UNIT I

CHAPTER 1 – PYTHON REVISION TOUR 1 & 2

1 Marks Questions and Answers

1. Which of the following is not a sequential datatype in Python?
   (a) Dictionary
   (b) String
   (c) List
   (d) Tuple

   Ans: (a) Dictionary

2. Given the following dictionary
   Day={1:"Monday", 2: "Tuesday", 3: "Wednesday"}
   Which statement will return "Tuesday".
   (a) Day.pop( )
   (b) Day.pop(2)
   (c) Day.pop(1)
   (d) Day.pop("Tuesday")

   Ans: (b) Day.pop(2)

3. Consider the given expression : 7<4 or 6>3 and not 10==10 or 17>4
   Which of the following will be the correct output if the given expression is evaluated?
   (a) True
   (b) False
   (c) NONE
   (d) NULL

   Ans: (a) True

4. Select the correct output of the code :
   S="Amrit Mahotsav @ 75"
   A=S.split(" ",2)
   print(A)
   (a) ('Amrit', 'Mahotsav','@','75')
   (b) ['Amrit','Mahotsav','@ 75']
   (c) ('Amrit', 'Mahotsav','@75')
   (d) ['Amrit','Mahotsav','@','75']

   Ans: (b) ['Amrit', 'Mahotsav','@ 75']

5. Fill in the blank :
   _____ is not a valid built-in function for list manipulations.
   (a) count()
   (b) length()

(c) append()
(d) extend()

Ans: (b) length()

6. Which of the following is an example of identity operators of Python?
   (a) is
   (b) on
   (c) in
   (d) not in

   Ans: (a) is

7. Which of the following statement(s) would give an error after executing the following code?

```
S="Happy" # Statement 1
print(S*2) # Statement 2
S+="Independence" # Statement 3
S.append("Day") # Statement 4
print(S) # Statement 5
```

   (a) Statement 2
   (b) Statement 3
   (c) Statement 4
   (d) Statement 3 and 4

   Ans: (c) Statement 4

8. What will the following expression be evaluated to in Python ?

```
print(6/3 + 4**3//8-4)
```

   (a) 6.5
   (b) 4.0
   (c) 6.0
   (d) 4

   Ans: (c) 6.0

9. Which of the following functions is a valid built-in function for both list and dictionary datatype ?
   (a) items()
   (b) len()
   (c) update()
   (d) values()

   Ans: (b) len()

10. Any comma separated values without any type of brackets will also create _____.
    (a) Tuple
    (b) List
    (c) Dictionary
    (d) String
    Ans: (a) Tuple

11. State True or False.
    "Identifiers are names used to identify a variable, function in a program".
    Ans: True

12. Which of the following is a valid keyword in Python?
    (a) false
    (b) return
    (c) non_local
    (d) none
    Ans: (b) return

13. Given the following Tuple
    Tup= (10, 20, 30, 50)
    Which of the following statements will result in an error ?
    (a) print (Tup[0])
    (b) Tup.insert (2, 3)
    (c) print (Tup [1:2])
    (d) print (len (Tup))
    Ans: (b) Tup.insert (2, 3)

14. Consider the given expression :
    5<10 and 12>7 or not 7>4
    Which of the following will be the correct output, if the given expression is evaluated ?
    (a) True
    (b) False
    (c) NONE
    (d) NULL
    Ans: (a) True

15. Select the correct output of the code :
    S= "Amrit Mahotsav @ 75"
    A=S.partition (" ")
    print (a)

(a) ('Amrit Mahotsav','@','75')
(b) ['Amrit','Mahotsav','@','75']
(c) ('Amrit', 'Mahotsav @ 75')
(d) ('Amrit'," , 'Mahotsav @ 75')

Ans: (d) ('Amrit', '', 'Mahotsav @ 75')

16. Fill in the blank.

_____ function is used to arrange the elements of a list in ascending order.

(a) sort()
(b) arrange()
(c) ascending()
(d) asort()

Ans: (a) sort()

17. Which of the following operators will return either True or False?

(a) +=
(b) !=
(c) =
(d) *=

Ans: (b) !=

18. Which of the following statement(s) would give an error after executing the following code ?

```
Stud={"Murugan" : 100, "Mithu" : 95} # Statement 1
print (Stud[95]) # Statement 2
Stud ["Murugan"]=99 # Statement 3
print(Stud.pop()) # Statement 4
print(Stud) # Statement 5
```

(a) Statement 2
(b) Statement 3
(c) Statement 4
(d) Statements 2 and 4

Ans: (a) Statement 2 OR (d) Statements 2 and 4

19. What will the following expression be evaluated to in Python ?

```
print(4+3*5/3–5%2)
```

(a) 8.5
(b) 8.0
(c) 10.2
(d) 10.0

Ans: (b) 8.0

20. Which function returns the sum of all elements of a list?

(a) count()
(b) sum()
(c) total()
(d) add()

Ans: (b) sum()

21. State True or False :

"In Python, tuple is a mutable data type".

Ans: False

22. What will be the output of the following statement?

```
print(6+5/4**2//5+8)
```

(a) –14.0
(b) 14.0
(c) 14
(d) –14

Ans: (b) 14.0

23. Select the correct output of the code:

```
S = "text#next"
print(S.strip("t"))
```

(a) ext#nex
(b) ex#nex
(c) text#nex
(d) ext#next

Ans: (a) ext#nex

24. Identify the valid Python identifier from the following :

(a) 2user
(b) user@2
(c) user_2
(d) user 2

Ans: (c) user_2

25. Consider the statements given below and then choose the correct output from the given options:

```
Game="World Cup 2023"
print(Game[-6::-1])
```

(a) CdrW
(b) ce o
(c) puC dlroW
(d) Error
Ans: (c) puC dlroW

26. Predict the output of the following Python statements :
>>>import statistics as s
>>>s.mode ([10, 20, 10, 30, 10, 20, 30])
(a) 30
(b) 20
(c) 10
(d) 18.57
Ans: (c) 10

27. For the following Python statement :
N = (25)
What shall be the type of N ?
(a) Integer
(b) String
(c) Tuple
(d) List
Ans: (a) Integer

28. What will be the output of the following statement :
print (16*5/4*2/5–8)
(a) – 3.33
(b) 6.0
(c) 0.0
(d) –13.33
Ans: (c) 0.0

29. Identify the invalid Python statement from the following :
(a) d = dict()
(b) e = {}
(c) f = []
(d) g = dict{}
Ans: (d) g = dict{}

30. Consider the statements given below and then choose the correct output from the given options :

```
myStr = "MISSISSIPPI"
print(myStr[:4]+"#"+myStr[–5:])
```

(a) MISSI#SIPPI
(b) MISS#SIPPI
(c) MISS#IPPIS
(d) MISSI#IPPIS

Ans: (b) MISS#SIPPI

31. Identify the statement from the following which will raise an error :

(a) print("A"*3)
(b) print(5*3)
(c) print("15" + 3)
(d) print("15" + "13")

Ans: (c) print("15" + 3)

32. Select the correct output of the following code :

```
event="G20 Presidency@2023"
L=event.split(' ')
print(L[::–2])
```

(a) 'G20'
(b) ['Presidency@2023']
(c) ['G20']
(d) 'Presidency@2023'

Ans: (b) ['Presidency@2023']

33. State True or False:

The Python interpreter handles logical errors during code execution.

Ans: False

34. Identify the output of the following code snippet:

```
text = "PYTHONPROGRAM"
text=text.replace('PY','#')
print(text)
```

(a) #THONPROGRAM
(b) ##THON#ROGRAM
(c) #THON#ROGRAM
(d) #YTHON#ROGRAM

Ans: (a) #THONPROGRAM

35.Which of the following expressions evaluates to False?

(a) not(True) and False

(b) True or False

(c) not(False and True)

(d) True and not(False)

Ans: (a) not (True) and False

36.What is the output of the expression?

```
country='International'
print(country.split("n"))
```

(a) ('I', 'ter', 'atio', 'al')

(b) ['I', 'ter', 'atio', 'al']

(c) ['I', 'n', 'ter', 'n', 'atio', 'n', 'al']

(d) Error

Ans: (b) ['I', 'ter', 'atio', 'al']

37.What will be the output of the following code snippet?

```
message= "World Peace"
print(message[-2::-2])
```

Ans: ce lo

38.What will be the output of the following code?

```
tuple1 = (1, 2, 3)
tuple2 = tuple1
tuple1 += (4,)
print(tuple1 == tuple2)
```

(a) True

(b) False

(c) tuple1

(d) Error

Ans: (b) False

39.If my_dict is a dictionary as defined below, then which of the following statements will raise an exception?

```
my_dict = {'apple': 10, 'banana': 20, 'orange': 30}
```

(a) my_dict.get('orange')

(b) print(my_dict['apple', 'banana'])

(c) my_dict['apple']=20

(d) print(str(my_dict))

Ans: (b) print(my_dict['apple', 'banana'])

40.What does the list.remove(x) method do in Python?

(a) Removes the element at index x from the list

(b) Removes the first occurrence of value x from the list

(c) Removes all occurrences of value x from the list

(c) Removes the last occurrence of value x from the list

Ans: (b) Removes the first occurrence of value x from the list

41.State True or False

"break keyword skips remaining part of an iteration in a loop and compiler goes to starting of the loop and executes again"

Ans: False

42.Find the valid keyword from the following?

(a) Student-Name

(b) False

(c) 3rdName

(d) P_no

Ans: (b) False

43.What will be the output for the following Python statement?

X={'Sunil':190, 'Raju':10, 'Karambir':72, 'Jeevan':115}

print('Jeevan' in X, 190 in X, sep="#")

(a) True#False

(b) True#True

(c) False#True

(d) False#False

Ans: (a) True#False

44.Consider the given expression: 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

Ans: (b)False

45.Select the correct output of the code:

```
a = "Python! is amazing!"
a = a.split('!')
b = a[0] + "." + a[1] + "." + a[2]
print(b)
```

(a) Python!. is amazing!.
(b) Python. is amazing.
(c) Python. ! is amazing.!
(d) will show error

Ans: (b) Python. is amazing.

46. State True or False

"continue keyword is not a jump statement in a loop."

Ans: False

47. Given the following dictionaries

```
dict_stud = {"rno" : "53", "name" : 'Rajveer Singh'}
dict_mark = {"Accts" : 87, "English" : 65}
```

Which statement will merge the contents of both dictionaries in dict_stud?

(a) dict_stud + dict_mark
(b) dict_stud.add(dict_mark)
(c) dict_stud.merge(dict_mark)
(d) dict_stud.update(dict_mark)

Ans: (d) dict_student.update(dict_marks)

48. When a Python function does not have return statement then what it returns?

(a) int
(b) float
(c) None
(d) Give Error

Ans: (c) None

49. 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 (a)
```

(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

Ans: (a) Year . 0. at All the best

50. Which of the following statement(s) would give an error after executing the following code?

```
S="Welcome to class XII" # Statement 1
print(S) # Statement 2
S="Thank you" # Statement 3
S[0]= '@' # Statement 4
S=S+"Thank you" # Statement 5
```

(a) Statement 3
(b) Statement 4
(c) Statement 5
(d) Statement 4 and 5

Ans: (b) Statement 4

51. What will the following expression be evaluated to in Python?

```
print(2**3**2)
```

(a) 64
(b) 256
(c) 512
(d) 32

Ans: (c) 512

52. State True or False:
"Lexical unit is the smallest unit of any programming language"

Ans: True

53. In the python statement x=a+5-b, a and b are _____.
(a) Operands
(b) Expressions
(c) Operators
(d) Equation

Ans: (a) Operands

54. What will be the output of the following statement:

```
print ((30.0 // 4 + (8 + 3.0))
```

(a) 14.75
(b) 18.0
(c) -18.0
(d) Error

Ans: (b) 18.0

55. Select the correct output of the code:

```
>>> Str= "BHASHA SANGAM @ 75"
>>> S=Str.partition(" ")
>>> print(S)
```

(a) (@ 75' 'BHASHA', ' ', 'SANGAM,)
(b) ('BHASHA', ' @', 'SANGAM , 75')
(c) ('', ' ', 'BHASHA SANGAM @ 75')
(d) ('BHASHA', ' ', 'SANGAM @ 75')

Ans: (d) ('BHASHA', ' ', 'SANGAM @ 75')

56. Give the output:

```
dic1={'r':'red','g':'green','b':'blue'}
for i in dic1:
    print (i, end =' ')
```

(a) r g b
(b) R G B
(c) R B G
(d) red green blue

Ans: (a) r g b

57. Consider the statements given below and then choose the correct output from the given options:

```
MN="Bharat @G20"
print(MN[-2:2:-2])
```

(a) rt@2
(b) 2@tr
(c) @G20
(d) 02G@

Ans: (b) 2@tr

58. Which of the following statement(s) would give an error after executing the following code?

```
S="Welcome to KVS RO JAIPUR " # Statement 1
print(S) # Statement 2
S="Thank you" # Statement 3
S[0]= '$' # Statement 4
S=S+"Thank you" # Statement 5
```

(a) Statement 3
(b) Statement 4
(c) Statement 5
(d) Statement 4 and 5

Ans: (b) Statement 4

59.Which of the following is a keyword in Python?

(a) true
(b) For
(c) pre-board
(d) False

Ans: (d) False

60.What will be the output for the following Python statement?

print(20//3*2+(35//7.0))
(a) 17.0
(b) 17
(c) 8.5
(d) 8

Ans: (a) 17.0

61.Consider the following statements and choose the correct output from the given options:

EXAM="COMPUTER SCIENCE"
print(EXAM[12:-2])
(a) EN
(b) CI
(c) SCIENCE
(d) ENCE

Ans: (a) EN

62.What will be the output of the following code?

Tuple1=(10,)
Tuple2=Tuple1*2
print(Tuple2)
(a) 20
(b) (20,)
(c) (10,10)
(d) Error

Ans: (c) (10,10)

63.What will be the output of the following Python code?

>>>t = (1, 2, 4, 3, 8, 9)
>>>[t[i] for i in range(0, len(t), 2)]
(a) [2, 3, 9]
(b) [1, 2, 4, 3, 8, 9]
(c) [1, 4, 8]

(d) (1, 4, 8)

Ans: (c)

64. What will be the output of the following Python code?

```
>>> a={4,5,6}
>>> b={2,8,6}
>>> a+b
```

(a) {4,5,6,2,8}

(b) {4,5,6,2,8,6}

(c) Error as unsupported operand type for sets

(d) Error as the duplicate item 6 is present in both sets

Ans: (c) Error as unsupported operand type for sets

65. Suppose list1 is [4, 2, 2, 4, 5, 2, 1, 0], which of the following is correct syntax for slicing operation?

(a) print(list1[0])

(b) print(list1[:2])

(c) print(list1[:-2])

(d) All of the mentioned

Ans: (d) All of the mentioned

66. Which of the following will delete key-value pair for key='red' form a dictionary D1

(a) Delete D1("red")

(b) del. D1("red")

(c) del D1["red"]

(d) del D1

Ans: (c) del D1["red"]

67. Which one of the following is the correct statement for creating a dictionary for assigning a day number to weekdays using short names?

(a) d ={1:Mon,2:Tue,3:Wed,4:Thur}

(b) d ={1:'Mon',2:'Tue',3:'Wed',4:'Thur'}

(c) d ={1;'Mon',2;'Tue',3;'Wed',4;'Thur'}

(d) d ={1-'Mon',2-'Tue',3-'Wed',4-'Thur'}

Ans: (b) d ={1:'Mon',2:'Tue',3:'Wed',4:'Thur'}

68. What is the output of the following?

```
i = 1
while True:
        if i%7 == 0:
                break
```

```
        print(i)
        i += 1
```

(a) 1 2 3 4 5 6
(b) 1 2 3 4 5 6 7
(c) error
(d) none of the mentioned

Ans: (a) 1 2 3 4 5 6

69. What is the output of the following?

```
d = {0: 'a', 1: 'b', 2: 'c'}
for i in d:
    print(i)
```

(a) 0 1 2
(b) a b c
(c) 0 a 1 b 2 c
(d) none of the mentioned

Ans: (a) 0 1 2

70. What is the output of the following?

```
print("xyyzxyzxzxyy".count('xyy', 0, 100))
```

(a) 2
(b) 0
(c) 1
(d) error

Ans: (a) 2

CHAPTER 3 – WORKING WITH FUNCTIONS &
CHAPTER 4 – PYTHON LIBRARIES
1 Marks Questions and Answers

1. Observe the given Python code carefully:

```
a=20
def convert(a):
    b=20
    a=a+b
convert(10)
print(a)
```

Select the correct output from the given options:

(a) 10
(b) 20
(c) 30
(d) Error

Ans: (b) 20

2. What will be the output of the following code?

```
c = 10
def add():
    global c
    c = c + 2
    print(c,end='#')
add()
c=15
print(c,end='%')
```

(a) 12%15#
(b) 15#12%
(c) 12#15%
(d) 12%15#

Ans: (c) 12#15%

3. State True or False:
While defining a function in Python , the positional parameters in the function header must Always be written after the default parameters.
Ans: False

4. Which of the following output will never be obtained when the given code is executed?

```
import random
Shuffle = random.randrange(10)+1
Draw = 10*random.randrange(5)
```

```
print ("Shuffle", Shuffle, end="#")
print ("Draw", Draw)
```

(a) Shuffle 1 # Draw 0
(b) Shuffle 10 # Draw 10
(c) Shuffle 10 # Draw 0
(d) Shuffle 11 # Draw 50

Ans: (d) Shuffle 11 # Draw 50

5. What possible output from the given options is expected to be displayed when the following Python code is executed ?

```
import random
Signal=['RED','YELLOW','GREEN']
for K in range (2, 0, – 1) :
    R = random.randrange(K)
    print (Signal[R], end = '#')
```

(a) YELLOW # RED #
(b) RED # GREEN #
(c) GREEN # RED #
(d) YELLOW # GREEN #

Ans: (a) YELLOW # RED #

6. The function random.randint(4) can return only one of the following value.

(a) 4
(b) 3.4
(c) error
(d) 5

Ans: (a) 4

7.

```
p=150
def fn(q):
    _____                    #missing statement
    p=p+q
fn(50)
print(p)
```

Which of the following statements should be given in the blank for #missing statement if the output produced is 200

(a) global p=150
(b) global p
(c) p=150
(d) global q

Ans: (b) global p

8. What possible output(s) will be obtained when the following code is executed

```
import random
k=random.randint(1,3)
fruits=[‘mango’, ‘banana’, ‘grapes’, ‘water melon’, ‘papaya’]
for j in range(k):
    print(fruits[j], end=“*”)
```

(a) mango*banana*grapes*
(b) banana*grapes
(c) banana*grapes*watermelon
(d) mango*grapes*papaya

Ans: (a) mango*banana*grapes*

9. Write the possible outputs(s) when this code is executed?

```
import random
n=random.randint(0,3)
color=[“Y”,”W”,”B”,”R”]
for i in range (1,n):
    print(color[i], end=”*”)
print( )
```

(a) R*
W*
B*
(b) W*B*
(c) W* W*
B* B*
(d) Y*
W* W*
B* B* B*

Ans: (b) W*B*

10. What possible outputs(s) will be obtained when the following code is executed?

```
import random
Signal = ['Stop','Wait','Go']
for K in range (2,0,-1):
    R=random.randrange(K)
    print(Signal[R], end='#')
```

(a) Stop#Go#
(b) Wait#Stop#
(c) Go#Stop#
(d) Go#Wait#

Ans: (b) Wait#Stop#

11.Consider the code given below and find correct output:

```
x=5
def function1():
    global x
    y=x+x*2
    print(y,end=",")
x=7
function1()
print(x)
```

Output:

(a) 21 , 7
(b) 15 , 5
(c) 21 , 5
(d) 15, 7

Ans: (a) 21, 7

12.What is the variable defined inside a function referred to as

(a) A static variable
(b) A global variable
(c) A local variable
(d) An automatic variable

Ans: (c) A local variable

13.What is the order of resolving scope of a name in a Python program?
(L: Local namespace, E : Enclosing namespace, B: Built-In Namespace, G: Global namespace)

(a) BGEL
(b) LEGB
(c) GEBL
(d) LBEG

Ans: (b) LEGB

14.Which builtin function is used to convert a value to a string?

(a) str()
(b) string()
(c) to_str()
(d) convert_string()

Ans: (a) str()

15.Functions that do not return any value are known as:

(a) fruitful functions

(b) void functions
(c) library functions
(d) user-defined functions

Ans: (b) void functions

16. Which one of the following is the correct way of calling a function?
(a) function_name()
(b) call function_name()
(c) ret function_name()
(d) function function_name()

Ans: (a) function_name()

17. The function header with in every function end with a?
(a) ;
(b) ::
(c) :
(d) %

Ans: (c) :

18. In python, when a function is defined inside a class is called as
(a) class
(b) function
(c) method
(d) module

Ans: (d) module

19. What will be the ouput of the following python function:
print(min(max(False,-3,-4),2,7))
(a) 2
(b) False
(c) -3
(d) -4

Ans: (b) False

20. Which of the following items are present in the function header?
(a) function name only
(b) both function name and parameter list
(c) parameter list only
(d) return value

Ans: (b) both function name and parameter list

CHAPTER 5 – FILE HANDLING

1 Marks Questions and Answers

1. Which of the following modes in Python creates a new file , if file does not exist and Over writes the content , if the file exists?
   (a) r+
   (b) r
   (c) w
   (d) a

   Ans: (c) w

2. Which of the following mode keeps the file offset position at the end of the file ?
   (a) r+
   (b) r
   (c) w
   (d) a

   Ans: (d) a

3. The syntax of seek () is :
   file_object.seek (offset[, reference_point])

   What is the default value of reference_point ?
   (a) 0
   (b) 1
   (c) 2
   (d) 3

   Ans: (a) 0

4. _____files are stored in a computer in a sequence of bytes.
   (a) Text
   (b) Binary
   (c) CSV
   (d) Notepad

   Ans: (b) Binary

5. Consider the following Python statement:
   F=open(' CONTENT.TXT ')

   Which of the following is an invalid statement in Python?
   (a) F.seek(1,0)
   (b) F.seek(0,1)
   (c) F.seek(0,-1)
   (d) F.seek(0,2)

   Ans: (c) F.seek(0,–1)

6. Information stored on a storage device with a specific name is called a _____.
    a) array
    b) dictionary
    c) file
    d) tuple

    Ans: c) file

7. The correct syntax of tell() is:
    (a) tell.file_object()
    (b) file_object.tell()
    (c) tell.file_object(1)
    (d) file_object.tell(1)

    Ans: (b) file_object.tell()

8. Which Python approach is used for object serialization in handling of Binary File?
    (a) Pickling
    (b) Un-pickling
    (c) Merging
    (d) None of these

    Ans: (a) Pickling

9. Which method is used to move the file pointer to a specified position.?
    (a) tellg()
    (b) tell()
    (c) seek()
    (d) seekg()

    Ans: (c) seek()

10. Which of the following is the correct usage for tell() of a file object,_____?
    (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.

    Ans: (b) It returns the byte position of the file pointer as an integer.

11. Which of the following option is the correct python statement to read and display the first 10 characters of a text file "Notes.txt"?
    (a) F=open('Notes.txt')
        print(F.load(10))
    (b) F=open('Notes.txt')
        print(F.dump(10))

(c) Notes.txt')
print(F.read(10))
(d) F=open('Notes.txt')
print(F.write(10))

Ans: (c) F=open('Notes.txt')
print(F.read(10))

12. Write the missing statement to complete the following code:

```
file = open("abc.txt", "r")
d = file.read(50)
_____ #Move the file pointer to the beginning of the file
next_data = file.read(75)
file.close()
```

Ans: file.seek(0) (OR)file.seek(0,0)

13. Fill in the blanks to complete the following code snippet choosing the correct option:

```
with open("sample.txt", "w+") as file:
    file.write("Hello, World!") # Write a string to the file
    position_after_write = file._____ # Get the position after writing
    file.seek(0) # Move the pointer to the beginning
    content = file.read(5) # Read the first 5 characters print(content)
```

(a) tell
(b) seek
(c) read
(d) write

Ans : (a) tell

14. Which of the following function do you use to write data in the binary format?

a) write()
b) output()
c) dump()
d) send()

Ans: c) dump()

15. What is the value of 'p' and how many characters will be there in the variable 'data' in the following statement

