied in attribute A ? How many characters are occupied in attribute B?

28. Expand the term HTTP. What is the use of HTTP? (2)

OR

Write one advantage and one disadvantage of optical fibre . (2)

SECTION-C

29. Write a function ConsonantCount() in Python, which should read each character of text file MY_FILE.TXT,should count and display the occurrence of consonants in it. (3)

OR

Write a function filter() that copies all the lines of a text file “source.txt” onto “target.txt” except those lines which starts with “@” sign. (3)

30. Write the definition of a function POP_PUSH(LPop, LPush, N) in Python. The function should Pop out the last N elements of the list LPop and Push them into the list LPush. (3)

For example :
If the contents of the list LPop are [10, 15, 20, 30] And value of N passed is 2, then the function should create the list LPush as [30, 20]
And the list LPop should now contain [10, 15]

NOTE : If the value of N is more than the number of elements present in LPop, then display the message "Pop not possible".

OR

Write push(edetail) and pop(edetail) in python to add and remove the Employee detail in a stack called "edetail". "edetail" stack store the following details:

a. Name of employee
b. Salary of employee

31. Find the output of the following Python code: (3)

```
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@Python3.0')
```

OR

```
L=["X",20,"Y",10,"Z",30]
CNT = 0
ST = ""
INC = 0
for C in range(1,6,2):
        CNT= CNT + C
        ST= ST + L[C-1] + "@"
        INC = INC + L[C]
        print(CNT, INC, ST
```

SECTION-D

32. Consider the table given below: (4)

Table: Personal

AdmissionNo	Name	Gender	DOB	City	Fee
2344	Karan	M	2008-12-23	Chennai	80000
1992	Maanshi	F	2009-03-18	Kolkatta	75000
3111	Suhani	F	2010-10-04	Chennai	78000
2112	Arun	M	2007-04-17	Bengaluru	85000
4511	Kavitha	F	2009-08-31	Ahmedabad	92000
3311	Suresh	M	2010-11-29	Bengaluru	65000
9022	Manav	M	null	Kolkatta	48000

A) Write queries for the following:

(i) To display the name and gender of students born in the year 2008 and 2009.

(ii) To display the record of students whose date of birth is not known.

(iii) To display the number of students from each city.

(iv) To display the total fees of male and female students.

OR

B) Write the output:

(i) SELECT MAX(DOB),MIN(DOB) FROM PERSONAL;
(ii) SELECT GENDER, COUNT(GENDER) FROM PERSONAL GROUP BY GENDER;
(iii) SELECT NAME,UPPER(CITY) FROM PERSONAL WHERE YEAR(DOB)=2009;
(IV) SELECT NAME,CITY FROM PERSONAL ORDER BY NAME;

33. Write a program in Python that defines and calls the following user defined functions: (4)

(i) CreateFile( ) - to create a csv file record.csv having following data fields [rollno, name, class , section , percentage] the function should be able to insert multiple records in the file.
(ii) searchRecord(num) - to accepts the rollno as argument and display the details of that rollno.

34. Write SQL queries for (a) to (d) based on the tables CUSTOMER and TRANSACT given below : (4)

Table : CUSTOMER

CNO	NAME	GENDER	ADDRESS	PHONE
1001	Suresh	MALE	A-123 West Street	9310010010
1002	Anita	FEMALE	C-24 Court Lane	9121211212
1003	Harjas	MALE	T-1 Woods Avenue	9820021001

Table: TRANSACT

NO	CNO	AMOUNT	TTYPE	TDATE
T1	1002	2000	DEBIT	2021-09-25
T2	1003	1500	CREDIT	2022-01-28
T3	1002	3500	CREDIT	2021-12-31
T4	1001	1000	DEBIT	2022-01-10

(a) Write the SQL statements to delete the records from table TRANSACT whose amount is less than 1000.
(b) Write a query to display the total AMOUNT of all DEBITs and all CREDITs.
(c) Write a query to display the NAME and corresponding AMOUNT of all CUSTOMERs who made a transaction type (TTYPE) of CREDIT.
(d) Write the SQL statement to change the Phone number of customer whose CNO is 1002 to 9988117700 in the table CUSTOMER.