```
with open ("lists.txt","r",encoding="utf-8") as F:
data = F.read(100)
p=F.seek(10,0)
print(p)
```

(a) 10, 100

(b) 100, 10
(c) 10, 110
(d) 110, 10

Ans: (b) 100, 10

16. Which of the following functions other than close() writes the buffer data to file
(a) push()
(b) write()
(c) writeBuffer()
(d) flush()

Ans: (d) flush()

17. To open a file c:\scores.txt for reading, we use _
(a) infile = open("c:\scores.txt", "r")
(b) infile=open("c:\\scores.txt", "r")
(c) infile=open(file="c:\scores.txt", "r")
(d) infile=open(file="c:\\scores.txt" ,"r")

Ans: (b) infile=open("c:\\scores.txt", "r")

18. Which of the following statements are true?
(a) When you open a file reading, if the file does not exist, an error occurs
(b) When you open a file writing, if the file does not exist, a new file is created
(c) When you open a file for writing, if the file exists, the existing file is overwritten with the new file
(d) All of the mentioned

Ans: (d) All of the mentioned

19. To read the next line of the file from a file objectinfile, we use _____
(a) infile.read(2)
(b) infile.read()
(c) infile.readline()
(d) infile.readlines()

Ans: (c) infile.readline()

20. What is pickling?
(a) It is used for object serialization
(b) It is used for object deserialization
(c) None of the mentioned
(d) All of the mentioned

Ans: (a) It is used for object serialization

CHAPTER 6 – EXCEPTION HANDLING
1 Marks Questions and Answers

1. State whether the following statement is True or False:
   While handling exceptions in Python , name of the exception has to be compulsorily added with except clause.
   Ans: False

2. State whether the following statement is True or False:
   The finally block in Python is executed only if no exception occurs in the try block.
   Ans: False

3. State whether the following statement is True or False:
   An exception may be raised even if the program is syntactically correct
   Ans: True

4. If my_dict is a dictionary as defined below, then which of the following statements will raise an exception?
   my_dict={'aman': 10, 'sumit': 20, 'suresh': 30}
   (a) my_dict.get('suresh')
   (b) print(my_dict['aman', 'sumit'])
   (c) my_dict['aman']=20
   (d) print(str(my_dict))
   Ans: (b) print(my_dict['aman', 'sumit'])

5. Dictionary my_dict as defined below, identify type of error raised by statement my_dict['grape']?
   my_dict = {'apple': 10, 'banana': 20, 'orange': 30}
   (a) SyntaxError
   (b) TypeError
   (c) KeyError
   (d) ValueError
   Ans : (c) KeyError

6. State whether the following statement is True or False:
   In Python, if an exception is raised inside a try block and not handled, the program will terminate without executing any remaining code in the finally block.
   Ans : False

7. State True or False:

   The Python statement print('Alpha'+1) is example of TypeError

   Ans : True

8. Which of the following is the "Must-execute" block?

   (a) try
   (b) except
   (c) finally
   (d) else

   Ans: (c) finally

9. Which of the following keyword is used to pass the control to the except block in Exceptional handling?

   (a) pass
   (b) finally
   (c) raise
   (d) throw

   Ans: (c) raise

10. _____ is the name of block / command(s) can be used to handle the error/exception in Python.

    Ans: try … except block

CHAPTER 7 – DATA STRUCTURES

1 Marks Questions and Answers

1. Process of inserting an element in stack is called_____
    a) Create
    b) Push
    c) Evaluation
    d) Pop

    Ans: b) Push

2. Process of removing an element from stack is called _____
    a) Create
    b) Push
    c) Evaluation
    d) pop

    Ans: d) pop

3. In a stack, if a user tries to remove an element from empty stack it is called
    a) Underflow
    b) Empty collection
    c) Overflow
    d) Garbage Collection

    Ans: a) Underflow

4. Pushing an element into stack already having five elements and stack size of 5, then stack becomes _____
    a) Overflow
    b) Crash
    c) Underflow
    d) User flow

    Ans: a) Overflow

5. Entries in a stack are “ordered”. What is the meaning of this statement?
    a) A collection of stacks is sortable
    b) Stack entries may be compared with the ‘<‘ operation
    c) The entries are stored in a linked list
    d) There is a Sequential entry that is one by one.

    Ans: d) There is a Sequential entry that is one by one.

6. Which of the following is an applications of stack?
    a) Finding factorial
    b) Reversing of a string

c) Pushing sequence of elements into the list.
d) All of the mentioned

Ans: d) All of the mentioned

7. _____ form of access is used to add/remove nodes from a stack.
   a) LIFO
   b) FIFO
   c) Both a and b
   d) None of these

   Ans: a) LIFO

8. _____function is used to add an element '10' in a stack 'st'.
   a) st.insert (10)
   b) st.append (10)
   c) st=10
   d) st.extend(10)

   Ans: b) st.append (10)

9. In stack all insertions take place at ____ end(s).
   a) Top
   b) Front
   c) Rear
   d) Any

   Ans: a) Top

10. Data structure stack is also known as ____ list.
   a) Ordered List
   b) Random List
   c) FIFO list
   d) LIFO list

   Ans: d) LIFO list

11. A _____ is named group of data of different datatypes, which can be processed as a single unit.

   Ans: Data structure

12. A _____ is a way to store, organize, or manage data in efficient and productive manner.

   Ans: Data structure

13. A stack is _____ type of data structure.
Ans: Linear

14. Stack data structure is following _____ principle.
Ans: LIFO

15. In stack data can be inserted or deleted from _____ only.
Ans: Top

16. In stack, top is an integer value equal to _____.
Ans: len(<stack>)-1

17. The _____ operation refers to accessing/inspecting the top element in the stack.
Ans: peek

18. A condition raise due to the stack is full is known as _____.
Ans: Overflow

19. Push and pop are terms related to stack data Structure.(True/False)
Ans: True

20. The insert operation in the stack is known as pop.(True/False)
Ans: False

CHAPTER 8 & 9 – COMPUTER NETWORKS I & II

1 Marks Questions and Answers

1. Which is a standard mail protocol used to receive emails from a remote server to a local email client?
   (a) SMTP
   (b) POP3
   (c) HTTP
   (d) FTP
   Ans: (b) POP3
2. Pawan wants to transfer files and photos from laptop to his mobile. He uses Bluetooth Technology to connect two devices.
   Which type of network will be formed in this case?
   (a) PAN
   (b) LAN
   (c) MAN
   (d) WAN
   Ans: (a) PAN

3. Fill in the blank:

   E mail denotes ----------.
   Ans: Electronic mail

4. What Modem does?
   (a) Modulation
   (b) Demodulation
   (c) Both Modualtion & Demodulation
   (d) Not any
   Ans: (c) Both Modualtion & Demodulation

5. Fill in the blank:
   _____ is the way of connecting the networking devices
   Ans: Topology is the way of connecting the networking devices.

6. The term HTTP stands for?
   (a) Hyper terminal tracing program
   (b) Hypertext tracing protocol
   (c) Hypertext transfer protocol
   (d) Hypertext transfer program
   Ans: (c) Hypertext transfer protocol

7. A device that connects networks with different protocols –
    (a) Switch
    (b) Hub
    (c) Gateway
    (d) Proxy Server

    Ans: (c) Gateway

8. Which transmission media is capable of having a much higher bandwidth (data capacity)?
    a) Coaxial
    b) Twisted Pair Cable
    c) Untwisted Cable
    d) Fiber Optic Cable

    Ans: b) Fiber Optic Cable

9. Which protocol is used to send e-mail over internet?
    (a) FTP
    (b) TCP
    (c) SMTP
    (d) SNMP

    Ans: (c) SMTP

10. Which device is primarily used to amplify and regenerate signals in a network, allowing data to travel longer distances?
    (a) Switch
    (b) Router
    (c) Repeater
    (d) Bridge

    Ans: (c) Repeater

11. Which communication technique establishes a dedicated communication path between two devices for the entire duration of a transmission, ensuring a continuous and consistent connection?

    Ans : Circuit Switching

12. The protocol used identify the corresponding URL from IP address is _____
    (a) IP
    (b) HTTP
    (c) TCP
    (d) FTP

    Ans: (a) IP

13. The device used to convert analog signal to digital signal and vice versa is.
    (a) Amplifier
    (b) Router
    (c) Modem
    (d) Switch
    Ans: (c) Modem

14. What is a standalone computer?
    a) A computer that is not connected to a network
    b) A computer that is being used as a server
    c) A computer that does not have any peripherals attached to it
    d) A computer that is used by only one person
    Ans: a) A computer that is not connected to a network

15. Which of the following protocol helps in e-mail services?
    (a) FTP
    (b) PPP
    (c) UDP
    (d) MIME
    Ans: (d) MIME

16. In order to cover a long-distance network which of the following device will be helpful?
    (a) Modem
    (b) Gateway
    (c) Switch
    (d) Repeater
    Ans: (d) Repeater

17. A security mechanism that can be created in hardware and software both to prevent the unauthorised access to and from a network is called _____.
    (a) Anti-virus
    (b) Network security
    (c) Authentication
    (d) Firewall
    Ans: (d) Firewall

18. What does a network protocol mean?
    (a) Rules governing communication
    (b) Requests over a network
    (c) Services over a network

(d) All of these

Ans: (d) All of these

19.Fill in the blank: _____is the first page that normally view at a website.

(a) First Page

(b) Master Page

(c) Home Page

(d) Login Page

Ans: (c) Home Page

20.Which is the smallest network?

(a) WAN

(b) LAN

(c) MAN

(d) PAN

Ans: (d) PAN

21.Fill in the blank:

_____ is the way of connecting the networking devices.

Ans: Topology

22.What was the name of the first network?

a) ASAPNET

b) ARPANET

c) CNNET

d) NSFNET

Ans: b) ARPANET

23.Fill in the blank:

In case of _____switching, each information or message to be transmitted between sender and receiver is broken down into smaller pieces.

Ans: Packet

24.Mbps Stands for_____.

(a) Megabyte per second

(b) Million byte per second

(c) Megabits per second

(d) More bits per second

Ans: (c) Megabits per second

25.. _____ is used for point-to-point communication or unicast communication such as radar and satellite.

(a) INFRARED WAVES
(b) BLUETOOTH
(c) MICROWAVES
(d) RADIOWAVES

Ans: (c) MICROWAVES

26. 'L' in HTML stands for :

(a) Large
(b) Language
(c) Long
(d) Laser

Ans: (b) Language

27.Ethernet card is also known as :

(a) LIC
(b) MIC
(c) NIC
(d) OIC

Ans: (c) NIC

28. The full form of WWW is _____.

Ans: World Wide Web

29.Which of the following options is the correct unit of measurement for network bandwidth?

(a) KB
(b) Bps
(c) MB
(d) Km

Ans: (b) Bps

30. _____is a set of rules that needs to be followed by the communicating parties in order to have a successful and reliable data communication over a network.

Ans: Protocol OR Name of any protocol

31.Which protocol is used to transfer files over the Internet?

(a) HTTP
(b) FTP
(c) PPP

(d) HTTPS

Ans: (b) FTP

32. Which of the following is a collection of independent computers and other hardware interconnected by communication channels?

(a) Computer
(b) Networking
(c) Sharing
(d) None of these

Ans: (b) Networking

33. Which of the following is an advantage ofnetworking?

(a) Application sharing
(b) File sharing
(c) User communication
(d) All of these

Ans: (d) All of these

34. Network formed between computers which arespread across the continents is called _____.

(a) LAN
(b) WAN
(c) MAN
(d) WLAN

Ans: (b) WAN

35. Which of the following refers to a small, singlesite network?

(a) DSL
(b) RAM
(c) WAN
(d) PAN

Ans**:** (d) PAN

36. Geometric arrangement of devices on thenetwork is called

(a) Topology
(b) Protocols
(c) Media
(d) LAN

Ans: (a) Topology

37. In which of the topology, network componentsare connected to the same cable?

(a) Star
(b) Ring
(c) Bus
(d) Mesh.

Ans: (c) Bus

38. Which is the name of the network topology in which there are bi-directional links between each possible node?
(a) Ring
(b) Bus
(c) Tree
(d) None of these.

Ans: (b) Bus

39. Suggest the most suitable type of network topology he should use in order to maximize speed and make each computer independent of network break downs.
(a) Bus topology
(b) Star topology
(c) Ring topology
(d) Mesh topology.

Ans: (b) Star topology

40. In order to allow data transfer from server to only the intended computers which network device is required in the lab to connect the computers?
(a) Switch
(b) Modem
(c) Router
(d) Gateway

Ans: (a) Switch

41. Which network device is known as an intelligent hub?
(a) Switch
(b) Hub
(c) Router
(d) Gateway

Ans: (a) Switch

42. Which of the following topology contains a backbone cable running through the whole length of the network?
(a) Star
(b) Bus

(c) Mesh
(d) Tree

Ans: (b) Bus

43. Network device that sends the data over optimizing paths through connected loop is _____.
    (a) gateway
    (b) hub
    (c) router
    (d) bridge

    Ans: (c) router

44. In specific, if systems use separate protocols, which one of the following devices is used to link two systems?
    (a) Repeater
    (b) Gateway
    (c) Bridge
    (d) Hub

    Ans: (b) Gateway

45. The WWW is made up of the set of interconnected _____ that are linked together over the Internet.
    (a) Electronic documents
    (b) Network Systems
    (c) Nodes
    (d) All of these.

    Ans: (a) Electronic documents

46. In URL, http://www.google.com/index.htm, which component identifies the path of a web page?
    (a) http
    (b) www.google.com
    (c) /index.htm
    (d) All of the above

    Ans: (c) /index.htm

47. Which of the following statement(s) is/are true about URL?
    (a) URL stands for Uniform Resource Locator.
    (b) You can enter URL into address bar.
    (c) Both (a) and (b)
    (d) It is not necessary for URL to be unique.

    Ans: (c) Both (a) and (b)

48.A website is a collection of___.

(a) Web server
(b) Web page
(c) Web browser
(d) WWW.

Ans: (b) web page

49.By default, web pages are saved in the _____ folder.

(a) Download
(b) Document
(c) Picture
(d) Music

Ans: (b) Document

50.A browser is a web client , which is used for

(a) Connecting to Internet
(b) Accessing websites
(c) Viewing sites on web
(d) All of the above.

Ans: (d) All of the above.

CHAPTER 10 – RELATIONAL DATABASES

1 Marks Questions and Answers

1. The attribute which have properties to be as referential key is known as.
   (a) foreign key
   (b) alternate key
   (c) candidate key
   (d) Both (a) and (c)
   Ans: (a) foreign key

2. Fill in the blank: _____Keyword is used to obtain Non-duplicated values in a SELECT query.
   (a) ALL
   (b) DISTINCT
   (c) SET
   (d) HAVING
   Ans: (b) DISTINCT

3. In MYSQL database, if a table, Emp has degree 10 and cardinality 5, and another table, Dept has degree 5 and cardinality 10, what will be the degree and cardinality of the Cartesian product of Emp and Dept?
   (a) 50,15
   (b) 15,50
   (c) 50,50
   (d) 15,15
   Ans: (b) 15,50

4. Which of the following statements is FALSE in reference to MySQL?
   (a) It is an RDBMS.
   (b) It is case sensitive.
   (c) It is an open source.
   (d) It is ideal for both small and large applications
   Ans: (b) It is case sensitive

5. Which of the following attributes can be considered as a choice for primary key?
   (a) Name
   (b) Street
   (c) Roll No
   (d) Subject
   Ans: (c) Roll No

6. A relation in a database can have _____ number of primary key(s)?
   (a) 1
   (b) 2
   (c) 3
   (d) 4
   Ans: (a) 1

7. In a relational database table with one primary key and three unique constraints defined on different columns (not primary), how many candidate keys can be derived from this configuration?
   (a) 1
   (b) 3
   (c) 4
   (d) 2
   Ans: (c) 4

8. If a table has 1 primary key and 3 candidate keys, how many alternate keys will be in the table:
   (a) 4
   (b) 3
   (c) 2
   (d) 1
   Ans: (c) 2

9. Fill in the blank:
   In a relational model , tables are called_____, that store data for different columns.
   (a) Attributes
   (b) Degrees
   (c) Relations
   (d) Tuples
   Ans: (c) Relations

10. The primary key is selected from the set of_____.
   (a) composite keys
   (b) alternate keys
   (c) candidate keys
   (d) foreign keys
   Ans: (c) candidate keys

11. Which of the following commands is not a DDL command?
    (a) DROP
    (b) DELETE
    (c) CREATE
    (d) ALTER
    Ans: (b) DELETE

12. Which of the following is not a DDL command in SQL?
    (a) DROP
    (b) CREATE
    (c) UPDATE
    (d) ALTER
    Ans: (c) UPDATE

13. A _____ is a collection of interrelated data, stored to serve multiple applications.
    (a) File
    (b) Information
    (c) Data file
    (d) Database
    Ans: (d) Database

14. A _____ is a software that is responsible for storing and maintaining databases.
    (a) Operating system
    (b) Database system
    (c) DBMS
    (d) All of these
    Ans: (c) DBMS

15. The term_____ is used to refer to a record in a table.
    (a) Attribute
    (b) tuple
    (c) Field
    (d) Instance
    Ans: (b) tuple

16. A_____ is a property of the entire relation, which ensures through its value that each tuple is unique in a relation.
    (a) Rows
    (b) Key
    (c) Attribute
    (d) Fields

Ans: (b) Key

17. In the relational models, cardinality actually refers to_____.
    (a) Number of tuples
    (b) Number of attributes
    (c) Number of tables
    (d) Number of constraints
    Ans: (a) Number of tuples

18. In the relational model, relationship among relations / tables are created by using _____keys.
    (a) Composite
    (b) Alternate
    (c) Candidate
    (d) Foreign
    Ans: (d) Foreign

19. Which of the below given tasks cannot be performed through Data Manipulation Language (DML) commands?
    (a) Create table in the Database
    (b) Insert a record into a table
    (c) Delete a record form a table
    (d) Modify a record into a table
    Ans: (a) Create table in the Database

20. Which of the following sublanguages of SQL is used to define the structure of the relation, deleting relations and relating schemes?
    (a) DML (Data Manipulation Language)
    (b) DDL (Data definition Language)
    (c) Query
    (d) Relation Schema
    Ans: (b) DDL (Data definition Language)

CHAPTER 11 – SIMPLE QUERIES IN SQL

1 Marks Questions and Answers

1. The rows of the result relation provided by a SELECT statement can be sorted, but only by one column.(True/False)

   Ans: False

2. Which SQL function returns the total of values of a column of numeric type?

   (a) total( )
   (b) add( )
   (c) sum( )
   (d) All of these

   Ans: (c) sum( )

3. LIKE clause is used for.

   (a) For pattern matching
   (b) For table matching
   (c) For inserting similar data in a table
   (d) For deleting data from a table

   Ans: (a) For pattern matching

4. To obtain all columns, use a (n) _____ instead of listing all the column names in the select list.

   Ans: Asterisk (*)

5. What will the following query show?

   (Considering a table student with some columns)

   SELECT * FROM students WHERE age in (17, 19, 21);

   (a) Show tuples of students table with all the age values from 17 to 21
   (b) Show tuples of students table only with the age values 17, 19, 21
   (c) Show tuples of students table only with the age values other then 17, 19, 21
   (d) Show tuples of students table with all the age values outside the range 17 to 21

   Ans: (b) Show tuples of students table only with the age values 17, 19, 21

6. The SELECT statement when combined with ___ clause, returns records without repetition.

   (a) DISTINCT
   (b) DESCRIBE
   (c) UNIQUE
   (d) NULL

   Ans: (a) DISTINCT

7. The SQL _____ clause contains the condition that specifies which rows are to be selected.
   Ans: Where

8. DISTINCT and ALL keywords can be used together on single field in a SELECT statement.
   Ans: False

9. In SQL, the aggregate function which will display the cardinality of the table is _____.
   (a) sum()
   (b) count(*)
   (c) avg()
   (d) sum(*)
   Ans: (b) count(*)

10. Which of the following keywords will you use in the following query to display the unique values of the column dept_name?
   SELECT _____ dept_name FROM Company;
   (a) All
   (b) Key
   (c) Distinct
   (d) Name
   Ans: (c) Distinct

11. The SQL keyword _____ is used in SQL compressions to select based on patterns.
   Ans: Like

12. How would you return all the rows from a table named "Item" sorted in descending order on the column "IName"?
   (a) SELECT * FROM Item SORT 'IName' DESC;
   (b) SELECT * FROM Item ORDER BY IName DESC;
   (c) SELECT * FROM Item ORDER IName DESC;
   (d) SELECT * FROM Item SORT BY 'IName' DESC;
   Ans: (b) SELECT * FROM Item ORDER BY IName DESC;

13. In MySQL, date values to be enclosed in single quotation marks.
   Ans: True

14. Which of the following is not an SQL command?
   (a) Create Database

(b) Create Table
(c) Create Query
(d) Show Tables

Ans: (c) Create Query

15._____ keywords remove duplicates records from the table.

Ans: Distinct

16.The ___ clause of SELECT query allows us to select only those rows in the result that satisfy a specified condition.

(a) Where
(b) from
(c) having
(d) like

Ans: (a) Where

17.You cannot display only year from the selected date in MySQL. (True/False)

Ans: False

18._____ Clause of the following query must be added with keyword ____ to display the fields given in the select list as per a given condition.

SELECT ID, name, dept_name, salary*1.1 FROM Employee WHERE instructor=1005;

(a) Where, having
(b) Select, from
(c) Where, from
(d) Where, select

Ans: (d) Where, select

19.Which of the following queries contains an error?

(a) Select * from emp where empid=10003;
(b) Select empid from emp where empid = 10006;
(c) Select empid from emp;
(d) Select empid where empid=1009 and last name = 'GUPTA';

Ans: (d) Select empid where empid=1009 and last name = 'GUPTA';

20.The SQL statement: SELECT salary + comm AS Total FROM Emp; adds two fields salary and comm from each row together and lists the results in a column named Total.

Ans: True

21. The _____ command counts all values including the duplicate values from the table at once.

Ans: Count(*)

22. Consider the following table namely Employee:

Employee_Id	Name	Salary
1001	Misha	6000
1009	Khushi	4500
1018	Japneet	7000

Which of the names will not be displayed by the below given query?

SELECT name FROM employee WHERE employee_id>1009;

(a) Misha, Khushi

(b) Khushi, Japneet

(c) Japneet

(d) Misha, Japneet

Ans: (a) Misha, Khushi

23. Which operator performs pattern matching?

(a) BETWEEN operator

(b) LIKE operator

(c) EXISTS operator

(d) None of these

Ans: (b) LIKE operator

24. Consider the following query

SELECT name FROM class WHERE subject LIKE'____ Computer Science';

Which one of the following has to be added into the blank space to select the subject? Which has Computer Science as its ending string?

(a) $

(b) @

(c) ||

(d) %

Ans: (d) %

25. The _____ clause is used to separate those rows that have the same value in a specified column.

Ans: Group By

26. The pattern '_ _ _' matches any string of _____ three characters. '_ _ _ %' matches any string of ___ three characters.

(a) Atleast, Exactly

(b) Exactly, Atleast
(c) Atleast, All
(d) All, Exactly

Ans: (b) Exactly, Atleast

27. Consider the following query:

SELECT * FROM employee ORDER BY salary _____, name _____?

To display the salary from greater to smaller and name in alphabetical order which of the following options should be used?

(a) Ascending, Descending
(b) Asc, Desc
(c) Desc, Asc
(d) Descending, Ascending

Ans: (c) Desc, Asc

28. Which data type in MySQL is used to store logical values?

(a) Boolean
(b) Logic
(c) Char
(d) String

Ans: (a) Boolean

29. Which keyword is used to arrange records in increasing or decreasing order?

(a) Order By
(b) By Order
(c) Ascending Order
(d) Descending Order

Ans: (a) Order By

30. Which of the following function returns the date value in 'YYYY-MM-DD' from system date?

(a) curdate()
(b) datenow()
(c) now()
(d) sysdate()

Ans: (a) curdate()

CHAPTER 12 – TABLE CREATION AND DATA MANIPULATION COMMANDS
1 Marks Questions and Answers

1. Which command is used to change some values in existing rows?
   (a) CHANGE
   (b) MODIFY
   (c) ALTER
   (d) UPDATE
   Ans: (d) UPDATE

2. _____ command is used to remove a column from a table in SQL.
   (a) update
   (b) remove
   (c) alter
   (d) drop
   Ans: (c) alter

3. Which of the following commands will delete the rows of table?
   (a) DROP command
   (b) DELETE Command
   (c) REMOVE Command
   (d) ALTER Command
   Ans: (b) DELETE Command

4. _____ command is used to remove the tuple from the table in SQL.
   (a) update
   (b) remove
   (c) alter
   (d) delete
   Ans: (d) delete

5. Which statement is used to modify data in a table?
   (a) CHANGE
   (b) MODIFY
   (c) UPDATE
   (d) ALTER
   Ans: (c) UPDATE

6. Which SQL command can modify the structure of an existing table, such as adding or removing columns?
   (a) ALTER TABLE

(b) UPDATE TABLE
(c) MODIFY TABLE
(d) CHANGE TABLE

Ans: (a) ALTER TABLE

7. The sql _____ command is used to add a column to an existing table?
   Ans: ALTER (or) ALTER TABLE

8. Fill in the blank:
   _____statement of SQL is used to insert new records in a table.
   (a) ALTER
   (b) UPDATE
   (c) INSERT
   (d) CREATE

   Ans: (c) INSERT

9. The data type CHAR (n) and VARCHAR (n) Are used to create _____, and _____Length types or string or text fields in a Database.
   (a) Fixed, equal
   (b) Equal, variable
   (c) Fixed, variable
   (d) Variable, equal

   Ans: (c) Fixed, variable

10. In the given query which keyword has to be Inserted? INSERT INTO employee ___ (1002, kasur, 2002);
    (a) Table
    (b) Values
    (c) Relation
    (d) Field

    Ans: (b) Values

11. Which of the following is not a legal constraint for CREATE TABLE command?
    (a) Primary key
    (b) foreign key
    (c) Unique
    (d) distinct

    Ans: (d) distinct

12.What does the following query do?

UPDATE Employee SET salary = salary * 1.10;

(a) It increases the salary of all employee by 10%

(b) It decrease the salary of all employee by 90%

(c) It increases the salary of all employee by 110%

(d) It is syntactically incorrect.

Ans: (a) It increases the salary of all employee by 10%

13.Which command(s) is (are) used to redefine acolumn of the table in SQL?

(a) ALTER TABLE

(b) DEFINE TABLE

(c) REDEFINED TABLE

(d) All of the above

Ans: (a) ALTER TABLE

14.Identify the correct INSERT queries from thefollowing:

(a) INSERT INTO person ('xxx1','yyy1');

(b) INSERT INTO person (LastName, FirstName) value ('xxx1', 'yyy');

(c) INSERT INTO person values ('xxx1','yyy1');

(d) INSERT INTO person value ('xxx1','yyy1');

Ans: (c) INSERT INTO person values ('xxx1','yyy1');

15.Which of the following is true about the DROPTABLE statement?

(a) delete the table structure only .

(b) delete the table structure along with tabledata

(c) does not work with table having constrains

(d) None of these

Ans: (b) delete the table structure along with tabledata

16.The ____ clause in CREATE TABLE ensures referential integrity?

(a) PRIMARY KEY clause

(b) SECONDARY KEY clause

(c) UNIQUE KEY clause

(d) INTREVEL KEY clause

Ans: (a) PRIMARY KEY clause

17.Which of the following query add one column Email of data type VARCHAR and size 30 to the table Customer.

(a) Add Email Varchar(30);

(b) Alter Customer Add Email Varchar(30);

(c) Alter Table Customer Add Varchar(30);

(d) Alter table Customer Add Email Varchar(30);

Ans: (d) Alter table Customer Add Email Varchar(30);

18. Unique key allows _____ values where as primary key does not.

(a) duplicate
(b) Null
(c) both a & b
(d) none of the above

Ans: (b) Null

19. _____is a special keyword in SQL that depicts an empty value.

(a) Null
(b) None
(c) Both a & b
(d) None of the above

Ans: (a) Null

20. A table Table1 has two text fields defined as below:

....
....
Name_1 varchar (20),
Name_2 char (20),
....
....

If Name 1 stores value as 'Ana' and Name2 stores value as "Anu", then Name l will consume, characters space and Name2 will consume characters space

(a) 3, 20
(b) 20, 4
(c) 20, 20
(d) 3,4

Ans: (a) 3, 20

CHAPTER 13 – GROUPING RECORDS, JOINS IN SQL

1 Marks Questions and Answers

1. The HAVING clause acts like a WHERE clause, but it identifies groups that meet a criterion, rather than rows.(True/False)
   Ans: True

2. A _____ is a query that retrieves rows from more than one table or view:
   a. Start
   b. End
   c. Join
   d. All of these
   Ans: c. Join

3. The HAVING clause does which of the following?
   a. Acts EXACTLY like a WHERE clause.
   b. Acts like a WHERE clause but is used for columns rather than groups.
   c. Acts like a WHERE clause but is used for groups rather than rows.
   d. Acts like a WHERE clause but is used for rows rather than columns.
   Ans: c. Acts like a WHERE clause but is used for groups rather than rows.

4. Only _____ functions are used with GROUP BY.
   Ans: Aggregate

5. SQL applies conditions on the groups through _____ clause after groups have been formed.
   a. Group by
   b. With
   c. Where
   d. Having
   Ans: d. Having

6. Which clause is used with “Aggregate functions”?
   a. GROUP BY
   b. Order By
   c. WHERE
   d. Both (a) and (c)
   Ans: d. Both (a) and (c)

7. The SQL keyword GROUP BY instructs the DBMS to group together those rows that have the same value in a column.(True/False)
   Ans: True

8. What is the meaning of "HAVING" clause in SELECT query?
    a. To filter out the summary groups
    b. To filter out the column groups
    c. To filter out the row and column values.
    d. None of the mentioned.

    Ans: a. To filter out the summary groups

9. Natural join joins two tables on the basis of a _____ field.

    Ans: Common

10. Where and Having clauses can be interchangeably in SELECT queries?
    a. True
    b. False
    c. Only in views
    d. With order by

    Ans: b. False

11. COUNT (field_name) takes only those rows that contain a value; it ignores all null values.(True/False)

    Ans: True

12. The operation whose result contains all pairs of tuples from the two relations, regardless of whether their attribute values match.
    a. Join
    b. Cartesian product
    c. Intersection
    d. Set difference

    Ans: b. Cartesian product

13. The SQL built in function _____ obtains the smallest value in a numeric column.

    Ans: Min

14. Which SQL function is used to count the number of rows in a SQL query?
    a. COUNT( )
    b. NUMBER( )
    c. SUM( )
    d. COUNT (*)

    Ans: d. COUNT (*)

15. The HAVING clauses can take any valid SQL function in its condition.(True/False)

    Ans: False

16. Which of the following is not an aggregate function?
    a. Avg
    b. Sum
    c. With
    d. Min
    Ans: c. With

17. All aggregate functions except _____ ignore null values in their input collection.
    a. Count(attribute)
    b. Count(*)
    c. Avg
    d. Sum
    Ans: b. Count(*)

18. To compare an aggregate value in a condition, ___ clause is used.
    Ans: Having

19. With GROUP BY, the select-list of the SELECT statement can only take the group-field and/or aggregate function.(True/False)
    Ans: True

20. Which of the following is a SQL aggregate function?
    a. LEFT
    b. AVG
    c. JOIN
    d. LEN
    Ans: b. AVG

21. Which of the following group functions ignore NULL values?
    a. MAX
    b. COUNT
    c. SUM
    d. All of the above
    Ans: d. All of the above

22. To get data from two or more tables having some common fields, _____ query is created.
    Ans: Join

23. The functions which work with individual rows' data are called ____ function.
    a. Single row

b. Multiple rows
c. Aggregate
d. None of these

Ans: a. Single row

24. Function count () is a/an _____ function.
    a. Single row
    b. Scalar
    c. Aggregate
    d. None of these

Ans: c. Aggregate

25. Which clause cannot be used with “aggregate functions”?
    a. Group by
    b. Select
    c. Where
    d. Both (a) and (b)

Ans: c. Where

26. The following SQL is which type of join:
SELECT CUSTOMER.CUST_ID, ORDER.ORDER_ID, NAME, ORDER_ID
FROM CUSTOMER, ORDER WHERE CUSTOMER.CUST_ID =
ORDER.CUST_ID;
    a. Equi-join
    b. Natural join
    c. Outer join
    d. Cartesian product

Ans: a. Equi-join

27. The following SQL is which type of join:
SELECT CUSTOMER.CUST_ID, ORDER.CUST_ID, NAME, ORDER_ID
FROM CUSTOMER, ORDER;
    a. Equi-join
    b. Natural join
    c. Outer join
    d. Cartesian product

Ans: d. Cartesian product

28. Which product is returned in a join query have no join condition?
    a. Equi-join
    b. Cartesian product

c. Both (a) and (b)
d. None mentioned

Ans: b. Cartesian product

29.Which is a join condition contains an equality operator?

a. Equi-join
b. Cartesian product
c. Both (a) and (b)
d. None of the mentioned

Ans: a. Equi-join

30. Join can only be created from two tables.(True/False)

Ans: False

CHAPTER 14 – INTERFACE PYTHON WITH MYSQL

1 Marks Questions and Answers

1. In order to open a connection with MySQL database from within Python, _____ function is used in mysql.connector package.
   a) open( )
   b) database( )
   c) connect( )
   d) connectdb( )

   Ans: c) connect( )

2. A _____ controls the connection to an actual database, established from within a Python program.
   a) database object
   b) connection object
   c) fetch object
   d) query object

   Ans: b) connection object

3. A _____ is a special control structure that facilitates the row by row processing of records in the result set, i.e., the set of records retrieved as per query.

   Ans: database cursor

4. The set of records retrieved after executing an SQL query over an established database connection is called _____.
   a) table
   b) sqlresult
   c) result
   d) resultset

   Ans: d) resultset

5. A database _____ is a special control structure that facilitates the row by row processing of records in the retrieved resultset.
   a) fetch
   b) table
   c) cursor
   d) query

   Ans: c) cursor

6. Which of the following is not a legal method for fetching records from databases from within a Python program?
   a) fetchone ( )

b) fetchtwo( )
c) fetchall( )
d) fetchmany( )

Ans: b) fetchtwo( )

7. After importing mysql.connector, first of all _____ is established using connect( ).
   Ans: Database Connection

8. To obtain all the records retrieved you may use <cursor>._____ method.
   a) fetch( )
   b) fetchmany( )
   c) fetchall( )
   d) fetchmultiple( )
   Ans: c) fetchall( )

9. Which function of connection is used to check whether connection to mysql is successfully done or not?

```
import mysql.connector as msq
con = msq.connect( #Connection String )# Assuming all parameter required as passed
if _____:
    print("Connected!")
else:
    print("Error! Not Connected")
```

   a) con.connected()
   b) con.isconnected()
   c) con.is_connected()
   d) con.is_connect()
   Ans: c) con.is_connected()

10. The _____ returns the number of rows that have been fetched so far using various fetch methods.
    Ans: cursor.rowcount()

11. To reflect the changes made in the database permanently, you need to run <connection>. _____ method.
    a) done( )
    b) reflect( )
    c) commit( )
    d) final( )
    Ans: c) commit( )

12. Which of the following libraries may be used for connecting with a MySQL database from a python program?
    a) mysql.connector
    b) mMySQLServer
    c) mysql
    d) MYSQLClient

    Ans: a) mysql.connector

13. The running of sql query through database cursor results into all the records returned in the form of _____.

    Ans: Resultset

14. After importing the connection library, first thing you do is, establish _____ to MySQL database.
    a) Cursor
    b) setup
    c) Resultset
    d) connection

    Ans: d) connection

15. What is the default value of host?
    a) host
    b) localhost
    c) global host
    d) None of these

    Ans: b) localhost

16. _____method creates a cursor from within Python.

    Ans: cursor()

17. Which method returns the next row from the result set as tuple?
    a) fetchone( )
    b) fetchmany( )
    c) fetchall( )
    d) rowcount( )

    Ans: a) fetchone( )

18.Consider the information stored in the table : EMP

EMPNO	ENAME	DEPT	SALARY
1	ALEX	MUSIC	60000
2	PETER	ART	67000
3	JOHNY	WE	55000
4	RAMBO	P&HE	48000

Following python code is written to access the records of table: EMP, What will be the output of following code:

```
# Assume All basic setup related to connection and cursor creation is already done
query="select * from emp"
mycursor.execute(query)
results = mycursor.fetchone()
results = mycursor.fetchone()
results = mycursor.fetchone()
d = int(results[3])
print(d*3)
```

a) P&HEP&HEP&HE
b) 144000
c) WEWEWE
d) 165000

Ans: d) 165000

19._____method executes a database query from within Python.

Ans: execute()

20.Pick the correct (default) username used for logging into database (sql with Python).

a) root
b) local
c) directory
d) host

Ans: a) root

ASSERTION AND REASON QUESTIONS

(a) Both (A) and (R) are true and (R) is the correct explanation of (A)
(b) Both (A) and (R) are true and (R) is incorrect explanation of (A)
(c) (A) is true but (R) is false
(d) (A) is false but (R) is true

CHAPTER 3 – WORKING WITH FUNCTIONS

1. **Assertion(A) :**A variable declared as global inside a function is visible with changes made to it outside the function.
   Reason (R) : All variables declared outside are not visible inside a function till they are re declared with global keyword.
   Ans: (a) Both (A) and (R) are true and (R) is the correct explanation of (A)

2. **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.
   Reason (R) : During a function call, the argument list first contains default argument(s) followed by positional argument(s).
   Ans: (c) (A) is true but (R) is false

3. **Assertion(A) :**In Python, return statement/keyword exits a function.
   Reason (R) : Return statement passes back an expression to the caller.
   Ans: (a) Both (A) and (R) are true and (R) is the correct explanation of (A)

4. **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 execute for different values (arguments), provided to a function.
   Ans: (a) Both (A) and (R) are true and (R) is the correct explanation of (A)

5. **Assertion(A) :**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.
   Reason (R) : 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.
   Ans: (a) Both (A) and (R) are true and (R) is the correct explanation of (A)

CHAPTER 5 & 6 – FILE HANDLING AND EXCEPTION HANDLING

1. **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.
   Reason (R) :A Binary files are just like normal text files and can be read using a text editor like notepad.
   Ans: (c) (A) is true but (R) is false

2. **Assertion(A) :**CSV module allows to write a single record into.
   Reason (R) : The writerow() function creates header row in csv file by default.
   Ans: (c) (A) is true but (R) is false

3. **Assertion(A) :**CSV stands for Comma Separated Values.
   Reason (R) :CSV files are a common file format for transferring and storing data.
   Ans: (a) Both (A) and (R) are true and (R) is the correct explanation of (A)

4. **Assertion(A) :** CSV files are used to store the data generated by various social media platforms.
   Reason(R) :CSV files cannot be opened with MS Excel.
   Ans: (c) (A) is true but (R) is false

5. **Assertion(A) :**The 'finally' block is executed only if an exception occurs in the 'try' block.
   Reason(R) : The 'finally' block contains the code that must execute.
   Ans: (d) (A) is false but (R) is true

CHAPTER 11 – SIMPLE QUERIES IN SQL

1. **Assertion(A) :**MAX and MIN are aggregate functions.
   Reason (R) : These can work on multiple rows.
   Ans: (a) Both (A) and (R) are true and (R) is the correct explanation of (A)

2. **Assertion(A) :**The qualifier DISTINCT must be used in an SQL statement when we want to eliminate duplicate rows.
   Reason (R) :DISTINCT only works with numeric data type only
   Ans: (c) (A) is true but (R) is false

3. **Assertion(A) :**AVG() function calculates the average of specified column(s)
   Reason (R) : It doesn't ignore NULL values.
   Ans: (c) (A) is true but (R) is false

4. **Assertion(A) :**Both BETWEEN and IN operators can choose from a list of values.
   Reason (R) : The value ranges and a list of values are interpreted in the same way in SQL**.**
   Ans: (c) (A) is true but (R) is false

5. **Assertion(A) :**DDL and DML both are part of SQL.
   Reason (R) : Both DDL and DML are inter changeable.
   Ans: (c) (A) is true but (R) is false

CAHPTER 1 & 2 – PYTHON REVISION TOUR I & II

2 Marks Questions and Answers

1. Given is a Python string declaration:

```
message = 'First Pre Board Exam@2022-23'
```

Write the output of:

```
print(message [:: -3]. upper( ))
```

Ans: 322A A PSF

2. 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())
```

Ans: dict_keys(['name', 'age', 'dept', 'rno'])

3. (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)
```

Ans: a) TO@AG b) [1,2,4,5]

4. 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)
```

Ans: {2:3,4:3,1:2,3:2}

(The dictionary elements can be written in any order.)

5. (a) Given is a Python List declarations:

```
lst1=[39,45,23,15,25,60]
```

what will be the output of the following given code?

```
print (lst1.index(23))
```

(b) Write the output of the code:

```
x=[“rahul”,5,“B”,20,30]
x.insert(1,3)
x.insert(3,“akon”)
print(x[2])
```

Ans: a) 2 b) 5

6. Write the output displayed on execution of the following Python code:

```
LS= ["HIMALAYA","NILGIRI","ALASKA","ALPS"]
D={ }
for S in LS:
    if len(S)%4==0:
        D[S]=len(S)
for K in D:
    print(K,D[K],sep='#')
```

Ans: HIMALAYA#8
ALPS#4

7. Consider the statement: first _ name =“Ayana”;

i) What is the data type of first _ name?

ii) Is 325 the same as “325”? Give reason.

Ans: i) <class ‘Str’>

ii) No. because first value is numerical and second value is string.

8. What is the difference between the following statements (i) and (ii)

i) a = 5 ii) if a == 5:

Ans: i) variable a is being assigned using assignment operator for the value 5

ii) a is being checked for equality using relational operator with 5

9. Write the Python statement for each of the following tasks using built-in functions/methods only:

i) To remove the item whose key is “NISHA” from a dictionary named Students.

For example, if the dictionary Students contains {“ANITHA”:90,“NISHA”:76,“ANISHA”:92}, then after removal the dictionary Should contains {“ANITHA”:90,“ANISHA”:92}

ii) To display the number of occurrences of the substring “is” in a string named message.

For example if the string message contains “This is his book”, then the output will be 3.

Ans: i) del Students[“NISHA”]

ii) message.count(“is”)

10. Differentiate between break and continue statement with the help of an example.

Ans : Break statement skips the rest of the loop and jumps over to the statement following the loop.

Example:
```
for i in range(10):
    print(i)
    if i>=5:
        break
```
Continue statement skips current loop statements and causes the next iteration of the loop to take place.

Example:
```
for i in range(10):
    print(i)
    if i>=5:
        continue
```

11.Give the output for the following:
```
L = [10, 20, 30, 40, 50]
L[len(L):] = 45,67
print( L)
```
Ans: [10,20,30,40,50,45,67]

12.Give the output for the following:
```
Lst=[1,0,4,5,8,2,3,10,5]
Lst.pop()     # remove last no
Lst.pop (2) # remove no of index no 2
Lst.pop (4)
print (Lst)
```
Ans: [1,0,5,8,3,10]

13.Write a program in python to sort items in a list Lst in ascending order

Lst = [1,0,4,5,8,2,3,10,5]

Ans:
```
Lst.sort( )
print(Lst)
```
OUTPUT:[0,1,2,3,4,5,5,8,10]

14. Write a program in python to sort items in a list Lst in descending order

```
Lst = [1,0,4,5,8,2,3,10,5]
```

Ans:

```
Lst.sort(reverse=True)
print(Lst)
```

OUTPUT: [10,8,5,5,4,3,2,1,0]

15. A tuple named subject stores the names of different subjects. Write the Python commands to convert the given tuple to a list and thereafter delete the last element of the list.

Ans:

```
SubList=list(subject)
SubList.pop()
```

16. Write any two difference between sort( ) and sorted( ) function.

Ans:

sort( )	**sorted( )**
In-Place Sorting	Non-Destructive Sorting
Alters the original list	Leaves the original list intact
Minimal memory usage	Creates a new sorted list
Only for lists	Versatile works with various iterables (e.g. Lists tuples strings)

17. 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)
```

Ans: [(2,4),(4,16)]

18. Predict the output:

```
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)
```
Ans: thon
5

19.a) Given is a Python list declaration:

```
Listofnames=["Aman","Ankit","Ashish","Rajan","Rajat"]
```

Write the output of:

```
print(Listofnames[-1:-4:-1])
```

b) Consider the following tuple declaration:

```
tup1=(10,20,30,(10,20,30),40)
```

Write the output of:

```
print(tup1.index(20))
```

Ans: a) ['Rajat', 'Rajan', 'Ashish']
b) 1

20.Predict the output of the following code:

```
d={"IND":"DEL","SRI":"COL","CHI":"BEI"}
str1=" "
for i in d:
   str1=str1+str(d[i])+"@"
   str2=str1[:-1]
print(str2)
```

Ans: DEL@COL@BEI

21.Write the Python statement for each of the following tasks using BUILT-IN functions/methods only:

i) To delete an element 10 from the list Lst.
ii) To replace the string “This” with “That” in the string str1.

Ans: i) Lst.remove(10)
ii) str1=str1.replace(“This”,“That”)

22.What possible output from the given option is expected to be displayed when the following Python code is executed ?

```
import random
Signal=['RED','YELLOW','GREEN']
for K in range(2,0,-1):
        R = random.randrange(K)
```

```
        print (Signal[R], end = '#')
```
Ans: YELLOW#RED#

(OR)

RED#RED#

23.(a) Given is a Python string declaration :

```
NAME = "Learning Python is Fun"
```

Write the output of :

```
print(NAME[-5:-10:-1])
```

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

```
dict1={1:["Rohit",20], 2:["Siya",90]}
dict2={1:["Rahul",95], 5:["Rajan",80]}
dict1.update(dict2)
print(dict1.values())
```

Ans: (a) si no

(b) dict_values([['Rahul', 95], ['Siya', 90], ['Rajan', 80]])

24.Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.

```
Value=30
for VAL in range(0,Value)
    If VAL % 4 = = 0:
        print(VAL*4)
    Elseif VAL % 5 = = 0:
        print(VAL+3)
    else
        print(VAL+10)
```

Ans:

```
Value=30
for VAL in range(0,Value):      # Error 1 – colon missing
    if VAL % 4 = = 0:           # Error 2 – if should be lower case
        print(VAL*4)
    elif VAL % 5 = = 0:         # Error 3 – it should be elif
        print(VAL+3)
    else:                       # Error 4 – colon missing
        print(VAL+10)
```

25.Evaluate the following expressions:

i) 6 * 3 + 4 ** 2 // 5 - 8

ii) 10 > 5 and 7 > 12 or not 18 > 3

Ans:

i) 13 ii) False

26. Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.

```
30 = To
for K in range(0,To)
    IF K % 4 = = 0:
        print(K*4)
    Else:
        print(K+3)
```

Ans:

```
To = 30                          # Error 1 – To assign a value correctly
for K in range(0,To):            # Error 2 – Colon Missing
    if K % 4 = = 0:              # Error 3 – if is lower case
        print(K*4)
    else:                        # Error 4 – else is lower case
        print(K+3)
```

27. Predict the output of the following code:

```
x="apple,pear,peach"
y=x.split(",")
for z in y:
    print(z)
```

Ans:

```
apple
pear
peach
```

28.Find and write the output of the following python code:

```
for Name in ['Jay', 'Riya', 'Tanu', 'Anil']:
    print(Name)
    if Name[0] = = 'T':
        break
    else:
        print('Finished')
print('Got it!')
```

Ans:

```
Jay
Finished
Riya
Finished
```

Tanu
Got it!

29. What will be the output of the following code snippet?

```
values=[ ]
for i in range(1,4):
    values.append(i)
    print(values)
```

Ans:

```
[1]
[1,2]
[1,2,3]
```

30. What will be the output of the following code snippet?

```
dc1={ }
dc1[1]=1
dc1['1']=2
dc1[1.0]=4
sum=0
for k in dc1:
    sum + = dc1[k]
print(sum)
```

Ans: 6

CAHPTER 3 – WORKING WITH FUNCTIONS
2 Marks Questions and Answers

1. The code given below accepts five numbers and displays whether they are even or odd. Observe the following code carefully and rewrite it after removing all syntax and logical errors. Underline all the corrections made.

```
def EvenOdd ( )
    for i in range (5):
        num = int (input (“Enter a number”)
        if num/ 2 = 0:
            print (“Even”)
        else:
        print (“ Odd” )
EvenOdd ()
```

Ans:

Given code:

```
def EvenOdd( )      #: is not present after function definition
    for i in range(5):
        num=int(input(“Enter a number“)       #closing parenthesis is not
                                                    present
        if num / 2==0:              #% to be used in place of / for remainder
            print(“Even”)
        else:
        print(“Odd”)                #Indentation not correct
EvenOdd()
```

Corrected code:

```
def EvenOdd():
    for i in range(5):
        num=int(input(“Enter a number “))
        if num%2==0:
            print(“Even”)
        else:
            print(“Odd”)
EvenOdd()
```

2. What is the output of the below program?

```
def printMax(a, b):
    if a > b:
        print (a, 'is maximum')
    elif a == b:
        print (a, 'is equal to', b)
```

```
        else:
            print (b, 'is maximum')
    printMax(3, 4)
```

Ans: 4 is maximum

3. Write a user defined function in Python named showGrades (S) which takes the dictionary S as an argument. The dictionary, S contains Name: [Eng ,Math, Science] as key: value pairs. The function displays the corresponding grade obtained by the students according to the following grading rules:

Average of Eng ,Math , Science	Grade
>=90	A
<90 but >=60	B
<60	C

For example: Consider the following dictionary
S={“AMIT”: [92, 86, 64], “NAGMA”: [65, 42, 43], “DAVID”: [92, 90, 88]}
The output should be:

```
AMIT : B
NAGMA : C
DAVID : A
```

Ans:

```
def showGrades(S):
    for n, marks in S.items():
        perc=sum(marks)/3
        if perc>=90:
            print(n + ": " + "A")
        elif perc>=60:
            print(n + ": " + "B")
        else:
            print(n + ": " + "C")
S={"AMIT": [92, 86, 64], "NAGMA": [65, 42, 43], "DAVID": [92, 90, 88]}
showGrades(S)
```

4. 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)
```

Ans:
```
def execmain():                          # Error 1 – def is lower case
    x = input("Enter a number:")
    if (abs(x)== x):                     # Error 2  - Colon (:) is must at end
        print("You entered a positive number")
    else:                                # Error 3 – Indentation mistake
        x*=-1
        print("Number made positive:",x)  # Error 4 – Comma(,) is missing
```

5. Write the output of the code given below:

```
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)
```

Ans: 40#6#

6. What is the output of below program?

```
def say(message, times = 1):
    print(message * times)
say('Hello')
say('World', 5)
```

Ans:
```
Hello
WorldWorldWorldWorldWorld
```

7. Write a user defined function in Python named Puzzle (W, N) which takes the argument W as an English word and N as an integer and returns the string where every N'th alphabet of the word W is replaced with an underscore ("_"). For example: if W contains the word "TELEVISION" and N is 3, then the function should return the string "TE_EV_SI_N". Likewise for the word "TELEVISION" if N is 4, then the function should return "TEL_VIS_ON".

Ans:

```
def puzzle(w,n):
    mystr=""
    for i in range(0,len(w)):
        if (i+1)%n==0:
            mystr +="_"
```

```
                else:
                        mystr += w[i]
        print(mystr)
        return mystr
W="TELEVISION"
N=4
puzzle(W,N)
```

8. Write the output of the Python code given below :

```
a=15
def update(x):
        global a
        a+=2
        if x%2==0:
                a*=x
        else:
                a//=x
a=a+5
print(a,end="$")
update(5)
print(a)
```

Ans: 20$4

9. What is the output of the following?

```
def foo (i, x=[]):
        x.append (x.append(i))
        return x
for i in range (3):
        y = foo (i)
print (y)
```

Ans: [0, None, 1, None, 2, None]

10. 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)

Ans: 70 40 30
110 60 50

CAHPTER 5 – FILE HANDLING
2 Marks Questions and Answers

1. Differentiate between the following:

```
f = open ('diary. txt', 'a')
f = open ('diary. txt', 'w')
```

Ans: (i) diary.txt is opened as append mode for writing data at the end of file
(ii) diary.txt is opened as write mode for writing data from the beginning of file.

2. Write a method beginA( ) in Python to read lines from a text file Notebook.TXT, and display those lines, which are starting with 'A' or 'a'.

For 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 beginA( ) function should display the output as:

An apple a day keeps the doctor away.
A marked difference will come in our country.

Ans:

```
def beginA():
    f=open('Notebook.TXT')
    L=f.readlines()
    for i in L:
        if i[0]=='A' or i[0]=='a':          #or if i[0] in ["A","a']
            print(i)
    f.close()
beginA()
```

3. 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.

Ans:

```
fr=open("PYTHON.TXT")
fw=open("PYTHON1.TXT", 'w')
d=fr.read( )
for i in d:
    if not i.isdigit( ):
        fw.write(i)
fr.close()
fw.close()
```

4. 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.
   If the contents of file is :

   A man always wants to strive higher in his life
   He wants to be perfect.

   The output should be: always wants strive higher life wants perfect.

   Ans:
```
def displaywords ():
    file = open('data.txt','r')
    st=file.read()
    Lst=st.split()
    for k in Lst:
        if len(k)>3:
            print(k, end=" ")
    file.close( )
displaywords ( )        # Call the displaywords
```

5. Write a method count_lines( ) in Python to read lines from text file 'student.txt' and display the total number of line in file.
   Example: If the file content is as follows:

   An apple in a day keeps the doctor away
   We should aware for everyone's safety and security
   India is one of the biggest country in word

   The count_lines( ) function should display the output as:

   The number of lines in file are: 3

   Ans:
```
def count_lines():
    f=open("student.txt",'r')
    rows=f.readlines( )
    print("The number of lines in file are", len(rows))
count_lines()
```

6. Differentiate between file modes r+ and w+ with respect to Python.

   Ans: a) r+ Open's a file for both reading and writing. The file pointer placed at the beginning of the file.

   b) w+ Open's a file for both writing and reading. Overwrites the existing file if the file exists. If the file does not exist, creates a new file for writing and reading.