35. Krishna wants to write a program in Python to insert a record into STAFF table of COMPANY database using python interface. (4)

SID (Staff ID) – Integer
SNAME (Name of staff member) - String
DOJ (Date of Joining) – Date
SALARY – Float

The values of fields SID, SNAME, DOJ and SALARY has to be accepted from the user. The function should then retrieve and display details of all staff from the STAFF table who have salary more than 50000. Help Krishna to write the program in Python.

Note the following to establish connectivity between Python and MySQL:
Host: localhost, User: root, Password: tiger

SECTION E

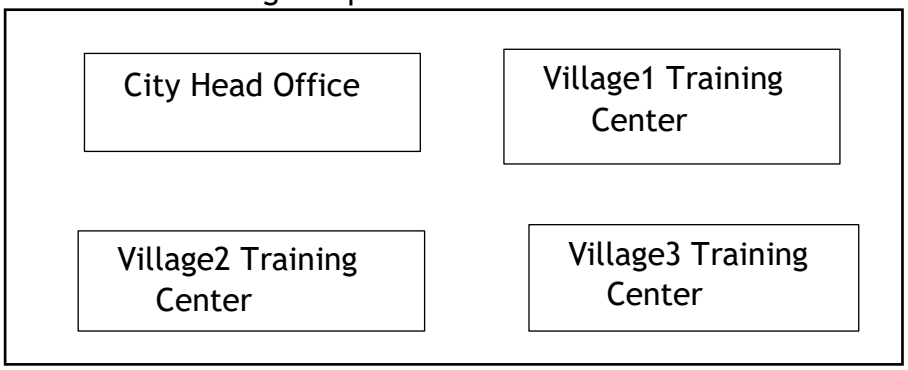
36. Write a python program that defines and calls the following user defined functions. (5)

Add_book() – To read the details of the books from the user and write into the binary file named "book.dat". The details of the books stored in a list are book_no, name, author.

Change_book() – To change the author name as "J.K.R" for those books whose author name is "J.K.Rowling" .

Search_book() - To read the author name from the user and display the books written by that author.

37. The government has planned to develop digital awareness in the rural areas of the nation. According to the plan, an initiative is taken to set up Digital Training Centers in villages across the country with its Head office in the nearest cities. The committee has hired a networking consultancy to create a model of the network in which each City Head office is connected to the Training Centers situated in 3 nearby villages. As a network expert in the consultancy, you have to suggest the best network-related solutions for the issues/problems raised in (a) to (e), keeping in mind the distance between various locations and other given parameters. (5)



Shortest distances between various Centers :

Village1 Training Center to City Head Office 2 KM
Village2 Training Center to City Head Office 1·5 KM
Village3 Training Center to City Head Office 3 KM
Village1 Training Center to Village 2 Training Center 3·5 KM
Village1 Training Center to Village 3 Training Center 4·5 KM
Village2 Training Center to Village 3 Training Center 3·5 KM

Number of Computers installed at various centers are as follows :

Village1 Training Center	10
Village2 Training Center	15
Village3 Training Center	15
City Head Office	100

(a) It is observed that there is a huge data loss during the process of data transfer from one village to another. Suggest the most appropriate networking device, which needs to be placed along the path of the wire connecting one village with another to refresh the signal and forward it ahead.
(b) Draw the cable layout (location-to-location) to efficiently connect various Village Training Centers and the City Head Office for the above shown layout.
(c) Which hardware networking device, will you suggest to connect all the computers within the premises of every Village Training Center ?
(d) Which protocol, will be most helpful to conduct online interactions of Experts from the City Head Office and people at the three Village Training Centers ?
(e) What type of network (PAN, LAN, MAN, or WAN) will be set up among the Village Training Centers and the City Head Office.