7. 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()
SHOWWORD()
```

8. Write a method in Python to read lines from a text file DIARY.TXT, and display those lines, which are starting with an alphabet 'P'.

Ans:
```
def count( ):
    f=open("DIARY.txt","r")
    L=f.readlines()
    for line in L:
        if line[0] = = 'P' or line[0] = = 'p':
            print(line)
    f.close()
count( )
```

9. Differentiate between a Text file and Binary file.

Ans:

Text File	Binary File
Stores information in ASCII or Unicode characters.	Stores information in the form of 0's and 1's.
Can store only plain text. i.e., Notepad data	Can store different types of data i.e., audio, text, image, in a single line.
Each line is terminated using a special character called EOL (End Of Line) character.	There is no delimiter for lines.

10. Write a user defined function in python that displays the number of lines starting with 'H' or 'h' in the file para.txt

Ans:
```
def countH():
    f = open("para.txt","r")
    lines =0
```

```
        L=f.readlines()
        for i in L:
            if i[0]=='H' or i[0]=='h':
                lines+=1
        print("No. of lines are:",lines)
        f.close()
countH()
```

CAHPTER 6 – EXCEPTION HANDLING

2 Marks Questions and Answers

1. Predict the output of the following code:

```
import math
def fun(x):
    if x<=0:
        raise ValueError('fun: argument must be greater than zero')
    return math.sqrt(x)+2
def gen(x):
    y=fun(x)
    print(y>2)
try:
    gen(1)
    gen(-1)
except Exception as e:
    print('Exception',e)
```

Ans:
```
True
Exception fun: argument must be greater than zero
```

2. Write a code to accept two numbers and display the quotient. Appropriate exception should be raised if the user enters the second number (denominator) as zero (0).

Ans:
```
numerator=int(input("Enter value for Numerator:"))
denominator=int(input("Enter value for denominator:"))
try:
    if denominator==0:
        raise ZeroDivisionError     # Raising Exception using raise
                                    # keyword
    print(numerator/denominator)
except ZeroDivisionError:
    print("Please enter non-zero value for denominator.")
```

3. Write a code to accept two numbers and display the quotient. Use assert statement to test the division expression.

Ans:
```
numerator=int(input("Enter value for Numerator:"))
denominator=int(input("Enter value for denominator:"))
assert denominator!=0,"Value for denominator must be non-zero"
print(numerator/denominator)
```

4. Write a code where you can use negative/positive number for a method sqrt( ). Use exception handling process to catch the ValueError exception.

Ans:
```
import math
try:
    num1=int(input("Enter the first number:"))
    result1=math.sqrt(num1)
    print("Sqrt:",result1)
except ValueError:
    print("Please enter only Positive numbers")
```

5. Write a program to read details of student for result preparation. Incorporate all possible exception-handling codes such as ValueError, Index Error, ZeroDivisionError.

Ans:
```
x,y=5,0
b = "Computer Science"
my_list = [1, 2, 3]
try:
    result = x // y
    print("Yeah ! Your answer is :", result)
except ZeroDivisionError:
    print("Sorry ! You are dividing by zero ")
try:
    print(float(b))
except ValueError:
    print("Error: Unable to convert the string to a float")
try:
    print(my_list[3])
except IndexError:
    print("Index is out of range")
```

CAHPTER 7 –DATA STRUCTURES
2 Marks Questions and Answers

1. Give any two characteristics of stacks.

   Ans: It is a LIFO data structure
   The insertion and deletion happens at one end i.e. from the top of the stack.

2. Define a data structure.

   Ans: A data structure is a group of data which can be processed as a single unit. This group of data may be of similar or dissimilar data types. Data Structures are very useful while programming because they allow processing of the entire group of data as a single unit.

3. Expand the following: LIFO, FIFO

   Ans: LIFO: Last-In First-Out
   FIFO: First-In First-Out

4. Define stack.

   Ans: A stack is a data structure that allows adding and removing elements in a particular order. Every time an element is added, it goes on the top of the stack; the only element that can be removed is the element that was at the top of the stack.

5. What are the two major Stack operations?

   Ans: PUSH: The addition of elements is known as PUSH operation. It is done using the TOP position.
   POP: Removal of elements is known as POP operation. It is also done using the TOP position.

UNIT II

CAHPTER 8 &9 – COMPUTER NETWORKS I & II

2 Marks Questions and Answers

1. Write one advantage and one disadvantage of packet switching.

   Ans: Advantages

   - This type of switching has improved efficiency and has less bandwidth network wastage.
   - Works at an optimal speed with a less latency factor.
   - Improved fault tolerance of the circuit.
   - They are more reliable.

   Disadvantages

   - Sequence numbers are required for each packet since they are not ordered.
   - Can be a bit more complex.
   - Rerouting can cause transmission delay.
   - It is beneficial for small messages or small data.

2. Which language is the most suitable language to create web pages?

   Ans: Hyper Text Markup Language.

3. (i) Write the full forms of the following: (a) IP (b) URL
   (ii) Expand MODEM.

   Ans: (i) (a) IP-Internet Protocol
   (b) URL- Uniform Resource Locator
   (ii)MODEM – MOdulator DEModulator

4. (i) Mention one advantage of Star Topology.
   (ii)Mention one difference between a Hub and switch in networking.

   Ans: (i) Advantage: The network remains operational even if one of the nodes stops working.

   (ii)

Hub	Switch
Hub is a passive Device	Switch is an active device
Hub broadcasts messages to all nodes	Switch sends the messages to intended node.

5. Write the difference between LAN and MAN.
   Ans:

LAN	MAN
LAN stands for Local Area Network.	MAN stands for Metropolitan Area Network.
The speed of LAN is high.	The speed of MAN is average.
There is more fault tolerance in LAN.	There is less fault tolerance.
LAN's cost is high but less than MAN.	MAN's cost is higher than LAN.

6. What is the difference between star topology and bus topology of network?
   Ans:

StarTopology	BusTopology
All the nodes are directly connected with the central node or server.	There is a single length of transmission medium on which various nodes are attached and the server can be any where in the Transmission cable.
Easy to detect faults.	Faults cannot be easily detected.
It is fast in transaction.	Becomes slow with increase in nodes.

7. (i) Expand the following terms: SMTP, IMAP
   (ii) Give one difference between Active Hub and Passive Hub.

   Ans: (i) SMTP – Simple Mail Transfer Protocol
   IMAP – Internet Message Access Protocol
   (ii) Active hubs amplify the incoming electric signal, whereas passive hubs do not amplify the electric signal.

8. (i) Define the term Protocol with respect to networks.
   (ii) How is Hub different from Switch?

   Ans: (i) A network protocol is an established set of rules that determine how data is transmitted between different devices in the same network.

   (ii) Hub is an electronic device that connects several nodes to form a network and redirect the received information to all the nodes in a broadcast mode. Where as Switch is an intelligent device that connects several nodes to form a network and redirect the received information only to the intended node(s).

9. i) What is a web browser?
   ii) Define the term MAC Address

Ans: i) A software application used to access information on the World Wide Web is called a Web Browser. When a user requests some information, the web browser fetches the data from a web server and then displays the webpage on the user's screen.

ii) A MAC address (Media Access Control address) is a 6 bytes or 48 bits number assigned to each device connected to the network. Primarily specified as a unique identifier during device manufacturing, the MAC address is often found on a device's Network Interface Card (NIC).

10. (i) Expand the following terms:
    XML, PPP
    (ii) Give one difference between circuit switching and packet switching.

Ans: (i) XML – eXtensible Markup Language
PPP – Point to Point Protocols

(ii)

Circuit Switching	**Packet Switching**
It is more reliable	It is less reliable
In Circuit switching a dedicated path is Established between the sender and receiver.	In packet switching, no dedicated path is Established between the source and the destination.

11. (i) Define the term web hosting.
    (ii) Name any two web browsers.

Ans: (i) Web hosting is a means of hosting web-server application on a computer system through which electric content on the internet is really available to any web-browser client.
(ii) Internet Explorer, Netscape Navigator

12. (i) Expand the following terms : URL, MAC
    (ii) Give one difference between HTTP and FTP.

Ans: (i) Uniform Resource Locator
Media Access Control

(ii)

HTTP	FTP
Hypertext Transfer Protocol	File Transfer Protocol
HTTP is used for accessing Web pages	FTP is used to transfer Files from one computer to another computer over the internet

13.(i) Define the term IP address with respect to network.

(ii) What is the main purpose of a Router?

Ans: (i) IP Address: It is the unique address for each computer on a network.

(ii) A router is a device that:

1. Connects two or more packet-switched networks or subnetworks.
2. Manages traffic between networks by forwarding data packets to their intended IP addresses
3. Allows multiple devices to use the same Internet connection.

14.Write any two differences between Fiber-optic cable and Coaxial cable.

Ans: Fiber-Optic cable

Very fast, expensive, very reliable, minimum interference

Coaxial cable

Slow, Economic, Convenient to lay down using the bus topology of networks

15.Write one advantage and one disadvantage of wired over wireless communication.

Ans: Wired technologies:

Advantage:

- point to point connectivity between nodes and are not affected by the variation in weather conditions.
- Speed is higher in wired connectivity.

Disadvantage:

- Damage in cable (Wired Technology) will result in network failure

Examples

- Optical Fiber, Ethernet Cable, Co-axial Cable are used in Wired Technologies

Wireless technologies:

Disadvantage:

- Are not necessarily point to point connectivity between nodes and can be affected by the variation in weather conditions.
- Speed is lesser as compared to wired connectivity.

Advantage:

- There is no issue of physical damage.

Examples

- Bluetooth, Microwave, Radiowave, Satellite Links are examples of Wireless Technologies

16. Differentiate between URL and domain name with the help of an appropriate example.

Ans: URL is the complete internet address of a webpage while Domain name is just the name of the organization /individual entity along with top-level internet domains such as com, edu, gov, etc.
Example:
URL: https://www.ncert.nic.in/textbook/textbook.htm
Domain Name: ncert.nic.in OR www.ncert.nic.in

17. (a) Write the full forms of the following:
(i) HTML
(ii) TCP
(b) What is the need of Protocols ?

Ans: (a) (i) HTML : Hyper Text Markup Language
(ii) TCP : Transmission Control Protocol
(b) Protocols are needed for communication between computers.

18. (a) Expand FTP
(b) Out of the following, which has the largest network coverage area?
LAN, MAN, PAN, WAN

Ans: (a) FTP: File Transfer Protocol
(b) Largest cover: WAN

19. Write the names of two wired and two wireless data transmission mediums.

Ans: Wired Mediums: Twisted Pair, Fibre-Optic cable, Coaxial cable
Wireless Mediums: Radio Waves, Microwaves, Infra-red waves

20. a) What do the following top level domains signify? (i) .com (ii) .org
b) What is the use of VoIP?

Ans: (a) (i) .com - commercial business
(ii) .org - organization (non profit)

(b) Voice over Internet Protocol Transmission of voice and multimedia content over internet protocol(IP) network is through VoIP

UNIT III
CAHPTER 10 – RELATIONAL DATABASES
2 Marks Questions and Answers

1. What is a primary key?
   Ans: A Primary key is a field or a combination of fields that can uniquely identify a row/tuple in a table/relation

2. What is DDL? Give some examples of DDL commands.
   Ans: DDL refers to the Data Definition Language component of SQL. The DDL commands are used to create various components of a database such as tables, views, indexes, triggers etc.
   Examples: CREATE, ALTER, DROP

3. What is DML? Give some examples of DML commands.
   Ans: DML refers to the Date manipulation Language component of SQL. The DML commands are used to manipulate and query upon the date stored in various tables of a database.
   Examples: INSERT, UPDATE, SELECT, DELETE

4. Consider the following table BATSMEN :
   Table: BATSMEN

PNO	NAME	SCORE
P1	RISHABH	52
P2	HUSSAIN	45
P3	ARNOLD	23
P4	ARNOLD	18
P5	GURSHARAN	5

   (a) Identify and write the name of the Candidate Keys in the given table BATSMEN.
   (b) How many tuples are there in the given table BATSMEN?
   Ans: (a) PNO, SCORE (b) 5

5. What do you understand by Degree and Cardinality of a table?
   Ans: Number of columns or attributes or fields in a table are called table's degree. Number of rows/ tuples / records in a table are called table's cardinality. For example, for a table shown below.

Book No	Name	Author	Price
B01	Good learning	Xion Z	220
B02	Smile easy	T. Singh	350
B03	I to U	S Sandeep	250

Its degree is 4 (4 Columns);
Cardinality is 3 (3 rows)

6. Categorize the following SQL commands into DDL and DML :
   CREATE, UPDATE, INSERT, DROP
   Ans: DDL Commands: CREATE, DROP
   DML Commands: INSERT, UPDATE

7. Write any two differentiate between primary key and unique key.

   Ans:

Primary Key	**Unique Key**
The primary key uniquely identifies each record in the table.	The unique key serves as a unique identifier for records when a primary key is absent.
The primary key cannot store NULL values.	The unique key can store a null value, but only one NULL value is allowed.
It ensures entity integrity.	It enforces unique data.
Each table can have only one primary key.	A table can have multiple unique keys.
You cannot modify or delete values in a primary key.	You can modify the values in a unique key.
It identifies specific records in the table.	It prevents duplicate entries in a column, except for a NULL value.

CAHPTER 11 – SIMPLE QUERIES IN SQL
2 Marks Questions and Answers

1. What is the difference between char and varchar?
   Ans: VARCHAR is variable length, where as CHAR is fixed length. CHAR is a fixed length string data type, so any remaining space in the field is padded with blanks. CHAR takes up 1 byte per character.

2. Write statement to create database named "book"
   Ans: Create Database book;

3. Write a query to display all the records of table student whose name starts from "A".
   Ans: SELECT * FROM STUDENT WHERE NAME LIKE “A%”;

4. What is the difference between count () and count (*)?
   Ans: The count(*) returns all rows whether column contains null value or not while count (column_Name) returns the number of value except null value.
   Example: SELECT COUNT(*) FROM EMP;
   SELECT COUNT(NAME) FROM EMP;

5. Which aggregate function is used to find sum of column in a table?
   Ans: SUM(COLUMN_NAME)

6. Which keyword eliminates the redundant data from a query result?
   Ans: DISTINCT

7. Write the queries of the i and ii based on the table: Shop given below
   Table: Shop

Code	Iname	Qty	Price	Company
101	Digital Pad	120	11000	Xenita
105	Pen Drive 64 GB	500	7000	Hp
103	LED Screen 40'	50	25000	Samsung
104	Car GPS system	20	9000	Digiclick

   i) To display the details of all the item in ascending order of item names.
   ii) To display item name and price of all those items whose price in range of 10000 to 30000.

   Ans: (i) select * from item order by iname;
   (ii) select iname,price from shop where price between 10000 and 30000;

8. Write the SQL commands for the given questions below based on the table STUDENT.

No	Name	Age	Dept	DOJ	Fee	Sex
1	Anu	24	CS	10-01-19	250	M
2	Manu	21	EE	09-02-17	480	M
3	Vinu	25	CS	23-01-19	400	M
4	Pallavi	26	IT	22-05-17	260	F
5	Sai	30	EE	16-03-20	310	F
6	Appu	34	BE	15-06-17	250	F
7	Minnu	23	CS	29-01-18	480	M

i)To count the number of students with age<26.

ii)To list the names of female students who are in EE department.

Ans:

i) SELECT COUNT(*) FROM STUDENT WHERE Age<26;

ii) SELECT Name FROM STUDENT WHERE Sex="F" AND Dept="EE";

9. Write SQL commands for(a) and (b) on the basis of table GRADUATE

SNo	NAME	Stipend	Subject	Average	Div
1	Karan	400	Physics	68	1
2	Divakar	450	Computers	68	1
3	Divya	300	Chemistry	62	2
4	Arun	350	Physics	63	1
5	Sabina	500	Mathematics	70	1
6	John	400	Chemistry	55	2
7	Robert	250	Physics	64	1
8	Rubina	450	Mathematics	68	1
9	Vikas	500	Computers	62	1
10	Mohan	300	Mathematics	57	2

a) List the names of those students who obtained DIV as 1 and sort by NAME .

b) Display a report, listing NAME , STIPEND , SUBJCT and amount of stipend received in a year assuming that the STIPEND is paid every month.

Ans:

a)SELECT name FROM graduate WHERE div=1 ORDER BY name;

b) SELECT name, stipend, subject, stipend *12 FROM graduate;

10.Write the queries of the following on the basis of given table : Faculty

F_id	Fname	Fsal	DOJ
101	Amit	25000	1980-10-12
102	Aman	34000	1990-02-10
103	Sumit	45000	1993-07-23
104	Suman	22000	1997-09-19
105	Sumati	50000	2000-07-09

a) Display details of Faculties who joins after Jan 1990.

b) Display details of Faculties whose salary is more than 20000.

Ans:

a) SELECT * FROM FACULTY WHERE DOJ> '1990-01-31';

b) SELECT* FROM FACULTY WHERE FSAL>20000;

CAHPTER 12– TABLE CREATION AND DATA MANIPULATION
2 Marks Questions and Answers

1. Write the SQL commands to perform the following tasks :
   (i) View the list of tables in the database, Exam.
   (ii) View the structure of the table, Term1.

   Ans: (i) SHOW TABLES;

   (ii) DESCRIBE Term1;

   OR

   DESC Term1;

2. Mr. Atharva is given a task to create a database, Admin. He has to create a table,users in the database with the following columns :
   User_id – int
   User_name – varchar(20)
   Password – varchar(10)
   Help him by writing SQL queries for both tasks.
   Ans: CREATE DATABASE Admin;
   CREATE TABLE users (User_id int, User_name varchar(20), Password varchar(10));

3. Ms. Rita is a database administrator at a school. She is working on the table, student containing the columns like Stud_id, Name, Class and Stream.
   (i) She has been asked by the Principal to strike off the record of a student named Rahul with student_id as 100 from the school records.
   (ii) Add another student who has been admitted with the following details :
   Stud_id – 123
   Name – Rajeev
   Class – 12
   Stream – Science
   Help her by writing SQL queries for both tasks.
   Ans: (i) DELETE FROM Student WHERE Name="Rahul" and Stud_id=100;
   (ii) INSERT INTO Student VALUES (123,"Rajeev",12,"Science");

4. A) Write an SQL command to remove the Primary Key constraint from a table, named MOBILE. M_ID is the primary key of the table.
   B) Write an SQL command to make the column M_ID the Primary Key of an already existing table, named MOBILE.

Ans: A) ALTER TABLE MOBILE DROP PRIMARY KEY;
B) ALTER TABLE MOBILE ADD PRIMARY KEY (M_ID);

5. a) Will the DELETE TABLE command delete the entire table (data as well as its structure)?
   b) Can UPDATE command update all the records of table?
   Ans: a) NO, delete command will delete only the data of table. The table structure will remain in the database.
   b) Yes, it will update all the records if we don't specify it's condition in where clause.

6. What is the difference between DROP TABLE, DROP DATABASE?
   Ans: DROP DATABASE:It drops all the tables in the database and deletes the database. To use DROP DATABASE, you need to DROP privilege on the database. DROP SCHEMA is a synonym for DROP DATABASE. Important: When a database is dropped, user privileges on the database are not automatically dropped.
   DROP TABLE: The drop table command is used to delete a table and all rows in the database. Dropping the table removes the table definition as well as all of its tuples.

7. What is the difference between UPDATE and ALTER?
   Ans: ALTER Command is used to add, change, delete and modify the attributes of the relations (tables) in the database.
   Example: ALTER TABLE EMP ADD DOB date;
   UPDATE Command is used to update existing records in a table.
   Example: UPDATE EMP SET DOB= '2000-07-12' WHERE ECODE=101;

8. Write SQL queries for the following:
   i) Create the table Product with appropriate data types and constraints.
   (ID int, name char(10), Pdate date)
   ii) Identify the primary key in Product
   Ans: i) create table product (ID int, name char(10), Pdate date) ;
   ii) ID

9. Write SQL queries for the following:
   i) Create a table student with columns (roll no, name, age)
   ii) Insert a tuple as (10,'Ashok', 26)
   Ans: i) Create table student (rollno int, name char(20), age int);
   ii) Insert into student values (10,"Ashok", 26);

10. Ms. Veda created a table named Sports in a MySQL database, containing columns Game_id, P_Age and G_name.
Help her to write commands for the following:
(i) Add the Category column.
(ii) Insert the following record in the table:
Game_id : G42
P_Age : Above 18
G_name : Chess
Category : Senior

Ans: (i) ALTER TABLE SPORTS ADD CATEGORY VARCHAR(10);

OR

ALTER TABLE SPORTS ADD COLUMN CATEGORY VARCHAR(10);

(ii) INSERT INTO SPORTS VALUES("G42","Above 18","Chess","Senior");

CAHPTER 13 – GROUPING RECORDS, JOINS IN SQL
2 Marks Questions and Answers

1. What is the significance of GROUP BY clause in a SQL query?

   Ans: The GROUP BY statement group's rows that have the same values into summary rows, like "find the number of customers in each country". The GROUP BY statement is often used with aggregate functions (COUNT() , MAX() , MIN() , SUM() , AVG()) to group the result-set by one or more columns

2. What is the difference between a WHERE clause and a HAVING clause of SQL SELECT statement?

   Ans: If "Where" clause is used to filter the records from a table that is based on a specified condition, then the "Having" clause is used to filter the record from the groups based on the specified condition.

3. What is Cartesian product?

   Ans: In unrestricted join or Cartesian product of two tables, all possible concatenations are formed of all rows of both the tables. It returns n1 x n2 rows where n1 is number of rows in first table and n2 is number of rows in second table.

4. What is natural join?

   Ans: A NATURAL JOIN is a JOIN operation that creates an implicit join clause for you based on the common columns in the two tables being joined. Common columns are columns that have the same name in both tables. A NATURAL JOIN can be an INNER join, a LEFT OUTER join, or a RIGHT OUTER join. The default is INNER join.
   Example: SELECT * FROM manufact NATURAL JOIN stock;

5. What is equi join?

   Ans: An equi-join is a join based on equality or matching column values. This equality is indicated with an equal sign (=) as the comparison operator in the WHERE clause, as the following query shows.
   SELECT * FROM manufact, stock WHERE
   manufact.menu_code=stock.menu_code.

6. Write any two difference between Order by and Group by clause.

Order By Clause in SQL	Group By Clause in SQL
It sorts the results in a specific order either ascending or descending.	It groups rows with similar values.
It cannot be used with a CREATE VIEW statement.	It can be used with a CREATE VIEW statement.

The select statement is used before the Order by keyword.	The select statement is used before the Group by keyword.
Attributes can exist under aggregate functions in this clause.	Attributes cannot exist under aggregate functions in this clause.
The results are sorted in ascending or descending order.	Tuples are grouped based on similarities in their attribute values.
It can control the presentation of columns.	It can control the presentation of rows or tuples.

7. Write the output of the SQL queries (a) and (b) based on the table TRAVEL given below :

Table: TRAVEL

T_ID	START	END	T_DATE	FARE
101	DELHI	CHENNAI	2021-12-25	4500
102	DELHI	BENGALURU	2021-11-20	4000
103	MUMBAI	CHENNAI	2020-12-10	5500
104	DELHI	MUMBAI	2019-12-20	4500
105	MUMBAI	BENGALURU	2022-01-15	5000

a) SELECT T_ID, T_DATE FROM TRAVEL WHERE END = 'CHENNAI' ORDER BY FARE ;

b) SELECT START, MIN(FARE)FROM TRAVEL GROUP BY START ;

Ans: a)

T_ID	T_DATE
101	2021-12-25
103	2020-12-10

b)

START	MIN(FARE)
DELHI	4000
MUMBAI	5000

8. Write the output of the SQL queries (a) and (b) based on the following two Tables: FLIGHT and PASSENGER belonging to the same database :

Table: FLIGHT

FNO	DEPART	ARRIVE	FARE
F101	DELHI	CHENNAI	4500
F102	DELHI	BENGALURU	4000
F103	MUMBAI	CHENNAI	5500
F104	DELHI	MUMBAI	4500
F105	MUMBAI	BENGALURU	5000

Table: PASSENGER

PNO	NAME	FLIGHTDATE	FNO
P1	PRAKASH	2021-12-25	F101
P2	NOOR	2021-11-20	F103
P3	HARMEET	2020-12-10	NULL
P4	ANNIE	2019-12-20	F105

a) SELECT NAME,DEPART FROM FLIGHT NATURAL JOIN PASSENGER ;
b) SELECT NAME, FAREFROM PASSENGER P, FLIGHT FWHERE F.FNO = P.FNO AND F.DEPART = 'MUMBAI' ;
Ans:

a)

NAME	DEPART
PRAKASH	DELHI
NOOR	MUMBAI
ANNIE	MUMBAI

b)

NAME	FARE
NOOR	5500
ANNIE	5000

9. Write SQL queries for (a) and (b) based on the tables CUSTOMER and TRANSACT given below:

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

TNO	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 a query to display the total AMOUNT of all DEBITs and all CREDITs.
b) Write a query to display the NAME and corresponding AMOUNT of all CUSTOMER's who made a transaction type (TTYPE) of CREDIT.
Ans: a) SELECT TTYPE, SUM(AMOUNT) FROM TRANSACT
GROUP BY TTYPE;

b) SELECT NAME, AMOUNT FROM CUSTOMER NATURAL JOIN TRANSACT WHERE TTYPE='CREDIT';

OR

SELECT NAME, AMOUNT FROM CUSTOMER C, TRANSACT T WHERE C.CNO=T.CNO AND TTYPE='CREDIT';

OR

SELECT NAME, AMOUNT FROM CUSTOMER, TRANSACT WHERE CUSTOMER.CNO=TRANSACT.CNO AND TTYPE='CREDIT';

10. Write SQL queries for (a) and (b) based on the tables PASSENGER and FLIGHT given below:

Table : PASSENGER

PNO	NAME	GENDER	FNO
1001	Suresh	MALE	F101
1002	Anita	FEMALE	F104
1003	Harjas	MALE	F102
1004	Nita	FEMALE	F103

Table: FLIGHT

FNO	START	END	F_DATE	FARE
F101	MUMBAI	CHENNAI	2021-12-25	4500
F102	MUMBAI	BENGALURU	2021-11-20	4000
F103	DELHI	CHENNAI	2021-12-10	5500
F104	KOLKATA	MUMBAI	2021-12-20	4500
F105	DELHI	BENGALURU	2021-01-15	5000

a) Write a query to display the total number of MALE and FEMALE PASSENGERS.

b) Write a query to display the NAME, corresponding FARE and F_DATE of all PASSENGERS who have a flight to START from DELHI.

Ans: a) SELECT GENDER, COUNT(*) FROM PASSENGER GROUP BY GENDER;

OR

SELECT COUNT(*) FROM PASSENGER GROUP BY GENDER;

b) SELECT NAME, FARE, F_DATE FROM PASSENGER P, FLIGHT F WHERE P.FNO= F.FNO AND START = 'DELHI';

OR

SELECT NAME, FARE, F_DATE FROM PASSENGER, FLIGHT WHERE PASSENGER.FNO= FLIGHT.FNO AND START = 'DELHI';

OR

SELECT NAME, FARE, F_DATE FROM PASSENGER, FLIGHT WHERE PASSENGER.FNO= FLIGHT.FNO AND START LIKE 'DELHI';

CAHPTER 14 – INTERFACE PYTHON WITH MYSQL

2 Marks Questions and Answers

1. What is the role of a database connection object, while connecting with a database from within a Python program?

   Ans: To create a connection between the MySQL database and the python application, the connect() method of mysql.connector module is used. Pass the database details like Host name, username, and the database password in the method call. The method returns the connection object.

2. What is a database cursor?

   Ans: A database cursor is a special control structure that facilitates the row processing of records in the result set, i.e., the set of records retrieved as per query.

3. What is a resultset?

   Ans: A Result set is referred to a logical set of records that are fetched from the database by executing an SQL query and made available to the application program.

4. To make the changes made by INSERT, DELETE and UPDATE SQL queries permanently in the database, which function should be used after the execution of these queries?

   Ans: COMMIT is a transaction control language in SQL. It lets a user permanently save all the changes made in the transaction of a database or table. Once you execute the COMMIT, the database cannot go back to its previous state in any case.

5. What is the method used to get all the records retrieved as the result of the SQL query executed?

   Ans: Fetchall() Method: The method fetches all (or all remaining) rows of a query's result set and returns a list of tuples. If no more rows are available, it returns an empty list. You must fetch all rows of the current query before executing new statements using the same connection.

6. Write code to connect to a MySQL database namely School and then fetch all those records from table Student where grade is ' A'.

   Table Student of MySQL database School

rollno	name	marks	grade	section	project
101	RUHANII	76.8	A	A	PENDING
102	GEOGRE	71.2	B	A	SUBMITTED

103	SIMRAN	81.2	A	B	EVALUATED
104	ALI	61.2	B	C	ASSIGNED
105	KUSHAL	51.6	C	C	EVALUATED
106	ARSIYA	91.6	A+	B	SUBMITTED
107	RAUNAK	32.5	F	B	SUBMITTED

```
import mysql.connector as mysql
db_con = mysql.connect(host = "localhost",user = "root",password = "tiger",database
                                                                    = "School")
cursor = db_con.cursor()
cursor.execute("SELECT * FROM Student WHERE grade = 'A';")
student_records = cursor.fetchall()
for student in student_records:
    print(student)
db_con.close()
```

Ans:

```
(101, 'RUHANII', 76.8, 'A', 'A', 'PENDING')
(103, 'SIMRAN', 81.2, 'A', 'B', 'EVALUATED')
```

7. Consider the information stored in the table: EMP

EMPNO	ENAME	DEPT	SALARY
1	ALEX	MUSIC	60000
2	PETER	ART	67000
3	JOHNY	WE	55000
4	RAMBO	P&HE	48000

Following python code is written to access the records of table: EMP, What will be the output of following code:

```
import mysql.connector as mysql
db_con = mysql.connect(host = "localhost",user = "root",password =
                                        "tiger", database = "Employee")
cursor = db_con.cursor( )
query= “select * from emp”
results=mycursor.fetchone( )
results=mycursor.fetchone( )
results=mycursor.fetchone( )
d=int(results[3])
print(d*3)
```

Ans: 165000

CHAPTER 1 & 2 – PYTHON REVISION TOUR I & II
3 Marks Questions and Answers

1. Write the output on execution of the following Python code:

```
S="Racecar Car Radar"
L=S.split()
for W in L :
   x=W.upper()
   if x==x[::-1]:
      for I in x:
         print(I,end="*")
   else:
      for I in W:
         print(I,end="#")
   print()
```

Ans :
```
R*A*C*E*C*A*R*
C#a#r#
R*A*D*A*R*
```

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

```
s="IndiaGrowing"
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] >= 'o' and s[i] <= 'z') :
      m = m +s [i-1]
   elif (s[i].isupper()):
      m = m + s[i].lower()
   else:
      m = m + '@'
print(m)
```

Ans: i@DIAgGroI@G

3. Predict the output of the following code:

```
d = {"apple": 15, "banana": 7, "cherry": 9}
str1 = ""
for key in d:
    str1 = str1 + str(d[key]) + "@" + "\n"
str2 = str1[:-1]
print(str2)
```

Ans:
```
15@
7@
9@
```

4. Predict the output of the following code:

```
line=[4,9,12,6,20]
for I in line:
    for j in range(1,I%5):
        print(j,'#',end="")
    print( )
```

Ans:
```
1 #2 #3 #
1 #2 #3 #
1 #
```

5. Predict the output of the following code:

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

Ans: lEAarIiG

6. Find and write the output of the following python code:

```
for Name in ["Jayes", "Ramya", "Taruna","Suraj"]:
    print(Name)
    if Name[0]=="T":
        break
    else:
        print("Finished")
print("Got it!")
```

Ans:
```
Jayes
Finished
Ramya
Finished
Taruna
Got it!
```

7. What is the difference between mutable and immutable in Python?

Ans: Mutable object can be changed after it is created, and an immutable object can't. Objects of built-in types like (int, float, bool, string, tuple, unicode) are immutable. Objects of builtin types like (list, set, dict) are mutable.

8. Predict the output:

```
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)
```

Ans:
```
1 20  L@
4 60  L@M@
9 120  L@M@N@
```

9. Give the output for the following code:

```
Lt=[1,0,5,8,10,15]
Lt2=[['one', 'two', 'three'],[4,5,6]]
Lt.extend([20, 34, 66])
Lt2.extend([4, 8, 6])
Lt.extend(range(15,20))
print(Lt)
print(Lt2)
```

Ans: [1, 0, 5, 8, 10, 15, 20, 34, 66, 15, 16, 17, 18, 19]
[['one', 'two', 'three'], [4, 5, 6], 4, 8, 6]

10. Predict the output for the following code:

```
STR=["90","10","30","40"]
COUNT=3
SUM=0
for i in [1,2,5,4]:
   S=STR[COUNT]
   SUM=float(S)+i
   print(SUM)
   COUNT-=1
```

Ans: 41.0
32.0
15.0
94.0

11. Find and write the output of the following python code:

```
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)
```

Ans: **dAys

12. Consider a list:

```
MyFamily = ["Father","Mother","Brother","Sister","Jacky"]
```

i. write statement to print "Brother"
ii. write statement to print all items of list in reverse order
iii. write statement to check "Sister" is in MyFamily or not
iv. write statement to update "Jacky" with "Tiger"
v. write statement remove "Jacky" from MyFamily and also print it
vi. write statement to add "Tommy" in MyFamily at the end

Ans:

i.print(MyFamily[2])
ii.print(MyFamily[::-1])
iii.'Sister' in MyFamily
iv.MyFamily[len(MyFamily)-1]='Tiger' OR MyFamily[4]= "Tiger"
v.MyFamily.pop()
vi.MyFamily.append("Tommy")

13. Find and write the output of the following python code:

```
Msg="CompuTer"
Msg1=" "
for i in range(0,len(Msg)):
   if Msg[i].isupper():
      Msg1=Msg1+Msg[i].lower()
   elif i%2==0:
      Msg1=Msg1+'*'
   else:
      Msg1=Msg1+Msg[i].upper()
    print(Msg1)
```

Ans: cO*P*t*R

14. Find the output for the following code:

```
for i in range (1,6):
   for j in range(1,i+1):
      print(i,end= " ")
   print("")
```

Ans:
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5

15. Write python code to print output

1 2 3 4 5
1 2 3 4
1 2 3
1 2
1

Ans:
```
i = 6
while i >= 0:
    for j in range (1, i):
        print(j, end=' ')
    print('\n')
    i=i-1
```

16. What possible output(s) are expected to be displayed on screen at the time of execution of the following code? Also specify the maximum and minimum value that can be assigned to variable X.

```
import random
L=[10,7,21]
X=random.randint(1,2)
for i in range(X):
    Y=random.randint(1,X)
    print(L[Y],"$",end=" ")
```

(i)10 $ 7 $ (ii) 21 $ 7 $ (iii) 21 $ 10 $ (iv) 7 $

Ans: Options (ii) & (iv)
Minimum value is 1
Maximum value is 2

17. Find output and also find maximum value for FROM and TO

```
import random
name=['ALOK','HARI','JUGAL','HANS','RAKESH','KISHORE']
FROM=random.randint(1,3)
TO=random.randint(2,4)
for k in range(FROM,TO+1):
    print(name[k],end='%')
```

(i) HARI%JUGAL%HANS%Rakesh%
(ii) JUGAL%HANS%RAKESH%
(iii) ALOK%HARi
(iv) JUGAL%HANS%RAKESH%KISHORE%

Ans: (i) HARI%JUGAL%HANS%RAKESH%
(ii) JUGAL%HANS%RAKESH%
Maximum value for FROM is 2 and TO is 3

18. Find output and also find maximum and minimum value of count:

```
import random
TEXT ="CBSEONLINE"
COUNT =random.randint(0,3)
C=9
while(TEXT[C]!='L'):
   print(TEXT[C]+TEXT[COUNT]+'*',end=' ')
   COUNT= COUNT + 1
       C =C-1
```

(i) EC* NB*IS* (ii) NS* IE*LO* (iii) ES*NE*IO (iv) LE*NO*ON

Ans: (i) and (iii)

Minimum value of count is 0 and Maximum value of count is 3

19. What will be the output of the following code snippet?

```
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)
```

Ans: 30

20. Find the output for the following code:

```
L1=[1, 2, 3, 2, 1]
L2=[5, 4, 3, 2, 1]
X1=len(L1)
X2=len(L2)
if X1<=X2:
   for i in range(0,X1-2):
      print(i, "*")
elif X1>X2:
   for i in range(0, X2-1):
      print(i, ",")
```

Ans:
```
0 *
1 *
2 *
```

CHAPTER 3 – WORKING WITH FUNCTIONS
3 Marks Questions and Answers

1. Find output

```
def Alter(P=15,Q=10):
    P=P*Q
    Q=P/Q
    print(P,"#",Q)
    return Q
A=100
B=200
A=Alter(A,B)
print(A,"$",B)
B=Alter(B)
print(A,"$",B)
A=Alter(A)
print(A,"$",B)
```

Ans:
```
20000 # 100.0
100.0 $ 200
2000 # 200.0
100.0 $ 200.0
1000.0 # 100.0
100.0 $ 200.0
```

2. Predict the output for the following code:

```
def ChangeList():
    L=[]
    L1=[]
    L2=[]
    for i in range(1, 10):
        L.append(i)
    for i in range(10,1,-2):
        L1.append(i)
        print(L1)
    for i in range(len(L1)):
        L2.append(L1[i]+L[i])
        L2.append(len(L)-len(L1))
    print(L2)
ChangeList()
```

Ans:
```
[10]
[10, 8]
[10, 8, 6]
```

[10, 8, 6, 4]
[10, 8, 6, 4, 2]
[11, 4, 10, 4, 9, 4, 8, 4, 7, 4]

3. Find output of the following code:

```
def show(str,key):
    x=0
    L=len(str)
    while x<(L//2):
        if x%2 is not 1:
            print(str[x]*key)
        else:
            print(str[x]*(key+1))
        x+=1
        key+=2
show("PYTHON",1)
```

Ans:
```
P
YYYY
TTTTT
```

4. Write a user defined function GenNum(a, b) to generate odd numbers between a and b (including b).

Ans:
```
def getNum(a,b):
    for i in range(a,b+1):
        if i%2==1:
            print(i)
getNum(1,20)
```

5. write definition of a Method MSEARCH(STATES) to display all the state names from a list of STATES, which are starting with alphabet M.

For example:

If the list STATES contains ["MP","UP","MH","DL","MZ","WB"]

The following should get displayed

MP
MH
MZ

Ans:
```
def MSEARCH(STATES):
    for i in STATES:
        if i[0]=='M':
            print(i)
STATES=["MP","UP","MH","DL","MZ","WB"]
MSEARCH(STATES)
```

6. Write a definition of a method COUNTNOW(PLACES) to find and display those place names, in which here are more than 7 characters.
   For example :
   If the list PLACES contains.
   L=["MELBORN","TOKYO","PINKCITY","BEIZING","SUNCITY"]
   The following should get displayed : PINKCITY
   Ans:
```
L=["MELBORN","TOKYO","PINKCITY","BEIZING","SUNCITY"]
def countno(m):
    length=len(m)
    for i in range(0,length):
        if len(m[i])>7:
            print(m[i])
countno(L)
```

7. Write definition of a method/function DoubletheOdd(Nums) 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
   Ans:
```
def DoubletheOdd(Nums):
    s=0
    for i in Nums:
        if i%2!=0:
            s+=i*2
    print("Twice of Odd Sum:",s)
Nums=[25,24,35,20,32,41]
DoubletheOdd(Nums)
```

8. Go through the following python codes carefully and write the output of the code.
```
a = 10
b = 20
def changer(lst):
```

```
    global a
    a+=10
    b = 30
    lst.append(a)
lst = [1,2,3]
print(a,b)
changer(lst)
print(a,lst,b)
changer(lst)
print(a,lst,b)
```

Ans: 10 20

20 [1, 2, 3, 20] 20

30 [1, 2, 3, 20, 30] 20

9. Write a python function showlarge() that accepts a string as parameter and prints the words whose length is more than 4 characters.

   Eg: if the given string is "My life is for serving my Country"

   The output should be

   serving

   Country

Ans:
```
def showlarge(s):
    l = s.split()
    for x in l:
        if len(x)>4:
            print(x)
s="My life is for serving my Country"
showlarge(s)
```

10. Write a user defined function GenNum(a, b) to generate odd numbers between a and b (including b)

Ans:
```
def GenNum(a,b):
    for i in range(a,b+1):
        if i%2!=0:
            print(i,end=",")
a=int(input("enter a:"))
b=int(input("enter b:"))
print("Odd numbers are:")
GenNum(a,b)
```

CHAPTER 5 – FILE HANDLING

3 Marks Questions and Answers

1. Write a Python function that displays all the words containing @cmail from a text file "Email.txt".

   Ans:
```
def show():
    f=open("Email.txt",'r')
    data=f.read()
    words=data.split()
    for word in words:
        if '@cmail' in word:
            print(word,end=' ')
    f.close()
show()
```

2. Write a Python function that finds and displays all the words longer than 5 characters from a text file "Words.txt".

   Ans:
```
def display_long_words():
    with open("Words.txt", 'r') as file:
        data=file.read()
        words=data.split()
        for word in words:
            if len(word)>5:
                print(word,end=' ')
display_long_words()
```

3. Write a user defined function in Python named showInLines() which reads contents of a text file named STORY.TXT and displays every sentence in a separate line. Assume that a sentence ends with a full stop (.), a question mark (?), or an exclamation mark (!).

   For example, if the content of file STORY.TXT is as follows:

   Our parents told us that we must eat vegetables to be
   healthy. And it turns out, our parents were right! So, what else
   did our parents tell?

   Then the function should display the file's content as follows:

   Our parents told us that we must eat vegetables to be healthy.
   And it turns out, our parents were right!
   So, what else did our parents tell?

Ans:
```
def showInLines():
    with open("STORY.TXT",'r') as F:
        S=F.read()
        for W in S:
            if W=="." or W=="?" or W=="!":
                print(W)
            elif W=="\n":
                print(end=" ")
            else:
                print(W,end=" ")
showInLines()
```

4. Write a function, c_words() in Python that separately counts and displays the number of uppercase and lowercase alphabets in a text file, Words.txt.

Ans:
```
def c_words():
    f=open("Words.txt","r")
    Txt=f.read()
    CLower=CUpper=0
    for i in Txt:
        if i.islower():
            CLower+=1
        elif i.isupper():
            CUpper+=1
    print(CLower, CUpper)
    f.close()
c_words()
```

5. Write a method/function COUNTWORDS() in Python to read contents from a text file DECODE.TXT, to count and return the occurrence of those words, which are having 5 or more characters.

Ans:
```
def COUNTWORDS():
    NW=0
    with open("DECODE.TXT",'r') as F:
        S=F.read().split()
        for W in S:
            if len(W)>=5:
                NW+=1
    return NW
print(COUNTWORDS())
```

6. Write a method/function COUNTLINES() in Python to read lines from a text file CONTENT.TXT, and display those lines, which have @ anywhere in the line.
   For example :
   If the content of the file is :

   Had an amazing time at the concert last night with
   @MusicLoversCrew.
   Excited to announce the launch of our new website!
   G20 @ India

   The method/function should display

   @MusicLoversCrew
   G20 @ India

   Ans:
```
def COUNTLINES():
    f=open("CONTENT.TXT","r")
    LS=f.readlines()
    for L in LS:
        if "@" in L:
            print(L)
    f.close()
COUNTLINES()
```

7. Write the definition of a Python function named LongLines( ) which reads the contents of a text file named 'LINES.TXT' and displays those lines from the file which have at least 10 words in it.
   For example, if the content of 'LINES.TXT' is as follows :

   Once upon a time, there was a woodcutter
   He lived in a little house in a beautiful, green wood.
   One day, he was merrily chopping some wood.
   He saw a little girl skipping through the woods, whistling
   happily.
   The girl was followed by a big gray wolf.

   Then the function should display output as :

   He lived in a little house in a beautiful, green wood.
   He saw a little girl skipping through the woods, whistling

   Ans:
```
def LongLines():
    myfile=open('LINES.TXT') # ignore 'r' mode
    all_lines=myfile.readlines()
    for aline in all_lines:
        if(len(aline.split())>=10):
            print(aline)
    myfile.close()
LongLines()
```

8. Write a function count_Dwords() in Python to count the words ending with a digit in a text file "Details.txt".

   Example:

   If the file content is as follows:

   On seat2 VIP1 will sit and
   On seat1 VVIP2 will be sitting

   Output will be:

   Number of words ending with a digit are 4

   Ans:
```
def count_Dwords():
    with open ("Details.txt", 'r') as F: # ignore 'r'
        S=F.read()
        Wlist = S.split()
        count = 0
        for W in Wlist:
            if W[-1].isdigit():
                count+=1
    print("Number of words ending with a digit are",count)
count_Dwords()
```

9. Write a function in Python that displays the book names having ‘Y’ or ‘y’ in their name from a text file "Bookname.txt".

   Example :

   If the file "Bookname.txt" contains the names of following books :

   One Hundred Years of Solitude
   The Diary of a Young Girl
   On the Road

   After execution, the output will be :

   One Hundred Years of Solitude
   The Diary of a Young Girl

   Ans:
```
def Book_Name():
    fin=open('Bookname.txt')
    lines=fin.readlines()
    for line in lines:
        if 'y' in line or 'Y' in line: # or if 'Y' in line.upper():
            print(line,end="") # ignore end=""
    fin.close()
Book_Name()
```

10. Write a function RevString() to read a textfile "Input.txt" and prints the words starting with ‘O’ in reverse order. The rest of the content is displayed normally.

Example :

If content in the text file is :

UBUNTU IS AN OPEN SOURCE OPERATING SYSTEM

Output will be :

UBUNTU IS AN NEPO SOURCE GNITAREPO SYSTEM

(words ‘OPEN’ and ‘OPERATING’ are displayed in reverse order)

Ans:
```
def RevString():
    fin=open('Input.txt')
    S=fin.read()
    for w in S.split():
        if w[0]=='O':
            print(w[::-1],end=' ') #ignore end
        else:
            print(w,end=' ') #ignore end
    fin.close()
RevString()
```

11. Write a function in Python to count the number of lines in a text file "STORY.TXT" which is starting with an alphabet ‘A’.

Ans:
```
def countlines( ):
    file=open("STORY.TXT","r")
    lines=file.readlines( )
    count=0
    for w in lines:
        if w[0]=='A' or w[0]=='a':
            count=count+1
    print("Total lines starting with A:",count)
    file.close( )
countlines( )
```

12. Write a function in python to count the number lines in a text file "Country.txt" which is starting with an alphabet ‘W’ or ‘H’. 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

Ans:
```
def count_W_H( ):
    f=open("Country.txt","r")
    W,H=0,0
    r=f.readlines( )
    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
    f.close( )
    print("W or w :",W)
    print("H or h :",H)
count_W_H()
```

13. Write a Python function which reads a text file "poem.txt" and prints the number of vowels in each line of that file, separately.

Eg: if the content of the file "poem.txt" is

The plates will still shift
and the clouds will still spew.
The sun will slowly rise
and the moon will follow too.

The output should be

6
7
6
9

Ans:
```
def vowelsinline( ):
    f=open("poem.txt","r")
    L=f.readlines( )
    vc=0
    for i in L:
        vc=0
        for c in i:
            if c.upper( ) in "AEIOU":
                vc+=1
        print(vc)
    f.close( )
vowelsinline( )
```

14. Write a function in Python that displays the words, starting with uppercase letter in a file ‘legend.txt’. Example: If the "legend.txt" contents are as follows:
Diego Maradona, Argentinian soccer legend and celebrated Hand of God scorer dies at 60.
The output of the function should be:

```
Diego
Maradona,
Argentinian
Hand
God
```

Ans:

```
def Disp_upper_first( ):
    word=""
    f=open("legend.txt","r")
    line=f.read()
    word=line.split()
    for i in word:
        if i[0].isupper():
            print(i)
    f.close()
Disp_upper_first()
```

15. Write a function countdigits() in Python, which should read each character of a text file "marks.txt", count the number of digits and display the file content and the number of digits.
Example: If the "marks.txt" contents are as follows:

```
Harikaran:40,Atheeswaran:35,Dahrshini:30,Jahnavi:48
```

The output of the function should be:

```
Harikaran:40,Atheeswaran:35,Dahrshini:30,Jahnavi:48
Total number of digits in the file: 8
```

Ans:

```
def countdigits( ):
    c=0
    f=open("marks.txt","r")
    line=f.read( )
    print(line)
    for i in line:
        if i.isdigit( ):
            c+=1
    print("Total number of digits in the file:",c)
    f.close( )
countdigits( )
```

16. Write a function in python to count number of words ending with ‘n’ present in a text file "ABC.txt". If ABC.txt contains:

A story of a rich man And his son

the output of the function should be:

Count of words ending with ‘n’ is 2

Ans:
```
def countA():
    file=open("ABC.txt",'r')
    r=file.read()
    s=r.split()
    count=0
    for i in s:
        if i[-1]=='n':
            count+=1
    file.close( )
    print("Count of words ending with “n” is",count)
countA()
```

17. Write a function COUNTTEXT( ), which reads a text file Book.txt and displays all the words of the file whose length is more than 3 or those which start with ‘A’ or ‘a’ in the form of a list.

For example, if the Book.txt file contains:

India is my country. They are studying.

then the output should be:

["India", "country", "They", "are", "studying"]

Ans:
```
def COUNTTEXT( ):
    f=open("Book.txt")
    L=[ ]
    content=f.read()
    data=content.split()
    for word in data:
        if (len(word)>3) or (word[0].lower( )=='a'):
            L.append(word)
    print(L)
    f.close()
COUNTTEXT()
```

18. Write a method cnt_M() in Python to read lines from a text file "MYNOTES.TXT", and display those lines, which are starting with the alphabet ‘M’.

If the "MYNOTES.TXT" contents are as follows:

My first book was Me and My Family.

It gave me chance to be
Known to the world.

The output of the function should be:

Count of lines starting with M is: 1

Ans:
```
def cnt_M():
    num=0
    f=open('MYNOTES.TXT','r')
    for line in f.readlines( ):
        if line[0]=='M':
            num=num+1
    print(num)
    f.close( )
cnt_M()
```

19. Consider a binary file emp.dat having records in the form of dictionary. E.g {eno:1, name: "Rahul", sal: 5000}. Write a python function to display the records of above file for those employees who get salary between 25000 and 30000.

Ans:
```
import pickle
def search():
    f=open("emp.dat","rb")
    while True:
        try:
            d=pickle.load(f)
            if(d['sal']>=25000 and d['sal']<=30000):
                print(d)
        except EOFError:
            break
    f.close()
search()
```

20. A binary file "Stu.dat" has structure (rollno, name, marks). Write a function in Python add_record() to input data for a record and add to Stu.dat.

Ans:
```
import pickle
def add_record():
    fobj=open("Stu.dat","ab")
    rollno=int(input("Roll no:"))
    name=int(input("Name:"))
    marks=int(input("Marks:"))
    data=[rollno,name,marks]
    pickle.dump(data,fobj)
    fobj.close()
add_record()
```

CHAPTER 7 – DATA STRUCTURES
3 Marks Questions and Answers

1. You have a stack named BooksStack that contains records of books. Each book record is represented as a list containing book_title, author_name, and publication_year. Write the following user-defined functions in Python to perform the specified operations on the stack BooksStack:

   (I) push_book(BooksStack, new_book): This function takes the stack BooksStack and a new book record new_book as arguments and pushes the new book record onto the stack.

   (II) pop_book(BooksStack): This function pops the topmost book record from the stack and returns it. If the stack is already empty, the function should display "Underflow".

   (III) peep(BookStack): This function displays the topmost element of the stack without deleting it. If the stack is empty, the function should display 'None'.

   Ans: (I)

```
def push_book(BooksStack, new_book):
    BooksStack.append(new_book)
```

(II)

```
def pop_book(BooksStack):
    if not BooksStack:
        print("Underflow")
    else:
        return(BookStack.pop())
```

(III)

```
def peep(BooksStack):
    if not BooksStack:
        print("None")
    else:
        print(BookStack[-1])
```

2. Write the definition of a user-defined function `push_even(N)` which accepts a list of integers in a parameter `N` and pushes all those integers which are even from the list `N` into a Stack named `EvenNumbers`.Write function pop_even() to pop the topmost number from the stack and returns it. If the stack is already empty, the function should display "Empty".Write function Disp_even() to display all element of the stack without deleting them. If the stack is empty, the function should display 'None'.

   For example:

   If the integers input into the list `VALUES` are:

   [10, 5, 8, 3, 12]

   Then the stack `EvenNumbers` should store:

[10, 8, 12]

Ans:
```
def push_even(N):
    EvenNumbers=[]
    for num in N:
        if num%2 == 0:
            EvenNumbers.append(num)
    return EvenNumbers
VALUES=[]
for i in range(5):
    VALUES.append(int(input("Enter an integer: ")))
EvenNumbers=push_even(VALUES)
def pop_even():
    while True:
        if not EvenNumbers:
            break
        else:
            print(EvenNumbers.pop())
pop_even()
```

3. Consider a list named Nums which contains random integers. Write the following user defined functions in Python and perform the specified operations on a stack named BigNums.

   (i) PushBig(): It checks every number from the list Nums and pushes all such numbers which have 5 or more digits into the stack, BigNums.

   (ii) PopBig(): It pops the numbers from the stack, BigNums and displays them. The function should also display "Stack Empty" when there are no more numbers left in the stack.

For example: If the list Nums contains the following data:

Nums = [213, 10025, 167, 254923, 14, 1297653, 31498, 386, 92765]

Then on execution of PushBig(), the stack BigNums should store:

[10025, 254923, 1297653, 31498, 92765]

And on execution of PopBig(), the following output should be displayed:

92765
31498
1297653
254923
10025
Stack Empty

Ans:
```
def PushBig(Nums,BigNums):
    for N in Nums:
        if len(str(N)) >= 5:
```

```
                    BigNums.append(N)
def PopBig(BigNums):
    while BigNums:
        print(BigNums.pop())
    else:
        print("Stack Empty")

Nums=[213, 10025, 167, 254923, 14, 1297653, 31498, 386, 92765]
BigNums=[]
PushBig(Nums,BigNums)
PopBig(BigNums)
```

4. A dictionary, d_city contains the records in the following format : {state:city}
   Define the following functions with the given specifications:
   (i) push_city(d_city): It takes the dictionary as an argument and pushes all the cities in the stack CITY whose states are of more than 4 characters.
   (ii)pop_city(): This function pops the cities and displays "Stack empty" when there are no more cities in the stack.

   Ans:
```
CITY=[]
def push_city(d_city):
    for c in d_city:
        if len(c) > 4:
            CITY.append(d_city[c])
def pop_city():
    while CITY:
        print(CITY.pop())
    else:
        print("Stack empty")

d_city={'Tamilnadu':'Tirupattur','Kerala':'Kochin','Goa':'Panaji'}
push_city(d_city)
pop_city()
```

5. A list contains following record of course details for a University :
   [Course_name, Fees, Duration]
   Write the following user defined functions to perform given operations on the stack named 'Univ' :
   (i) Push_element() - To push an object containing the Course_name, Fees and Duration of a course, which has fees greater than 100000 to the stack.
   (ii) Pop_element() - To pop the object from the stack and display it. Also, display "Underflow" when there is no element in the stack.

For example :

If the lists of courses details are :

["MCA", 200000, 3]

["MBA", 500000, 2]

["BA", 100000, 3]

The stack should contain

["MBA", 500000, 2]

["MCA", 200000, 3]

Ans:

```
Course=[["MCA",200000,3],["MBA",500000,2],["BA",100000,3]]
Univ=[]
def Push_element():
    for Rec in Course:
        if Rec[1]>100000:
            Univ.append(Rec)
def Pop_element():
    while len(Univ)>0:
        print(Univ.pop())
Push_element()
Pop_element()
```

UNIT II

CHAPTER 8 & 9 – COMPUTER NETWORKS I & II

3 Marks Questions and Answers

1. Define the following:
   i) Data Channel ii) Bps iii) Bandwidth

   Ans: i) Channel is the medium used to carry information or data from one point to another.
   ii) It refers to the speed at which data transfer is measured.
   iii) The bandwidth refers to the difference between the highest and lowest frequencies of a transmission channel.

2. Expand the following terms:
   i) UTP ii) STP iii) ARPANET

   Ans: i) Unshielded Twisted Pair
   ii) Shielded Twisted Pair
   iii) Advanced Research Projects Agency NETwork

3. Write the definition for the following topologies:
   i) BUS topology ii) STAR topology iii) TREE topology

   Ans: i) Here each computer is directly connected to a common primary network cable.
   ii) In this all computers are connected using central hub.
   iii) The tree topology is a combination of bus and star topologies and which connected computers look like branches of a tree.

4. Give one advantage and one disadvantage for the following communication channels:
   i) Optical Fiber Cable ii) Coaxial Cable iii) Twister Pair Cable

   Ans: i) Advantage: It is free from electrical noise and interference.
   Disadvantage: It is an expensive communication medium.
   ii) Advantage: It provides a cheap means of transporting multi-channel television signals around metropolitan areas.
   Disadvantage: It is prone to some electrical noise and interference.
   iii) Advantage: It is simple, easy to install and maintain.
   Disadvantage: It is incapable carrying a signal over long distances.

5. Give one advantage and one disadvantage for the following Unguided Media:
   i) Microwave ii) Radio Wave iii) Satellite

   Ans: i) Advantage: It offers ease of communication over difficult terrain.
   Disadvantage: Microwave communication is an insecure communication.
   ii) Advantage: Radio wave transmission offers mobility.
   Disadvantage: Radio wave communication is an insecure communication.

iii) Advantage: The area coverage through satellite transmission is quite large.
Disadvantage: Technological limitations preventing the deployment of large, high gain antennas on the satellite platform.

6. Expand the following terms:
   i) MODEM ii) FTP iii) HTTP

   Ans: i) MOdulator DEModulator
   ii) File Transfer Protocol
   iii) Hyper Text Transfer Protocol

7. Define the following terms:
   i) XML ii) URL iii) Web Browser

   Ans: i) XML is a markup language for documents containing structured information.
   ii) HTTP uses Internet addresses in a special format called a Uniform Resource Locator or URL.
   iii) A web browser is a WWW client that navigates through the World Wide Web and displays webpages.

8. Give the full form of
   i) NFS ii) POP iii) VOIP

   Ans: i) Network File System
   ii) Post Office Protocol
   iii) Voice Over Internet Protocol

9. Write any one difference between Hub, Switch, Router.

   Ans: Hub is a common connection point for devices connected to the network.
   Switch is a device in a network which forwards packets in a network.
   Routers are located at gateway and forwards data packets.

10. Define the following devices:
    i) Repeater ii) Gateway iii) NIC

    Ans: i) A Repeater is a network device that amplifies and restores signals for long distance transmission.
    ii) A Gateway is a network device that connects dissimilar networks.
    iii) The Network Interface Card is a device that is attached to each of the workstations and the server and helps the workstation establish the all-important connection with the network.

UNIT III
CHAPTER 10 – RELATIONAL DATABASES
3 Marks Questions and Answers

1. An organization wants to create a database EMPLOYEE and DEPENDENT to maintain following details its employees and their dependent.

   EMPLOYEE(AadharNumber, Name, Address, Deparment, EmployeeID)
   DEPEDENT(EmployeeID, DependentName, Relationship)

   a) Name the attributes of EMPLOYEE, which can be used as candidate keys.
   b) The company wants to retrieve details of dependent of a particular employee. Name the tables and the key which are required to retrieve this detail.
   c) What is the degree of EMPLOYEE and DEPENDENT relation?

   Ans: a) AadharNumber, EmployeeID
   b) Employee and Dependent tables linked via key EmployeeID
   c) Degree of Employee table : 5
   Degree of Dependent table : 3

2. In a multiplex, movies are screened in different auditoriums. One movie can be shown in more than one auditorium. In order to maintain the record of movies, the multiplex maintains a relational database consisting of two relations viz. MOVIE and AUDI respectively as shown below:

   Movie(Movie_ID, MovieName, ReleaseDate)
   Audi(AudiNo, Movie_ID, Seats, ScreenType, TicketPrice)

   a) Is it correct to assign Movie_ID as the primary key in the MOVIE relation? If no, then suggest an appropriate primary key.
   b) Is it correct to assign AudiNo as the primary key in the AUDI relation? If no, then suggest appropriate primary key.
   c) Is there any foreign key in any of these relations?

   Ans: a) Yes, it is correct to assign Movie_ID as primary key.
   b) No, AudiNo along with Movie_ID should be made the primary key. That is, the relation should have composite primary key as AudiNo+MovieID
   c) Movie_ID

CHAPTER 11 – SIMPLE QUERIES IN SQL

3 Marks Questions and Answers

1. Consider the table ORDERS given below and write the output of the SQL queries that follow:

ORDNO	ITEM	QTY	RATE	ORDATE
1001	RICE	23	120	2023-09-10
1002	PULSES	13	120	2023-10-18
1003	RICE	25	110	2023-11-17
1004	WHEAT	28	65	2023-12-25
1005	PULSES	16	110	2024-01-15
1006	WHEAT	27	55	2024-04-15
1007	WHEAT	25	60	2024-04-30

(i) SELECT ITEM, SUM(QTY) FROM ORDERS GROUP BY ITEM;

(ii) SELECT ITEM, QTY FROM ORDERS WHERE ORDATE BETWEEN '2023-11-01' AND '2023-12-31';

(iii) SELECT ORDNO, ORDATE FROM ORDERS WHERE ITEM = 'WHEAT' AND RATE>=60;

Ans: i)

ITEM	SUM(QTY)
RICE	48
PULSES	29
WHEAT	80

ii)

ITEM	QTY
RICE	25
WHEAT	28

iii)

ORDNO	ORDATE
1004	2023-12-25
1007	2024-04-30

2. Consider the table Stationery given below and write the output of the SQL Queries that follow. Table: Stationery

ITEMNO	ITEM	DISTRIBUTOR	QTY	PRICE
401	Ball Pen 0.5	Reliable Stationers	100	16
402	Gel Pen Premium	Classic Plastics	150	20
403	Eraser Big	Clear Deals	210	10
404	Eraser Small	Clear Deals	200	5
405	Sharpener Classic	Classic Plastics	150	8
406	Gel Pen Classic	Classic Plastics	100	15

(i) SELECT DISTRIBUTOR, SUM(QTY) FROM STATIONERY
GROUP BY DISTRIBUTOR;

(ii) SELECT ITEMNO, ITEM FROM STATIONERY WHERE DISTRIBUTOR = "Classic Plastics" AND PRICE > 10;

(iii) SELCET ITEM, QTY*PRICE AS "AMOUNT" FROM STATIONERY WHERE ITEMNO = 402;

Ans: i)

DISTRIBUTOR	SUM(QTY)
Reliable Stationers	100
Classic Plastics	400
Clear Deals	410

ii)

ITEMNO	ITEM
402	Gel Pen Premium
406	Gel Pen Classic

iii)

ITEM	AMOUNT
Gel Pen Premium	3000

3. Write the output of the queries (i) to (iii) based on the table, WORKER given below:

TABLE: WORKER

W_ID	F_NAME	L_NAME	CITY	STATE
102	SAHIL	KHAN	KANPUR	UTTAR PRADESH
104	SAMEER	PARIKH	ROOP NAGAR	PUNJAB
105	MARY	JONES	DELHI	DELHI
106	MAHIR	SHARMA	SONIPAT	HARYANA
107	ATHARVA	BHARDWAJ	DELHI	DELHI
108	VEDA	SHARMA	KANPUR	UTTAR PRADESH

i) SELECT F_NAME, CITY FROM WORKER ORDER BY STATE DESC;

ii) SELECT DISTINCT (CITY) FROM WORKER;

iii) SELECT F_NAME, STATE FROM WORKER WHERE L_NAME LIKE '_HA%';

Ans: i)

F_NAME	CITY
SAHIL	KANPUR
VEDA	KANPUR
SAMEER	ROOP NAGAR
MAHIR	SONIPAT
MARY	DELHI
ATHARVA	DELHI

ii)

CITY
KANPUR
ROOP NAGAR
DELHI
SONIPAT

iii)

F_NAME	STATE
SAHIL	UTTAR PRADESH
MAHIR	HARYANA
ATHARVA	DELHI
VEDA	UTTAR PRADESH

4. Write the output of the queries (i) to (iii) based on the table, GARMENT given below:
TABLE:GARMENT

GCODE	TYPE	PRICE	FCODE	ODR_DATE
G101	EVENING GOWN	850	F03	2008-12-19
G102	SLACKS	750	F02	2020-10-20
G103	FROCK	1000	F01	2021-09-09
G104	TULIP SKIRT	1550	F01	2021-08-10
G105	BABY TOP	1500	F02	2020-03-31
G106	FORMAL PANT	1250	F01	2019-01-06

i) SELECT DISTINCT(COUNT(FCODE)) FROM GARMENT;

ii) SELECT FCODE, COUNT(*), MIN(PRICE) FROM GARMENT GROUP BY FCODE HAVING COUNT(*)>1;

iii)SELECT TYPE FROM GARMENT WHERE ODR_DATE >'2021-02-01' AND PRICE < 1500;

Ans: i)

DISTINCT(COUNT(FCODE))
3

ii)

FCODE	COUNT(*)	MIN(PRICE)
F02	2	750
F01	3	1000

iii)

TYPE
FROCK

5. Write the output of the SQL queries (a) to (d) based on the table TRAVEL given below :

Table: TRAVEL

T_ID	START	END	T_DATE	FARE
101	DELHI	CHENNAI	2021-12-25	4500
102	DELHI	BENGALURU	2021-11-20	4000
103	MUMBAI	CHENNAI	2020-12-10	5500
104	DELHI	MUMBAI	2019-12-20	4500
105	MUMBAI	BENGALURU	2022-01-15	5000

i) SELECT START, END FROM TRAVEL WHERE FARE <=4000;

ii) SELECT T_ID, FARE FROM TRAVEL WHERE T_DATE LIKE '2021-12-%';

iii) SELECT T_ID, T_DATE FROM TRAVEL WHERE END = 'CHENNAI' ORDER BY FARE;

Ans: i)

START	END
DELHI	BENGALURU

ii)

T_ID	FARE
101	4500

iii)

T_ID	T_DATE
101	2021-12-25
103	2020-12-10

6. Write the output of the SQL queries (a) to (d) based on the table VACCINATION_DATA given below:

TABLE: VACCINATION_DATA

VID	Name	Age	Dose1	Dose2	City
101	Jenny	27	2021-12-25	2022-01-31	Delhi
102	Harjot	55	2021-07-14	2021-10-14	Mumbai
103	Srikanth	43	2021-04-18	2021-07–20	Delhi
104	Gazala	75	2021-07-31	NULL	Kolkata
105	Shiksha	32	2022-01-01	NULL	Mumbai

i) SELECT Name, Age FROM VACCINATION_DATA WHERE Dose2 IS NOT NULL AND Age > 40;

ii) SELECT City, COUNT(*) FROM VACCINATION_DATA GROUP BY City;

iii) SELECT DISTINCT City FROM VACCINATION_DATA;

Ans: i)

Name	Age
Harjot	55
Srikanth	43

ii)

City	COUNT(*)
Delhi	2
Mumbai	2
Kolkata	1

iii)

City
Delhi
Mumbai
Kolkata

7. Write the output of queries (i) to (iii) based on the table Sportsclub given below:

Table: 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;

Ans: i)

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

8. Write the outputs of the SQL queries (i) to (iii) 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

i) SELECT Itemname FROM Furniture WHERE Type="Double Bed";

ii) SELECT Dateofstock FROM Furniture WHERE Type="Sofa" order by Dateofstock;

iii) SELECT Type,sum(Price) FROM Furniture group by Type;

Ans: i)

Itemname
White lotus
Comfort Zone
Wood Comfort

ii)

Dateofstock
13/12/2001

22/02/2002
20/02/2003

iii)

Type	Sum(Price)
Double Bed	80000
Baby Cot	30500
Office Table	43000
Sofa	57500
Dining Table	11500

9. Consider the following table DOCTOR given below and write the output of the SQL Queries that follows:

D_ID	D_NAME	D_DEPT	GENDER	EXPERIENCE
101	JOSEPH	ENT	MALE	10
104	GUPTA	MEDICINE	MALE	12
106	SUMAN	ORTHO	FEMALE	7
111	HANEEF	ENT	MALE	12
123	DEEPTI	CARDIOLOGY	FEMALE	6
132	VEENA	SKIN	FEMALE	12

i) SELECT D_NAME FROM DOCTOR WHERE GENDER=MALE AND EXPERIENCE=12;

ii) SELECT DISTINCT(D_DEPT) FROM DOCTOR;

iii) SELECT D_NAME , EXPERIENCE FROM DOCTOR ORDER BY EXPERIENCE;

Ans: i)

NAME
GUPTA
HANEEF

ii)

DISTINCT(D_DEPT)
ENT
MEDICINE
ORTHO
CARDIOLOGY
SKIN

iii)

D_NAME	EXPERIENCE
DEEPTI	6
SUMAN	7
JOSEPH	10
GUPTA	12
HANEEF	12
VEENA	12

10. Write SQL commands for (a) to (c) on the basis of Teacher relation given below:

Relation Teacher

No	Name	Age	Department	Dateofjoin	Salary	Sex
1	Jugal	34	Computer	10/01/97	12000	M
2	Sharmila	31	History	24/03/98	20000	F
3	Sandeep	32	Maths	12/12/96	30000	M
4	Sangeeta	35	History	01/07/99	40000	F
5	Rakesh	42	Maths	05/09/97	25000	M
6	Shyam	50	History	27/06/98	30000	M
7	Shiv Om	44	Computer	25/02/97	21000	M
8	Shalakha	33	Maths	31/07/97	20000	F

(a) To show all information about the teacher of history department

(b) To list the names of female teacher who are in Hindi department

(c) To list names of all teachers with their date of joining in ascending order.

Ans: i) SELECT * FROM Teacher WHERE Department = “History”;

ii) SELECT Name FROM Teacher WHERE Department = “Hindi” and Sex = “F”;

iii) SELECT Name, Dateofjoin FROM Teacher ORDER BY Dateofjoin;

CHAPTER 12 – TABLE CREATION AND DATA MANIPULATION

3 Marks Questions and Answers

1. Consider the table Projects given below:

Table: Projects

P_id	Pname	Language	Startdate	Enddate
P001	School Management System	Python	2023-01-12	2023-04-03
P002	Hotel Management System	C++	2022-12-01	2023-02-02
P003	Blood Bank	Python	2023-02-11	2023-03-02
P004	Payroll Management System	Python	2023-03-12	2023-06-02

Based on the given table, write SQL queries for the following:

i) Add the constraint, primary key to column P_id in the existing table Projects.

ii) To change the language to Python of the project whose id is P002.

iii)To delete the table Projects from MySQL database along with its data.

Ans i) ALTER TABLE Projects ADD PRIMARY KEY (P_id);

ii) UPDATE Projects SET LANGUAGE= "Python" WHERE P_id = "P002";

iii) DROP TABLE Projects;

2. Consider the table Rent_cab, given below:

Table: Rent_cab

Vcode	VName	Make	Color	Charges
101	Big car	Carus	White	15
102	Small car	Polestar	Silver	10
103	Family car	Windspeed	Black	20
104	Classic	Studio	White	30
105	Luxury	Trona	Red	9

Based on the given table, write SQL queries for the following:

i) Add a primary key to a column name Vcode.

ii) Increase the charges of all the cabs by10%.

iii)Delete all the cabs whose maker name is "Carus".

Ans: i) ALTER TABLE Rent_cab ADD PRIMARY KEY (Vcode);

ii) UPDATE Rent_cab SET Charges = Charges*0.1;

iii) DELETE FROM Rent_cab WHERE Make = "Carus";

3. Monika is a senior clerk in a MNC. She created a table 'Salary' with a set of records to keep ready for tax calculation. After creation of the table, she has entered data of 5 employees in the table.

emp_id	emp_name	emp_desig	basic	Da	hra	nps
E01	Naveen Roy	Manager	70000	20000	8000	7000
E02	Pawan Ahuja	Junior Clerk	20000	2000	2500	2000
E03	Kalpana Rani	Public Expert	50000	5000	4500	2500
E04	Govid Mishra	Director	90000	40000	11500	900
E05	Seeta Johar	Production Manager	80000	35000	10500	850

Based on the table given above write the SQL Queries:

i) To add a new column for the following data E05, Kareen, 85000, 20000,11000, 950.

ii) Increase the DA by 3% of respective basic salary of all employees.

iii) Delete the Attribute emp_desig from the table.

Ans: i) INSERT INTO Salary VALUES('E05', 'Kareen',85000,20000,11000,950);

ii) UPDATE SALARY SET DA=DA+0.03*BASIC;

iii)ALTER TABLE SALARY DROP COLUMN EMP_DESIG;

4. ABC Gym has created a table TRAINER. Observe the table given below and answer the following questions accordingly.

Table: TRAINER

TID	TNAME	CITY	HIREDATE	SALARY
101	SUNAINA	MUMBAI	1998-10-15	90000
102	ANAMIKA	DELHI	1994-12-24	80000
103	DEEPTI	CHANDIGARH	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

Write the query to:

i. Insert a record: (107,Bhoomi,Delhi,2001-12-15,90000)

ii. Increase the salary by 1% for the trainers whose salary is more than 80000

iii. Delete the record of Richa

Ans: i) INSERT INTO TRAINER VALUES(107,'BHOOMI','DELHI','2001-12-15' ,90000);

ii) UPDATE TRAINER SET SALARY=SALARY*0.01 WHERE SALARY>80000;

iii) DELETE FROM TRAINER WHERE TNAME='RICHA';

5. A department is considering to maintain their worker data using SQL to store the data. As a Database Administrator, Karan has decided that:

   Name of the database –Department

   Name of the table –Worker

   The attributes of Worker are as follows:

   WORKER_ID – CHARACTER OF SIZE 3

   FIRST_NAME – CHARACTER OF SIZE 10

   LAST_NAME – CHARACTER OF SIZE 10

   SALARY – NUMERIC

   JOINING_DATE – DATE

WORKER_ID	FIRST_NAME	LAST_NAME	SALARY	JOINING_DATE
001	MONIKA	ARORA	100000	2014-02-20
002	NIHARIKA	DIWAN	80000	2014-06-11
003	VISHAL	SINGHAL	300000	2014-02-20
004	AMITABH	SINGH	500000	2014-02-20
005	VIVEK	BHATI	500000	2014-06-11
006	VIPUL	DIWAN	200000	2014-06-11
007	SATISH	KUMAR	75000	2014-02-20
008	MONIKA	CHAUHAN	80000	2014-04-11

   a) Karan wants to remove all the data from table WORKER from the database department. Write the command to delete above said information.

   b) Write command to create above table

   c) Karan wants to increase the size of the FIRST_NAME column from 10 to 20 characters. Write an appropriate query to change the size.

   Ans: a) DELETE FROM WORKER;

   b) CREATE TABLE WORKER (WORKER_ID CHAR(2), FIRST_NAME CHAR(10), LAST_NAME CHAR(10),SALARY INT, JOINING_DATE DATE);

   c) ALTER TABLE WORKER MODIFY FIRST_NAME CHAR(20);

CHAPTER 13 – GROUPING RECORDS, JOINS IN SQL

3 Marks Questions and Answers

1. Consider the tables Admin and Transport given below:

Table:Admin

S_id	S_name	Address	S_type
S001	Sandhya	Rohini	Day Boarder
S002	Vedanshi	Rohtak	Day Scholar
S003	Vibhu	Raj Nagar	NULL
S004	Atharva	Rampur	Day Boarder

Table:Transport

S_id	Bus_no	Stop_name
S002	TSS10	Sarai Kale Khan
S004	TSS12	Sainik Vihar
S005	TSSl0	Kamla Nagar

Write SQL queries for the following:

i) Display the student name and their stop name from the tables Admin and Transport.

ii) Display the number of students whose S_type is not known.

iii) Display all details of the students whose name starts with 'V'.

Ans: i) SELECT S_name, Stop_name FROM Admin, Transport WHERE Admin.S_id = Transport.S_id;

ii) SELECT COUNT(*) FROM Admin WHERE S_type IS NULL;

iii) SELECT * FROM Admin WHERE S_name LIKE 'V%';

2. Consider the tables GAMES and PLAYERS given below:

Table: GAMES

GCode	GameName	Type	Number	PrizeMoney
101	Carrom Board	Indoor	2	5000
102	Badminton	Outdoor	2	12000
103	Table Tennis	Indoor	4	NULL
104	Chess	Indoor	2	9000
105	Lawn Tennis	Outdoor	4	25000

Table: PLAYERS

PCode	Name	GCode
1	Nabi Ahmad	101
2	Ravi Sahai	108
3	Jatin	101
4	Nazneen	103

Write SQL queries for the following:

i) Display the game type and average number of games played in each type.

ii) Display prizemoney, name of the game, and name of the players from the tables Games and Players.

iii) Display the types of games with out repetition.

Ans: i) SELECT Type, AVG(Number) FROM GAMES GROUP BY Type;

ii) SELECT PrizeMoney, GameName, Name FROM GAMES, PLAYERS WHERE GAMES.GCode = PLAYERS.GCode;

iii) SELECT DISTINCT TYPE FROM GAMES;

3. Write the outputs of the SQL queries (i) to (iii) based on the relations COMPUTER and SALES given below :

Table : COMPUTER

PROD_ID	PROD_NAME	PRICE	COMPANY	TYPE
P001	MOUSE	200	LOGITECH	INPUT
P002	LASER PRINTER	4000	CANON	OUTPUT
P003	KEYBOARD	500	LOGITECH	INPUT
P004	JOYSTICK	1000	IBALL	INPUT
P005	SPEAKER	1200	CREATIVE	OUTPUT
P006	DESKJET PRINTER	4300	CANON	OUTPUT

Table : SALES

PROD_ID	QTY_SOLD	QUARTER
P002	4	1
P003	2	2
P001	3	2
P004	2	1

i) SELECT COMPANY, COUNT(*) FROM COMPUTER GROUP BY COMPANY HAVING COUNT(COMPANY) > 1;

ii) SELECT PROD_NAME, QTY_SOLD FROM COMPUTER C, SALES S WHERE C.PROD_ID=S.PROD_ID AND TYPE = 'INPUT';

iii) SELECT PROD_NAME, COMPANY, QUARTER FROM COMPUTER C, SALES S WHERE C.PROD_ID=S. PROD_ID;

Ans: i)

COMPANY	COUNT(*)
LOGITECH	2
CANON	2

ii)

PROD_NAME	QTY_SOLD
MOUSE	3
KEYBOARD	2
JOYSTICK	2

iii)

PROD_NAME	COMPANY	QUARTER
MOUSE	LOGITECH	2
LASER PRINTER	CANON	1
KEYBOARD	LOGITECH	2
JOYSTICK	IBALL	1

4. Write the output of any three SQL queries (i) to (iv) based on the tables COMPANY and CUSTOMER given below:

Table:COMPANY

CID	C_NAME	CITY	PRODUCTNAME
111	SONY	DELHI	TV
222	NOKIA	MUMBAI	MOBILE
333	ONIDA	DELHI	TV
444	SONY	MUMBAI	MOBILE
555	BLACKBERRY	CHENNAI	MOBILE
666	DELL	DELHI	LAPTOP

Table:CUSTOMER

CUSTID	CID	NAME	PRICE	QTY
C01	222	ROHITSHARMA	70000	20
C02	666	DEEPIKAKUMARI	50000	10
C03	111	MOHANKUMAR	30000	5
C04	555	RADHAMOHAN	30000	11

i) SELECT PRODUCTNAME, COUNT(*) FROM COMPANY GROUP BY

PRODUCTNAME HAVING COUNT(*)>2;

ii) SELECT NAME, PRICE, PRODUCTNAME FROM COMPANY C,

CUSTOMER CU WHERE C.CID = CU.CID AND C_NAME = 'SONY';

iii) SELECT DISTINCT CITY FROM COMPANY;

Ans: i)

PRODUCTNAME	COUNT(*)
MOBILE	3

ii)

NAME	PRICE	PRODUCTNAME
MOHANKUMAR	30000	TV

iii)

DISTINCT(CITY)
DELHI
MUMBAI
CHENNAI

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

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

TNO	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 display 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.

Ans: a) SELECT * FROM TRANSACT WHERE AMOUNT<1000;

b) SELECT TTYPE, SUM(AMOUNT)FROM TRANSACT GROUP BY TTYPE;

c) SELECT NAME, AMOUNT FROM CUSTOMER, TRANSACT WHERE CUSTOMER.CNO=TRANSACT.CNO AND TTYPE='CREDIT';

CHAPTER 14 – INTERFACE PYTHON WITH MYSQL

3 Marks Questions and Answers

1. To write a code in Python to display all the details of the passengers from the table flight in MySQL database, Travel. The table contains the following attributes:

   F_ code : Flight code (String)
   F_name: Name of flight (String)
   Source: Departure city of flight (String)
   Destination: Destination city of flight (String)

   Consider the following to establish connectivity between Python and MySQL:

   - Username : root
   - Password : airplane
   - Host : localhost

   Ans:
```
import mysql.connector as m
c = m.connect(host = 'localhost', user= 'root', passwd = 'airplane',
                                    database='Travel')
def select( ):
    cur = c.cursor( )
    cur.execute('select * from flight;')
    data = cur.fetchall( )
    for i in data:
        for j in i:
            print(j, end = "\t")
        print( )
#_____MAIN_____
select ()
```

2. To write a program in Python to insert the following record in the table named Bank_Account in MySQL database, Bank :

   - Accno – integer
   - Cname – string
   - Atype – string
   - Amount – float

   Note the following to establish connectivity between Python and MySQL :

   - Username – admin
   - Password – root
   - Host – localhost

   The values of fields Accno, Cname, Atype and Amount have to be accepted from the user.

Ans:
```
import mysql.connector as m
c = m.connect (host = 'localhost', user= 'admin', passwd = 'root',
                database='Bank')
def inst( ):
    cur = c.cursor ( )
    ccno = int(input("Enter your Account Number :"))
    Cname = input("Enter your Name :")
    Atype = input ("Enter your Account Type :")
    Amount=float(input("Enter the Amount: "))
    cur.execute ('insert into employee values ({0},"{1}", "{2}",{3})'.format
                (Accno,Cname, Atype,Amount))
    c.commit ( )
#_____MAIN___
inst ()
```

3. To write a program in Python to delete the record of a candidate “Raman” from the table named Placement in MySQL database, Agency:
   The table Placement in MySQL contains the following attributes :
   - CName – String
   - Dept – String
   - Place – String
   - Salary – integer

   Note the following to establish connectivity between Python and MySQL:
   - Username – root
   - Password – job
   - Host – localhost

   Ans:
```
import mysql.connector as m
c = m.connect (host = 'localhost', user= 'root', passwd = 'job',
                database='Placement')
def delEmp( ):
    cur = c.cursor ( )
    Cname = input("Enter the Candidate Name :")
    cur.execute ('delete from placement where Cname = "{0}" '.format
                (Cname))
    c.commit ( )
    print(“Candidate {0}, is removed from the table
                Placement”.format(Cname))
#____MAIN ___
delEmp ( )
```

4. To write a program in Python to update the quantity to 20 of the records whose item code is 111 in the table named shop in MySQL database named Keeper.
   The table shop in MySQL contains the following attributes:
   - Item_code: Item code (Integer)
   - Item_narne: Name of item (String)
   - Qty: Quantity of item (Integer)
   - Price: Price of item (Integer)

   Consider the following to establish connectivity between Python and MySQL:
   Username: admin
   Password : Shopping
   Host: localhost

   Ans:
```
import mysql.connector as m
c = m.connect (host = 'localhost', user= 'admin', passwd = 'Shopping',
        database='Keeper')
def updEmp( ):
    cur = c.cursor ( )
    Item_code = int(input ("Enter the Item_code:"))
    Qty = input("Enter the Quantity :")
    cur.execute (‘update shop set Qty = "{0}" where Item_code = “{1}”
        '.format(Qty,Item_code))
    c.commit ( )
    print(“Item_code {0}, Item of Quantity have been updated to {1}”.
        format(Item_code,Qty))
#_____MAIN_____
updEmp ( )
```

5. Write a python program in python to delete the record with E_code as ‘E101’ from the table employee which contains the following record structure:
   E_code - String
   E_name - String
   Sal – Integer
   City - String

   Note the following to establish connectivity between Python and MySQL :
   - Username is root
   - Password is root
   - The table exists in a MySQL database named emp.

   The details (E_code,E_name,Sal,City) are the attributes of the table.

Ans: import mysql.connector as mysql # Statement 1

```
def delete() :
        mydb=mysql.connect(host="localhost",user="root",
            passwd="root",database="emp")
        mycursor=mydb.cursor()
        mycursor.execute("DELETE FROM employee WHERE E_code='E101'")
        mydb.commit()
        print ("Record deleted")
#_____MAIN_____
delete( )
```

CHAPTER 5 – FILE HANDLING & EXCEPTION HANDLING
4 Marks Questions and Answers

1. (i) What is the advantage of using with clause while opening a data file in Python? Also give syntax of with clause.

   (ii) A binary file, EMP.DAT has the following structure:

   [Emp_Id,Name,Salary]

   Where

   Emp_Id :Employee id

   Name :Employee Name

   Salary :Employee Salary

   Write a user defined function, disp_Detail(), that would read the contents of the file EMP.DAT and display the details of those employees whose salary is below 25000.

   Ans: (i) The advantage of using with clause is that any file that is opened using this clause is closed automatically, once the control comes outside the with clause.

   Example:

```
with open("myfile.txt","r+") as file_object:
    content=file_object.read()
```

   In Python, we can open a file using with clause / statement.

   The syntax of with clause is:

```
with open(file_name, access_mode) as file_object:
```

   (ii)

```
import pickle
def disp_Detail():
    try:
        with open("EMP.DAT","rb") as F:
            Data=pickle.load(F)
            for D in Data:
                if D[2]<25000:
                    print(D)
    except:
        print("File Not Found!!!")
disp_Detail()
```

2. (i) Differentiate between 'w' and 'a' file modes in Python.

   (ii) Consider a binary file, items.dat, containing records stored in the given format :

   {item_id: [item_name,amount]}

   Write a function, Copy_new(), that copies all records whose amount is greater than 1000 from items.dat to new_items.dat.

   Ans: (i) 'w':

   - Open the file in write mode.

- If the file doesn't exist, then a new file will be created.
- The file pointer is in the beginning of the file.
- If the file exists, the contents of the file, if any, are lost / truncated and the new data is added as fresh data into the file.

'a':

- Open the file in append mode.
- If the file doesn't exist, then a new file will be created.
- The file pointer is at the end of the file.
- If the file exists, the new data is added at the end of the file without deleting the previous contents of the file.

(ii)
```
import pickle
def Copy_new():
    F2=open("new_items.dat","wb")
    try:
        F1=open("items.dat","rb")
        Data1=pickle.load(F1)
        Data2={}
        for K,V in Data1.items():
            if V[1]>1000:
                Data2[K]=V
        pickle.dump(Data2,F2)
    except:
        print("File not found!")
        F1.close()
        F2.close()
Copy_new()
```

3. (i) What is the main purpose of seek() and tell() method?

(ii) Consider a binary file, Cinema.dat containing information in the following structure:

[Mno,Mname,Mtype]

Write a function, search_copy(), that reads the content from the file Cinema.dat and copies all the details of the "Comedy" movie type to file named movie.dat.

Ans: (i) seek()- it is a Python method, which moves the file pointer to the location specified in the parameter.

tell()- it is a Python method, which returns the present location of a file pointer.

(ii)
```
import pickle
def search_copy():
    try:
```

```
            F1=open("Cinema.dat","rb")
            F2=open("movie.dat","wb")
            Data1=pickle.load(F1)
            Data2=[]
            for D in Data1:
                if D[2] == "Comedy":
                    Data2.append(D)
            pickle.dump(Data2,F2)
        except:
            print("File not found!")
            F1.close()
            F2.close()
    search_copy()
```

4. (i) Give one difference between write() and writeline() function in text file.
   (ii) A Binary file, "Items.dat" has the following structure:
   [Icode,Description,Price]
   Where
   Icode–Itemcode
   Description–Detailofitem
   Price–Priceofitem
   Write a python function Add_data(), that takes Icode, Description and Price from the user and writes the information in the binary file "Items.dat".

   Ans: (i) write() – writes the content of a string on to a text file object.
   writelines() - writes the content of a list of strings on to a text file object.
   Example:

```
file.write("HelloWorld")
file.writelines(["Hello","World"])
```

   (ii)

```
import pickle
def Add_data():
    F=open("Items.dat","ab")
    Icode=input("Icode:")
    Description=input("Detail of item:")
    Price=float(input("Price:")
    pickle.dump([Icode,Description,Price],F)
    F.close()
Add_data()
```

5. Anamika is a Python programmer. She has written a code and created a binary file data.dat with sid, sname and marks. The file contains 10 records. Write a python function update_data() to update a record based on the sid entered by the user and update the marks. The updated record is then to be written in the file extra.dat. The records which are not to be updated also have to be written to the file extra.dat. If the sid is not found, an appropriate message should to be displayed.

Ans:
```
import pickle
def update_data():
    rec={}
    fin=open("data.dat","rb")
    fout=open("extra.dat","wb")
    found=False
    sid=int(input("Enter student id to update their marks :: "))
    while True:
        try:
            rec=pickle.load(fin)
            if rec["student id"]==sid:
                found=True
                rec["marks"]=int(input("Enter new marks:: "))
            pickle.dump(rec,fout)
        except:
            fin.close()
            fout.close()
            break
    if found==True:
        print("The marks of student id ",sid," has  been updated.")
    else:
        print("No student with such id is not found")
update_data()
```

6. Explain the following terms:

i) finally ii) raise iii) assert iv) try … except

Ans: i) The finally block is a place that contains any code that must execute, whether the try: block raised an exception or not.

ii) The programmer can force an exception to occur through raise keyword. It can also pass a custom message to your exception handling module.

iii) The assert keyword in python is used when we need to detect problems early.

iv) The code that may generate an exception in written in the try block and the code for handling exception when the exception is raised is written in except block.

7. Write a python program to perform a handle multiple exception.

Ans:
```
try:
        My_file=open("myfile.txt")
        My_line=My_file.readline()
        My_int=int(s.strip())
        My_calculated_value=101/My_int
except IOError:
        print("I/O error occurred")
except ValueError:
        print("Could not convert data to an integer.")
except ZeroDivisionError:
        print("Division by Zero error")
except:
        print("Unexpected error:")
else:
        print("Hurry! No Execption!")
```

8. What is the output produced by following code, if the input given is :

a) 6 b) 0 c) 6.7 d) "a"

```
try:
        x=float(input("Your number:"))
        inverse=1.0/x
except ValueError:
        print("You should have given either an int or a float")
except ZeroDivisionError:
        print("Infinity")
finally:
        print("There may or may not have been an exception.")
```

Ans: a) There may or may not have been an exception.

b) Infinity
There may or may not have been an exception.

c) There may or may not have been an exception.

d) You should have given either an int or a float
There may or may not have been an exception.

9. What is the use of a raise statement? Write a code to accept two numbers and display the quotient. Appropriate exception should be raised if the user enters the second number(denominator) as zero(0).

Ans: The raise keyword is used to manually raise an exception like exceptions are raised by python itself.

```
a=int(input(“Enter value for a :”))
b=int(input(“Enter value for b:”))
try:
    if b==0:
        raise ZeroDivisionError # Raising exception using raise keyword
    print(a/b)
except ZeroDivisionError:
    print(“Please enter non-zero value for b.”)
```

10. Write a Python program that executes an operation on a list and handles an IndexError exception if the index is out of range.

Ans:

```
def test_index(data, index):
    try:
        result = data[index]
        print("Result:", result)
    except IndexError:
        print("Error: Index out of range.")
nums = [1, 2, 3, 4, 5, 6, 7]
index = int(input("Input the index: "))
test_index(nums, index)
```

CHAPTER 11 – SIMPLE QUERIES IN SQL
4 Marks Questions and Answers

1. Consider the table ORDERS as given below

O_Id	C_Name	Product	Quantity	Price
1001	Jitendra	Laptop	1	12000
1002	Mustafa	Smartphone	2	10000
1003	Dhwani	Headphone	1	1500

Write the following queries:

i) To display the total Quantity for each Product, excluding Products with total Quantity less than 5.

ii) To display the orders table sorted by total price in descending order.

iii) To display the distinct customer names from the Orders table.

iv) Display the sum of Price of all the orders for which the quantity is null.

Ans: i) select Product, sum(Quantity) from orders group by product having sum(Quantity)<5;

ii) select * from orders order by Price desc;

iii) select distinct C_Name from orders;

iv) select sum(price) as total_price from orders where Quantity IS NULL;

2. Consider the table ORDERS as given below

O_Id	C_Name	Product	Quantity	Price
1001	Jitendra	Laptop	1	12000
1002	Mustafa	Smartphone	2	10000
1003	Dhwani	Headphone	1	1500

Write the output of the following queries:

i) Select c_name, sum(quantity) as total_quantity from orders group by c_name;

ii) Select * from orders where product like '%phone%';

iii) Select o_id, c_name, product, quantity, price from orders where price between 1500 and 12000;

iv) Select max(price) from orders;

Ans: i)

C_Name	Total_Quantity
Jitendra	1
Mustafa	2
Dhwani	1

ii)

O_Id	C_Name	Product	Quantity	Price
1002	Mustafa	Smartphone	2	10000
1003	Dhwani	Headphone	1	1500

iii)

O_Id	C_Name	Product	Quantity	Price
1001	Jitendra	Laptop	1	12000
1002	Mustafa	Smartphone	2	10000
1003	Dhwani	Headphone	1	1500

iv)

MAX(Price)
12000

3. Write SQL commands for(a) to (b) and write the outputs for (C) on the basis of table GRADUATE

TABLE : GRADUATE

S.No	Name	Stipend	Subject	Average	Div
1	Karan	400	Physics	68	1
2	Divakar	450	Computers	68	1
3	Divya	300	Chemistry	62	2
4	Arun	350	Physics	63	1
5	Sabina	500	Mathematics	70	1
6	John	400	Chemistry	55	2
7	Robert	250	Physics	64	1
8	Rubina	450	Mathematics	68	1
9	Vikas	500	Computers	62	1
10	Mohan	300	Mathematics	57	2

a) List the names of those students who obtained DIV 1 sorted by NAME in ascending order.

b) Display a report, listing NAME, STIPEND, SUBJCT and amount of stipend received in a year assuming that the STIPEND is paid every month.

c) Give the output of the following SQL statements based on table GRADUATE :

i) Select MIN(AVERAGE) from GRADUATE where SUBJECT="PHYSICS";

ii) Select SUM(STIPEND) from GRADUATE where DIV=1;

Ans: a) SELECT NAME FROM GRADUATE WHERE DIV=1 ORDER BY NAME;

b) SELECT NAME, STIPEND, SUBJECT, STIPEND*12 as YEAR_STIPEND FROM GRADUATE;

c) i)

MIN(AVERAGE)
63

ii)

SUM(STIPEND)
2900

4. Write SQL commands for questions (a) to (d) based on the table FAMILY.

No	Name	FemaleMembers	MaleMembers	Income	Occupation
1	Mishra	3	2	7000	Service
2	Gupta	4	1	50000	Business
3	Khan	6	3	8000	Mixed
4	Chaddha	2	2	25000	Business
5	Yadav	7	2	20000	Mixed
6	Joshi	3	2	14000	Service
7	Maurya	6	3	5000	Farming
8	Rao	5	2	10000	Service

a) To select all the information of family, whose Occupation is service.
b) To list the name of family, where female members are more than 3.
c) To list all names of family with income in ascending order.
d) To count the number of family, whose income is less than 10000.

Ans: a) SELECT * FROM FAMILY WHERE OCCUPATION=”Service”;
b) SELECT NAME FROM FAMILY WHERE FEMALEMEMBERS>3;
c) SELECT NAME FROM FAMILY ORDER BY INCOME;
d) SELECT COUNT (NAME) FROM FAMILY WHERE INCOME<10000;

5. Write SQL commands for the following on the basis of given table STUDENT1:

No.	Name	Stipend	Stream	AvgMark	Grade	Class
1	Karan	400.00	Medical	78.5	B	12B
2	Divakar	450.00	Commerce	89.2	A	11C
3	Divya	300.00	Commerce	68.6	C	12C
4	Arun	350.00	Humanities	73.1	B	12C
5	Sabina	500.00	Nonmedical	90.6	A	11A
6	John	400.00	Medical	75.4	B	12B
7	Robert	250.00	Humanities	64.4	C	11A
8	Rubina	450.00	Nonmedical	88.5	A	12A
9	Vikas	500.00	Nonmedical	92.0	A	12A
10	Mohan	300.00	Commerce	67.5	C	12C

a) Select all the Nonmedical stream students from STUDENT1.
b) List the names of those students who are in class 12 sorted by Stipend.

c) List all students sorted by AvgMark in descending order.

c) Display a Name, Stipend, Stream and class by who's grade is "A".

Ans: a) SELECT * FROM STUDENT1 WHERE STREAM=”Nonmedical”;

b) SELECT NAME FROM STUDENT1WHERE CLASS LIKE “12%” ORDER BY STIPEND;

c) SELECT * FROM STUDENT1 ORDER BY AvgMark DESC;

d) SELECT NAME, STIPEND, STREAM, CLASS FROM STUDENT1 WHERE GRADE = ”A”;

6. Consider the table: medleys given below. Write the output of the SQL queries (a to d).

Medley_id	Color	Fruit	Rating
1	Red	Apple	25
2	Blue	Pear	5
3	Green	Apple	12
4	Red	Apple	10
5	Purple	Kiwi	5
6	Purple	Kiwi	50
7	Blue	Kiwi	3
8	Blue	Pear	9

a) SELECT distinct(color, fruit), sum(rating) FROM medleys;

b) SELECT distinct(fruit, color) FROM medleys WHERE color ="blue";

c) SELECT DISTINCT fruit FROM medleys;

d) SELECT medley_id FROM medleys WHERE rating>10;

Ans: a)

Color	Fruit	Sum
Red	Apple	35
Blue	Pear	14
Blue	Kiwi	3
Green	Apple	12
Purple	Kiwi	55

b)

Fruit	color
Pear	blue
Kiwi	blue

c)

Fruit
Apple
pear
kiwi

d)

Medley_ id
1
3
6

7. Write the output for the queries (i) to (iv) based on the table given below.
Table: SPORTS

S_ID	SName	FEES	START_DT	No_of_ Players
S1	Foot Ball	5000	2015–01–10	25
S2	Basket Ball	4000	2016–10–10	30
S3	Volley Ball	5000	2017–02–02	25
S4	Kho-Kho	5500	2017–02–20	40
S5	Basket Ball	6000	2016–02–15	50

a) SELECT MAX(FEES),MIN(FEES) FROM SPORTS;
b) SELECT COUNT(DISTINCT SNAME) FROM SPORTS;
c) SELECT SNAME,SUM(No_of_Players) FROM SPORTS GROUP BY SNAME;
d) SELECT AVG(FEES*No_of_Players) FROM SPORTS WHERE SNAME="Basket Ball";

Ans: a)

MAX(FEES)	MIN(FEES)
6000	4000

b)

COUNT(DISTINCT SNAME)
4

c)

SNAME	SUM(No_of_Players)
BASKET BALL	80
FOOT BALL	25
KHO-KHO	40
VOLLEY BALL	25

d)

AVG(FEES*No_of_Players)
210000.00

8. Write the SQL commands for (a) to (e) on the basis of the table HOSPITAL

No.	Name	Age	Department	Dateofadm	Charges	Sex
1	Sandeep	65	Surgery	23/2/98	300	M
2	Ravina	24	Orthopaedic	20/01/98	200	F
3	Karan	45	Orthopaedic	19/02/98	200	M
4	Tarun	12	Surgery	01/01/98	300	M
5	Zubin	36	ENT	12/01/98	250	M
6	Ketaki	16	ENT	24/02/98	300	F
7	Ankita	29	Cardiology	20/02/98	800	F
8	Zareen	45	Gynaccology	22/02/98	800	M
9	Kush	19	Cardiology	13/01/98	800	M
10	Shailya	31	Nuclear Medicine	19/02/98	400	M

a) To show all information about the patients of cardiology department.

b) To list the name of female patients, who are in Orthopaedic Department.

c) To list names of all patients with their date of admission in ascending order.

d) To display patient's name, charges, age for male patients only.

Ans: a) SELECT * FROM HOSPITAL WHERE DEPARTMENT =”Cardiology”;

b) SELECT NAME FROM HOSPITAL WHERE DEPARTMENT = “Orthopaedic” and SEX=”F”;

c) SELECT NAME FROM HOSPITAL ORDER BY Dateofadm;

d)SELECT NAME, CHARGES, AGE FROM HOSPITAL WHERE SEX=”M”;

9. Write the output of the queries (i) to (iv) based on the table Employee given below:

ECODE	Name	Salary	Job	City
E1	Ritu Jain	50000	Manager	Delhi
E2	Vikas Verma	45000	Executive	Jaipur
E3	Raja	30000	Clerk	Delhi
E4	Leena	45000	Manager	Bangalore
E5	Shikha	50000	Accountant	Kanpur

i) SELECT ECODE, NAME, MAX (SALARY) FROM EMP WHERE CITY='DELHI';

ii) SELECT NAME, JOB FROM EMP WHERE SALARY BETWEEN 40000 AND 50000;

iii) SELECT AVG (SALARY) FROM EMP WHERE JOB IN ('MANAGER', 'CLERK','EXECUTIVE');

iv) SELECT SUM (SALARY) FROM EMP WHERE NAME LIKE '%a';

Ans: i)

ECODE	NAME	MAX(SALARY)
E1	Ritu Jain	50000

ii)

NAME	JOB
Ritu Jain	50000
Vikas Verma	45000
Leena	45000
Shikha	50000

iii)

AVG(SALARY)
42500

iv)

SUM(SALARY)
170000

10. Write the output of the queries (a) to (d) based on the table, Course given below:

cid	CNAME	FEES	STARTDATE	TID	STATUS
C201	ACDCA	12000	2018-07-02	101	ACTIVE
C202	ADCA	15000	2018-07-15	103	ACTIVE
C203	DCA	10000	2018-10-01	102	ACTIVE
C204	DDTP	9000	2018-09-15	104	ACTIVE
C205	DHN	20000	2018-08-01	101	ACTIVE
C206	0 LEVEL	18000	2018-07-25	105	ACTIVE

a) SELECT MAX (STARTDATE) FROM COURSE;

b) SELECT DISTINCT (CNAME) FROM COURSE;

c) SELECT CID, CNAME FROM COURSE WHERE TID=101 AND FEES>15000;

d) SELECT CNAME, FEES FROM COURSE WHERE CNAME IN ('DCA','DDTP');

Ans:

a)

MAX(STARTDATE)
2018-10-01

b)

DISTINCT (CNAME)
ACDCA
ADCA
DCA
DDTP
DHN
0 LEVEL

c)

CID	CNAME
C205	DHN

d)

CNAME	FEES
DCA	10000
DDTP	9000

CHAPTER 12 – TABLE CREATION AND DATA MANIPULATION
4 Marks Questions and Answers

1. i) Write the actual datatypes as per the following Structure requirement during creation of a table:

Field	Description	Actual Data type with length
PID	11 digit number	
Prod Name	Can be upto 25 characters	
Date of Manufacture	Date of Manufacture	
Price	7 digits number which includes 2 places after decimal point.	

ii) Vani created a table named Customer that have fields Cno, Custname, Address, Amount. Now she wants to increase the width to 30 Characters of the column "Address". Write the SQL command for it.

Ans: i) PID – int(11)
ProdName – varchar(10)
DateofManufacture – Date
Price – float(7, 2)
ii) ALTER TABLE Customer MODIFY Address(30);

2. A Book store Current Books is planning to store their book details in a database using SQL. As a database administrator, Poorvekka has decided that:

Name of the database - CB
Name of the table - Collections

The attributes of Collections are as follows:

BookNo - Numeric
BookName - Character of size 25
Price - Numeric
Quantity - Numeric

Table : Collections

Book No	Book Name	Price	Quantity
1647	The Lowland	399	75
5241	The inheritance of Loss	555	44
3546	The Guide	641	60
4541	Untouchable	529	53
5025	Train to Pakistan	643	73
6783	Godan	341	97
7614	The god of Small Things	555	48

a) Identify the attribute best suitable to be declared as a primary key,
b) Write the degree and cardinality of the table Collections.
c) Write SQL command to increment the quantity by 20 wherever quantity is below 50.
d) Poorvekka wants to remove the entire data from table Collections. Which command will she use from the following:
i) DELETE FROM Collections;
ii) DELETE Collections;
iii) DROP DATABASE CB;
iv) DELETE * FROM Collections;

Ans: a) BookNo
b) Degree=4 Cardinality = 7
c) UPDATE collections SET quantity = quantity + 20 WHERE quantity < 50;
d) i) DELETE FROM Collections;

3. Tarun created the following table in MySQL to maintain stock for the items.
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.
d) Write a query to delete a record whose Productid is 1005.

Ans: a) The Primary Key should be Productid since it uniquely identifies each row
b) Degree – 6 Cardinality – 6
c) UPDATE inventory SET stock=stock+10 WHERE company = ‘Parley’;
d) DELETE FROM inventory WHERE Productid= ‘1005’;

4. Raghav has been assigned the task to create a database, named Projects. Heal so has to create following two tables in the database:
Table : Projects

Field	Data Type	Remarks
PID	Char(5)	Primary Key
PName	Varchar(20)	
Start date	Satrt date	
End date	End date	

Table : Employee

Field	Data Type	Remarks
EID	Char(4)	Primary Key
Name	Varchar(20)	
DOB	Start date	Cannot be NULL
DOJ	End date	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

Ans: 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 = $3 \times 5 = 15$

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);

5. 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

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;

CHAPTER 13 – GROUPING RECORDS, JOINS IN SQL
4 Marks Questions and Answers

1. Saman has been entrusted with the management of Law University Database. He needs to access some information from FACULTY and COURSES tables for a survey analysis. Help him extract the following information by writing the desired SQL queries as mentioned below.

Table: FACULTY

F_ID	FName	LName	Hire_Date	Salary
102	Amit	Mishra	12-10-1998	12000
103	Nitin	Vyas	24-12-1994	8000
104	Rakshit	Soni	18-5-2001	14000
105	Rashmi	Malhotra	11-9-2004	11000
106	Sulekha	Srivastava	5-6-2006	10000

Table: COURSES

C_ID	F_ID	CName	Fees
C21	102	Grid Computing	40000
C22	106	System Design	16000
C23	104	Computer Security	8000
C24	106	Human Biology	15000
C25	102	Computer Network	20000
C26	105	Visual Basic	6000

i) To display complete details (from both the tables) of those Faculties whose salary is less than 12000.

ii) To display the details of courses whose fees is in the range of 20000 to 50000 (both values included).

iii) To increase the fees of all courses by 500 which have "Computer" in their Course names.

iv) (A) To display names (FName and LName) of faculty taking System Design.

OR

(B) To display the Cartesian Product of these two tables.

Ans: i) Select * from FACULTY natural join COURSES where Salary<12000;

ii) Select * from courses where fees between 20000 and 50000;

iii) Update courses set fees=fees+500 where CName like '%Computer%';

iv) (A) Select FName, LName from faculty natural join courses where CName="System Design";

OR

(B) Select * from FACULTY, COURSES;

2. Consider the tables Watches and Sale given below and answer the following questions.

Table: Watches

Watchid	Watch_Name	Price	Type	Qty_Store
W001	High Time	10000	Unisex	100
W002	Life Time	15000	Ladies	150
W003	Wave	20000	Gents	200
W004	High Fashion	7000	Unisex	250
W005	Golden Time	25000	Gents	100

Table: Sale

Watchid	Qty_Sold	Quarter
W001	10	1
W003	5	1
W002	20	2
W003	10	2
W001	15	3
W002	20	3
W005	10	4
W003	15	4

Write the SQL command for the following statements:

i) To display total quantity in store of unisex type watches.

ii)To display watch name and their quantity sold in first quarter.

Give the output for the following SQL queries:

i) SELECT WATCH_NAME, PRICE , TYPE FROM WATCHES W, SALE S WHERE W.WATCHID=S.WATCHID;

ii) SELECT WATCH_NAME, QTY_STORE , SUM(QTY_SOLD) FROM WATCHES W, SALE S WHERE W.WATCHID = S.WATCHID GROUP BY S.WATCHID;

Ans: i) SELECT SUM(QTY_STORE) FROM WATCHES WHERE TYPE ='Unisex';

ii) SELECT WATCH_NAME, QTY_SOLD FROM WATCHES W, SALE S WHERE S.WATCHID=S.WATCHID AND QUARTER=1;

iii)

WATCH_NAME	PRICE	TYPE
HIGH TIME	10000	UNISEX
LIFE TIME	15000	LADIES
WAVE	20000	GENTS
GOLDEN TIME	25000	GENTS

iv)

WATCH_NAME	QTY_STORE	SUM(QTY_SOLD)
HIGH TIME	100	25
LIFE TIME	150	40
WAVE	200	30
GOLDEN TIME	100	10

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

Table: Product

P_ID	ProductName	Manafacturer	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 Client Name 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, Expiry Date of all the products that expired on or before ‘2010-12-31’.

iv) To display productName, Manufacturer and ClientName of Mumbai City.

Ans: i) SELECT CLIENTNAME, CITY FROM CLIENT WHERE CITY = ‘MUMBAI’ OR CITY = ‘DELHI’;

ii) UPDATE PRODUCT SET PRICE = PRICE + 0.10 * PRICE;

iii) SELECT PRODUCTNAME, MANUFACTURER, EXPIRYDATE FROM PRODUCT WHERE EXPIRYDATE < = ‘2010-12-31’;

iv) SELECT PRODUCTNAME, MANUFACTURER, CLIENTNAME FROM PRODUCT,CLIENT WHERE PRODUCT.P_ID = CLIENT.P_ID AND CITY=’MUMBAI’;

4. Write the outputs of the SQL queries (i) to (iv) based on the relations Book and Issued given below:

Table : Book

Book_id	Book_name	Author_name	Publisher	Price	Type	Qty
C0001	Fast Cook	Latha Kapoor	Oswaal	355	Cookery	5
F0001	The Tears	William Hopkins	First Publ	650	Fiction	20
T0001	My First Python	Brain & Brooke	Oswaal	350	Text	10
T0002	Python Brain Works	A W Rossaine	TDH	350	Text	15
F0002	Thunderbolts	Anna Roberts	First Publ	750	Fiction	50

Table: Issued

Book_id	Qty_Issued
F0002	5
T0001	9
C0001	2

i) SELECT Type, MIN(Price) FROM Book GROUP BY Type;

ii) SELECT Book_Name, Author_name FROM Book WHERE Price BETWEEN 300 AND 600;

iii) SELECT Book.Book_id, Publisher, Qty FROM Book, Issued WHERE Book.Book_id = Issued.Book_id AND Qty > 10;

iv) SELECT Book.Book_id, Book_name, Type FROM Book, Issued WHERE Book.Book_id = Issued.Book_id AND Publisher="Oswaal";

Ans: i)

Type	MIN(Price)
Cookery	355
Fiction	650
Text	350

ii)

Book_Name	Author_name
Fast Cook	Latha Kapoor
My First Python	Brain & Brooke
Python Brain Works	A W Rossaine

iii)

Book_id	Publisher	Qty
F0002	First Publ	50

iv)

Book_id	Book_name	Type
T0001	My First Python	Text
C0001	Fast Cook	Cookery

5. a) Write the output of the SQL queries i to iv based on the relations CARHUB and CUSTOMER given below:

Table :CARHUB

Vcode	VehicleName	Make	Color	Capacity	Charges
100	Innova	Toyota	White	7	15
102	SX4	Suzuki	Blue	4	14
104	C Class	Mercedes	Red	4	35
105	A-star	Suzuki	White	3	14
108	Indigo	Tata	Silver	3	12

Table : CUSTOMER

CCode	CName	Vcode
1	Rajesh	101
2	Leela	108
3	John	105
4	Feroza shah	104

i) SELECT VEHICLENAME FROM CARHUB WHERE COLOR='WHITE';

i) SELECT MAX(Charges),MIN(Charges) FROM CARHUB;

i) SELECT COUNT(*),MAKE FROM CARHUB GROUP BY MAKE;

iv) SELECT CNAME,VEHICLENAME FROM CUSTOMER,CARHUB WHERE CUSTOMER.VCODE=CARHUB.VCODE;

Ans: i)

VEHICLENAME
Innova
A-Star

ii)

Max(Charges)	Min(Charges)
35	12

iii)

COUNT(*)	Make
1	Toyota
2	Suzuki
1	Mercedes
1	Tata

iv)

CName	VEHICLENAME
Leela	Indigo
John	A-star
Feroza Shah	C Class

6. Write the outputs of the SQL queries (i) to (iii) based on the tables VEHICLES and TRAVELS

Table: VEHICLE

VCODE	VEHICLETYPE	PERKM
V01	VOLVO BUS	150
V02	AC DELUXE BUS	125
V03	ORDINARY BUS	80
V04	CAR	18
V05	SUV	30

Table: TRAVEL

CNO	CNAME	TRAVELDATE	KM	VCODE	NOP
101	Arun	2015-12-13	200	V01	32
102	Balaji	2016-06-21	120	V03	45
103	Vignesh	2016-04-23	450	V02	42
104	Selva	2016-01-13	80	V02	40
105	Anupam	2015-02-10	65	V04	2
106	Tarun	2016-04-06	90	V05	4

- PERKM is Freight Charges per kilometer.
- Km is kilometers Travelled
- NOP is number of passengers travelling in vehicle.

i) SELECT VCODE, COUNT(*) AS NUMTRIPS FROM TRAVEL GROUP BY VCODE;

ii) SELECT CNAME, TRAVEL.VCODE, VEHICLETYPE FROM VEHICLE, TRAVEL WHERE VEHICLE.VCODE = TRAVEL.VCODE AND NOP >= 30;

iii) SELECT MAX(TRAVELDATE), MIN(TRAVELDATE) FROM TRAVEL;

iv) SELECT VEHICLETYPE FROM VEHICLE WHERE VEHICLETYPE LIKE "%BUS";

Ans: i)

VCODE	NUMTRIPS
V01	1
V03	1
V02	2
V04	1
V05	1

ii)

CNAME	VCODE	VEHICLETYPE
Arun	V01	VOLVO BUS
Balaji	V03	ORDINARY BUS
Vignesh	V02	AC DELUXE BUS
Selva	V02	AC DELUXE BUS

iii)

MAX(TRAVELDATE)	MIN(TRAVELDATE)
2016-06-21	2015-02-10

iv)

VEHICLETYPE
VOLVO BUS
AC DELUXE BUS
ORDINARY BUS

7. Consider the following tables Supplier and Consumer. Write SQL commands for the statements (a) to (d)

Table: Supplier

SupplierID	SupplierName	SupplierAddress	Suppliercity
JR01	Rohit Bhalla	14 Floret Appt	Jaipur
PH02	Harish Nagar	A3 Gandhi Lane	Panjim
PS15	Subrat Ray	14/B Surya Vihar	Panjim
JT50	Tina Chandran	12-H Bank Colony	Jaipur

Table: Consumer

C_ID	SupplierID	CName	CAddress	Ccity
C101	JR01	Varun Mishra	5 Central Avenue	Delhi
C342	PH02	Sonia Singh	116 Block A	Delhi
C112	JR01	Prabhu S	2A Andheri East	Mumbai
C008	PS15	Abhishek Das	B5 CS Terminals	Panjim
C035	JT50	Rahul Jain	13 B Mayur Vihar	Mumbai

(a) To display the C_ID, Supplier name, Supplier Address, Consumer Name and Consumer Address for every Consumer

(b) To display Consumer details in ascending order of CName

(c) To display number of Consumers from each city

(d) To display the details of suppliers whose supplier city is 'Panjim'

Ans: a) SELECT C_ID, S.SUPPLIERNAME, S.SUPPLIERADDRESS, C.CNAME, C.CADDRESS FROM SUPPLIER S, CONSUMER C WHERE C.SUPPLIERID=S.SUPPLIERID;

b) SELECT * FROM CONSUMER ORDER BY CNAME;
c) SELECT CCITY, COUNT(*) FROM CONSUMER GROUP BY CCITY;
d) SELECT * FROM SUPPLIER WHERE SUPPLIERCITY = 'PANJIM';

8. Write the outputs of the SQL queries (i) to (iv) based on the relations Drink and Consumer given below:

Table: Drink

D_ID	DrinkName	Company	Price
AP01	Aam Panna	Haldiram	185.00
OS23	Orange Sqaush	Rasna	75.00
MP22	Mango pulp	Haldiram	190.00
LI12	Lichi	Real	125.00
LE02	Lemonade	Real	110.00

Table: Consumer

C_ID	ConsumerName	Address	D_ID
1	D Mart Junwani	Durg	LI12
6	Rajesh Super Bazaar	A Market Sec-10	OS23
12	Shubham K Mart	Junwani Durg	AP01
15	Big Bazaar	Surya Mall Bhilai	LE02

(i) SELECT count(DISTINCT Address) FROM Consumer;
(ii) SELECT Company, MAX(Price), MIN(Price), COUNT(*) from Drink GROUP BY Company;
(iii) SELECT Consumer.ConsumerName, Drink.DrinkName, Drink.Price FROM Drink, Consumer WHERE Consumer.D_ID = Drink.D_ID;
(iv) SELECT DrinkName from Drink where DrinkName like "_a%";

Ans: i)

count(DISTINCT Address)
3

ii)

Company	MAX(Price)	MIN(Price)	COUNT(*)
Haldiram	190.00	185.00	2
Rasna	75.00	75.00	1
Real	125.00	110.00	2

iii)

ConsumerName	DrinkName	Price
D Mart	Lichi	125.00
Rajesh Super Bazar	Orange Squash	75.00
Shubham K Mart	Aam Panna	185.00
Big Bazar	Lemonade	110.00

iv)

DrinkName
Aam Panna
Mango Pulp

9. Study the following tables FLIGHTS and FARES and write SQL commands for the questions (i) to (iv).

Table: FLIGHTS

FL_NO	STARTING	ENDING	NO_FLIGHT	NO STOPS
IC301	MUMBAI	DELHI	8	0
IC799	BENGALURU	DELHI	2	1
MC101	INDORE	MUMBAI	3	0
IC302	DELHI	MUMBAI	8	0
AM812	KANPUR	BENGALURU	3	1
IC899	MUMBAI	KOCHI	1	4
AM501	DELHI	TRIVANDRUM	1	5
MU499	MUMBAI	MADRAS	3	3
IC701	DELHI	AHMEDABAD	4	0

Table: FARES

FL_NO	AIRLINES	FARE	TAX%
1C701	INDIAN AIRLINES	6500	10
MU499	SAHARA	9400	5
AM501	JET AIRWAYS	13450	8
IC899	INDIAN AIRLINES	8300	4
IC302	INDIAN AIRLINES	4300	10
IC799	INDIAN AIRLINES	10500	10
MC101	DECCAN AIRLINES	3500	4

(i) Display FL NO and NO_FLIGHT from KANPUR to BENGALURU from the table FLIGHTS.

(ii) Arrange the contents of the table FLIGHTS in the ascending order of FL_NO.

(iii) Display the FL_NO and fare to be paid for the flights from DELHI to MUMBAI using the tables FLIGHTS and FARES, where the fare to be paid - FARE + FARE *TAX % 100.

(iv) Display the minimum fare INDIAN AIRLINES is offering from the table FARES.

Ans: (i) SELECT FL_NO, NO_FLIGHT FROM FLIGHTS WHERE STARTING = 'KANPUR' AND ENDING = 'BENGALURU';

(ii) SELECT * FROM FLIGHTS ORDER BY FL_NO;

(iii) SELECT FL_NO, FARE + FARE * TAX%100 AS “FARE” FROM FARES WHERE FL_NO = (SELECT FL_NO FROM FLIGHTS WHERE STARTING = 'DELHI' AND ENDING = 'MUMBAI');

(iv) SELECT MIN(FARE) FROM FARES GROUP BY AIRLINES HAVING AIRLINES = 'INDIAN AIRLINES';

10. Write queries (i) to (iv) based on the table Teacher and Posting given below

Table: Teacher

T_ID	Name	Age	Department	DOJ	Salary	Gender
101	Jugal	34	Computer Science	10/01/2017	12000	M
102	Sharmila	31	History	24/03/2016	20000	F
103	Sandeep	32	Mathematics	12/12/2016	30000	M
104	Rakesh	35	History	01/07/2015	40000	M
105	Shyam	42	English	05/09/2007	21000	M
106	Riya	28	Computer Science	27/06/2008	25000	F

Table: Posting

PID	Department	Place
1	History	Agra
2	English	Raipur
3	Mathematics	Delhi
4	Computer Science	Meerut

(i) To list the names of female teachers who are in Mathematics department.

(ii) To display teacher's name, salary, age for male teachers only.

(iii) To display name, bonus for each teacher where bonus is 10% of salary.

(iv) To display Name, Department of teachers who are in Delhi.

Ans: (i) SELECT Name FROM Teacher WHERE Department = "Mathematics" AND Gender= "F";

(ii) SELECT Name, Salary, Age FROM Teacher WHERE Gender = "M";

(iii) SELECT Name, Salary * 0.1 AS ‘Bonus’ FROM Teacher;

(iv) SELECT Name, Department FROM Teacher T, Posting P WHERE T. Department = P. Department AND Place = "Delhi";

CHAPTER 14 – INTERFACE PYTHON WITH MYSQL
4 Marks Questions and Answers

1. To write a python program to inserts the following record in the table Player:
   PNo – integer
   Name – string
   NoofGames– int
   Goals – integer

   Note the following to establish connectivity between Python and MYSQL:
   a) Username is root
   b) Password is sport
   c) The table exists in a MYSQL database named Football.
   d) The details (Pno,Name,NoofGames,Goals) are to be accepted from the user.

   Ans:
```
import mysql.connector as mysql
def sql_data( ):
    con1=mysql.connect(host="localhost", user="root", password="sport",
        database="football")
    mycursor=con1.cursor()
    pno=int(input("Enter player Number :: "))
    name=input("Enter player name :: ")
    noofgames=int(input("Enter no of games :: "))
    goals=int(input("Enter Goals :: "))
    qur="insert into player values ({},'{}',{},{})".format
        (pno,name,noofgames ,goals)
    mycursor.execute(qur)
    con1.commit()
    print("Data Added successfully")
sql_data()
```

2. To write a Python program establishes connection between python and mysql, and display the students details where the marks were between 80 to 90.
   a) Username is root
   b) Password is 123
   c) The table exists in a MYSQL database named as School.
   d) The details (Sno,SName,Marks,Goals) are to be accepted from the user.

   Ans:
```
import mysql.connector
conn=mysql.connector.connect(host="localhost", user="root",passwd="123",
    database="School")
if conn.is_connected()==False:
    print("Error connecting to MYSQL DATABASE")
else:
    c=conn.cursor()
```

```
c.execute("select * from student where marks>80 and marks<90")
r=c.fetchall()
count=c.rowcount()
print("total no of rows:",count)
for row in r:
    print(row)
```

3. To write a python program to inserts the following record in the table Student:

Roll No	Name	Class	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.

Ans:

```
import mysql.connector as mysql
def sqlData( ):
    con1=mysql.connect(host="localhost",user="root",
        password="toor@123" , database="stud")
    mycursor = con1.cursor()
    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)
    mycursor.execute(querry)
    con1.commit()
sqlData()
```

4. Write a python 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.

Note the following to establish connectivity between Python and MySQL:

Username is root

Password is stud@1234

The table student exists in a "Myfile" database.

Ans:

```
import mysql.connector as myc
con = myc.connect(host="locahost", user="root", passwd="stud@1234",
    database="mydb")
mycursor = con.cursor()
```

```
sql = “UPDATE student SET age=age+2 WHERE class=’XI’”
mycursor.execute(sql)
sql = “SELECT * FROM student”
mycursor=con.execute(sql)
result =mycursor.fetchall()
for row in result:
        print(row)
```

5. Write a python program for the following records from the table employee and displays only those records who have employees coming from city ‘Delhi’:

   E_code – String
   E_name - String
   Sal - Integer
   City - String

   Note the following to establish connectivity between Python and MySQL :

   • Username is root
   • Password is root
   • The table exists in a MySQL database named emp.
   • The details (E_code,E_name,Sal,City) are the attributes of the table.

   Ans:
```
import mysql.connector as mysql
def display():
        mydb=mysql.connect(host="localhost",user="root", passwd="root",
                database="emp")
        mycursor=mydb.cursor()
        mycursor.execute("select * from employee where City='Delhi '")
        details = mycursor.fetchall()
        for i in details:
                print (i)
```

UNIT I

CHAPTER 3 – WORKING WITH FUNCTIONS

5 Marks Questions and Answers

1. Predict the output of the Python code given below:

```
def Update(str1):
    length=len(str1)
    temp=""
    for i in range(0, length):
        if str1[i].islower():
            temp=temp+str1[i].upper()
        elif str1[i].isupper():
            temp=temp+str1[i].lower()
        elif str1[i].isdigit():
            temp=temp+str(int(str1[i])+1)
        else:
            temp=temp+'#'
    print(temp)
Update("CBSE2023Exams")
```

Ans: cbse3134eXAMS

2. 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@Python3.0')
```

Ans: fUN#pYTHONn#.

3. Write a function SumDiv(L,x), where L is a list of integers and x is an integer; passed as arguments to the function. The function returns the sum of elements of L which are divisible by x or x+1.

For example,

If L Contains [10, 27, 12, 20, 22] and x is 5

Then function returns 42 (10+12+20)

Ans:
```
def SumDiv(L,x):
    sum=0
    for i in L:
        if i%x==0 or i%(x+1)==0:
            sum=sum+i
    print(sum)
L=[10,27,12,20,22]
SumDiv(L,5)
```

4. Predict the output of the Python code given below:

```
def ChangeString(s):
    m="" #empty string
    for i in range(0,len(s)):
        if(s[i].isupper()):
            m=m+s[i].lower()
        elif s[i].islower():
            m=s[i].upper()+m
        else:
            if i%2==0:
                m=m+s[i-1]
            else:
                m="%"+m
    print(m)
ChangeString('Try2Solve@')
```

Ans: %EVLO%YRts

5. Write a python Function that accepts a string and calculates the number of uppercase letters and lowercase letters.

Sample String : Python ProgrammiNg

Expected Output:

Original String : Python ProgrammiNg

No. of Upper case characters : 3

No. of Lower case characters :14

Ans:
```
def UcaseLcase(S):
    U=0
    L=0
    for i in S:
        if i.isupper():
```

```
                U=U+1
            elif i.islower():
                L=L+1
        print("No. of Upper Case Characters:",U)
        print("No. of Lower Case Characters:",L)
str1="Python ProgrammiNg"
UcaseLcase(str1)
```

CHAPTER 5 – FILE HANDLING
5 Marks Questions and Answers

1. Surya is a manager working in a recruitment agency. He needs to manage the records of various candidates. For this, he wants the following information of each candidate to be stored:
    - Candidate_ID – integer
    - Candidate_Name– string
    - Designation – string
    - Experience – float

   You, as a programmer of the company, have been assigned to do this job for Surya.
   (I) Write a function to input the data of a candidate and append it in a binary file.
   (II) Write a function to update the data of candidates whose experience is more than 10 years and change their designation to "Senior Manager".
   (III) Write a function to read the data from the binary file and display the data of all those candidates who are not "Senior Manager".

   Ans: (I)

```
import pickle
def input_candidates():
    candidates = []
    n = int(input("Enter the number of candidates you want to add: "))
    for i in range(n):
        candidate_id = int(input("Enter Candidate ID: "))
        candidate_name = input("Enter Candidate Name: ")
        designation = input("Enter Designation: ")
        experience = float(input("Enter Experience (in years): "))
        candidates.append([candidate_id, candidate_name, designation,
            experience])
    return candidates
candidates_list = input_candidates()
def append_candidate_data(candidates):
    with open('candidates.bin', 'ab') as file:
    for candidate in candidates:
        pickle.dump(candidate, file)
        print("Candidate data appended successfully.")
append_candidate_data(candidates_list)
```

   (II)

```
import pickle
def update_senior_manager():
    updated_candidates = []
    try:
        with open('candidates.bin', 'rb') as file:
```

```
                while True:
                    try:
                        candidate = pickle.load(file)
                            if candidate[3] > 10:
                                candidate[2] = 'Senior Manager'
                            updated_candidates.append(candidate)
                    except EOFError:
                        break  # End of file reached
        except FileNotFoundError:
            print("No candidate data found. Please add candidates first.")
        return
    with open('candidates.bin', 'wb') as file:
        for candidate in updated_candidates:
            pickle.dump(candidate, file)
    print("Candidates updated to Senior Manager where applicable.")
    update_senior_manager()
    (III)
    import pickle
    def display_non_senior_managers():
        try:
            with open('candidates.bin', 'rb') as file:
                while True:
                    try:
                        candidate = pickle.load(file)
                        if candidate[2] != 'Senior Manager':
                            print(f"Candidate ID: {candidate[0]}")
                            print(f"Candidate Name: {candidate[1]}")
                            print(f"Designation: {candidate[2]}")
                            print(f"Experience: {candidate[3]}")
                            print("--------------------")
                    except EOFError:
                        break  # End of file reached
        except FileNotFoundError:
            print("No candidate data found. Please add candidates first.")
    display_non_senior_managers()
```

2. (i) Differentiate between 'w' and 'a' file modes in Python.
   (ii) Consider a binary file, items.dat, containing records stored in the given format :
   {item_id: [item_name,amount]}
   Write a function, Copy_new(), that copies all records whose amount is greater than 1000 from items.dat to new_items.dat.

Ans: i) 'w':

Open the file in write mode.
If the file doesn't exist, then a new file will be created.
The file pointer is in the beginning of the file.
If the file exists, the contents of the file, if any, are lost/truncated and the new data is added as fresh data into the file.

'a':

Open the file in append mode.
If the file doesn't exist, then a new file will be created.
The file pointer is at the end of the file.
If the file exists, the new data is added at the end of the file without deleting the previous contents of the file.

ii)
```
import pickle
def Copy_new():
    F2=open("new_items.dat","wb")
    try:
        F1=open("items.dat","rb")
        Data1=pickle.load(F1)
        Data2={}
        for K,V in Data1.items():
            if V[1]>1000:
                Data2[K]=V
        pickle.dump(Data2,F2)
        F2.close()
    except:
        print("File not found!")
    F1.close()
Copy_new()
```

3. (i) What is the advantage of using with clause while opening a data file in Python ? Also give syntax of with clause.

(ii) A binary file, EMP.DAT has the following structure :

[Emp_Id, Name, Salary]

where

Emp_Id : Employee id
Name : Employee Name
Salary : Employee Salary

Write a user defined function, disp_Detail(), that would read the contents of the file EMP.DAT and display the details of those employees whose salary is below 25000.

Ans: i) The advantage of using with clause is that any file that is opened using this clause is closed automatically, once the control comes outside the with clause.

Example:

```
with open("myfile.txt","r+") as file_object:
        content = file_object.read()
```

In Python, we can open a file using with clause/statement.

The syntax of with clause is:

```
with open (file_name, access_mode) as file_object:
```

ii)

```
def disp_Detail():
    try:
        with open("EMP.DAT","rb") as F:
            Data=pickle.load(F)
            for D in Data:
                if D[2]<25000:
                    print(D)
    except:
        print("File Not Found!!!")
```

4. (i) What is the main purpose of seek() and tell() method ?

(ii) Consider a binary file, Cinema.dat containing information in the following structure : [Mno, Mname, Mtype]

Write a function, search_copy(), that reads the content from the file Cinema.dat and copies all the details of the "Comedy" movie type to file named movie.dat.

Ans: i) seek() - it is a Python method, which moves the file pointer to the location specified in the parameter.

tell() - it is a Python method, which returns the present location of a file pointer.

ii)

```
import pickle
def search_copy():
    try:
        F1=open("Cinema.dat","rb")
        F2=open("movie.dat","wb")
        Data1=pickle.load(F1)
        Data2=[]
        for D in Data1:
            if D[2]=="Comedy":
                Data2.append(D)
        pickle.dump(Data2,F2)
        F1.close()
        F2.close()
    except:
        print("File not found!")
```

5. (i) Give one difference between write() and writeline() function in text file.
   (ii) A Binary file, "Items.dat" has the following structure :
   [Icode, Description, Price]
   Where
   Icode – Item code
   Description – Detail of item
   Price – Price of item
   Write a function Add_data(), that takes Icode, Description and Price from the user and writes the information in the binary file "Items.dat".

Ans: i) write function - writes the content of a string onto a text file object .
writelines function - writes the content of a list of strings onto a text file object .
Example:

```
file.write("Hello World")
file.writelines(["Hello","World"])
```

ii) import pickle

```
def Add_data():
    F=open("Items.dat","wb")
    Icode=input("Icode:")
    Description=input("Detail of item:")
    Price=float(input("Price:")
    pickle.dump([Icode,Description,Price], F)
    F.close()
```

6. (a) Write one difference between CSV and text files.
   Write a program in Python that defines and calls the following user defined functions:
   (i) COURIER_ADD() : It takes the values from the user and adds the details to a csv file 'courier.csv'. Each record consists of a list with field elements as cid, s_name, Source, destination to store Courier ID, Sender name, Source and destination address respectively.
   (ii) COURIER_SEARCH() : Takes the destination as the input and displays all the courier records going to that destination.

Ans: CSV files
- can be viewed in spreadsheets
- module CSV has to be imported

Text files
- can be viewed in the text editor
- No specific module required to be imported

```
import csv
def COURIER_ADD() :
```

```
        f1=open("courier.csv","a",newline="\n")
        writ=csv.writer(f1)
        cid=int(input("Enter the Courier id"))
        s_name=input ("Enter the Sender Name")
        Source=input("Enter the Source Address")
        destination=input("Enter Destination Name")
        detail=[cid,s_name,Source,destination]
        writ.writerow (detail)
        f1.close()
COURIER_ADD()
```

7. Why is it important to close a file before exiting ?
   Write a program in Python that defines and calls the following user defined functions :
   (i) Add_Book() : Takes the details of the books and adds them to a csv file 'Book.csv'. Each record consists of a list with field elements as book_ID, B_name and pub to store book ID, book name and publisher respectively.
   (ii) Search_Book() : Takes publisher name as input and counts and displays number of books published by them.

   Ans: It is important to close the file before exiting as Python makes sure that any unwritten or unsaved data is flushed off to the file before it is closed.

```
import csv
def Add_Book():
        f1=open("Book.csv","a",newline="\n")
        writ=csv.writer(f1)
        book_ID=int(input("Enter the Book id"))
        B_name=input("Enter the Book Name")
        pub=input("Enter the Publisher Name")
        detail=[book_ID, B_name,pub]
        writ.writerow(detail)
        f1.close()
def Search_Book ():
        f1=open("Book.csv","r") # ignore newline
        detail=csv.reader(f1)
        name=input("Enter the Publisher Name to be searched")
        pub_count=0
        for i in detail :
                if i[2]==name:
                        pub_count+=1
         print("NUMBER OF BOOKS: ",pub_count)
Add_Book()
Search_Book()
```

8. A binary file “student.dat” has structure [rollno, name, marks].
   i. Write a user defined function insertRec() to input data for a student and add to student.dat.
   ii. Write a function searchRollNo(r) in Python which accepts the student’s rollno as parameter and searches the record in the file “student.dat” and shows the details of student i.e. rollno, name and marks (if found) otherwise shows the message as ‘No record found’.

Ans: (i)
```
import pickle
def insertRec():
    f=open("student.dat","ab")
    rollno = int (input("Enter Roll Number : "))
    name=input("Enter Name :")
    marks = int(input("Enter Marks : "))
    rec = [rollno, name, marks ]
    pickle.dump( rec, f )
    f.close()
```
(ii)
```
def searchRollNo( r ):
    f=open("student.dat","rb")
    flag = False
    while True:
        try:
            rec=pickle.load(f)
            if rec[0] == r :
                print(rec[‘Rollno’])
                print(rec[‘Name’])
                print(rec[‘Marks])
                flag == True
        except EOFError:
            break
    if flag == False:
        print(“No record Found”)
    f.close()
```

9. i. A binary file “emp.DAT” has structure (EID, Ename, designation,salary). Write a function to add more records of employes in existing file emp.dat.
   ii.Write a function Show() in Python that would read detail of employee from file “emp.dat” and display the details of those employee whose designation is “Salesman”.

Ans: i)
```
import pickle
def createemp:
    f1=open("emp.dat",'ab')
```

```
        eid=input("Enter E. Id")
        ename=input("Enter Name")
        designation=input("Enter Designation")
        salary=int(input("Enter Salary"))
        l=[eid,ename,designation,salary]
        pickle.dump(l,f1)
        f1.close()
ii) def display():
        f2=open("emp.dat","rb")
        try:
            while True:
                rec=pickle.load(f2)
                if (rec[2]=='Manager'):
                    print(rec[0],rec[1], rec[2],rec[3])
        except:
            break
        f2.close()
```

10. A binary file “Bank.dat” has structure as [account_no, cust_name, balance].
    i. Write a user-defined function addfile( ) and add a record to Bank.dat.
    ii. Create a user-defined function CountRec( ) to count and return the number of customers whose balance amount is more than 100000.

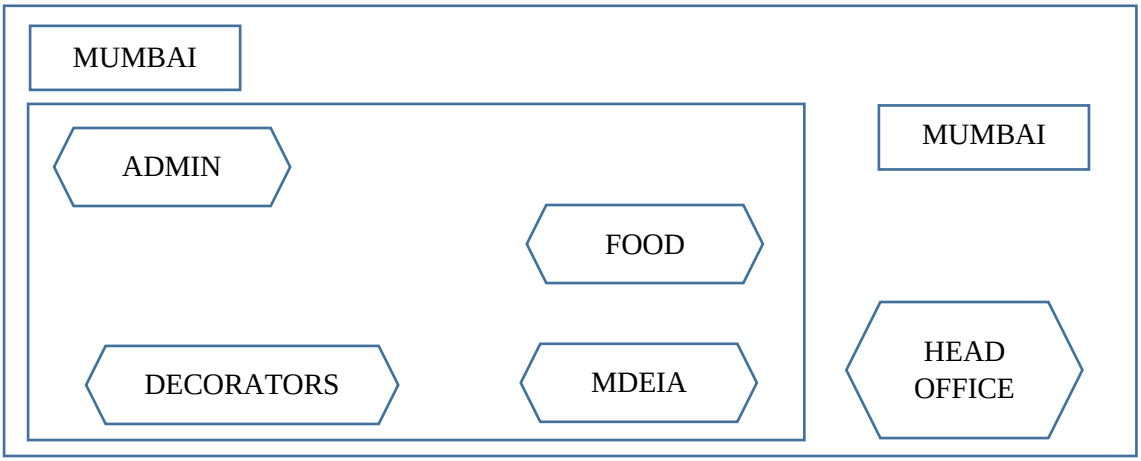
Ans: (i)
```
import pickle
def addfile( ):
    f = open(“bank.dat”,”wb”)
    acc_no = int(input(“Enter account number: “))
    cust_name = input(“Enter name:”)
    bal = int(input(“Enter balance”))
    rec = [acc_no, cust_name, bal]
    p.dump(rec, f)
 f.close()
```
(ii)
```
def CountRec( ):
    f = open(“bank.dat”,”rb”)
    c = 0
    try:
        while True:
            rec = p.load(f)
            if rec[2] > 100000:
                c += 1
    except:
        f.close()
    return c
```

UNIT II

CHAPTER 9 – COMPUTER NETWORKS II

5 Marks Questions and Answers

1. Event Horizon Enterprises is an event planning organization. It is planning to set up its India campus in Mumbai with its head office in Delhi. The Mumbai campus will have four blocks/buildings - ADMIN, FOOD, MEDIA, and DECORATORS. You, as a network expert, need to suggest the best network-related solutions for them to resolve the issues / problems mentioned in points (I) to (V), keeping in mind the distances between various blocks/buildings and other given parameters.



Block to Block distances (in Mtrs.)

From	To	Distance
ADMIN	FOOD	42 m
ADMIN	MEDIA	96 m
ADMIN	DECORATORS	48 m
FOOD	MEDIA	58 m
FOOD	DECORATORS	46 m
MEDIA	DECORATORS	42 m

Distance of Delhi Head Office from Mumbai Campus = 1500 km

Number of computers in each of the blocks/Center is as follows:

ADMIN	30
FOOD	18
MEDIA	25
DECORATORS	20
DELHI HEAD OFFICE	18

(I) Suggest the most appropriate location of the server inside the MUMBAI campus. Justify your choice.

(II) Which hardware device will you suggest to connect all the computers within each building?

(III) Draw the cable layout to efficiently connect various buildings within the MUMBAI campus. Which cable would you suggest for the most efficient data transfer over the network?

(IV) Is there a requirement of a repeater in the given cable layout? Why/ Why not?

(V) A) What would be your recommendation for enabling live visual communication between the Admin Office at the Mumbai campus and the DELHI Head Office from the following options:

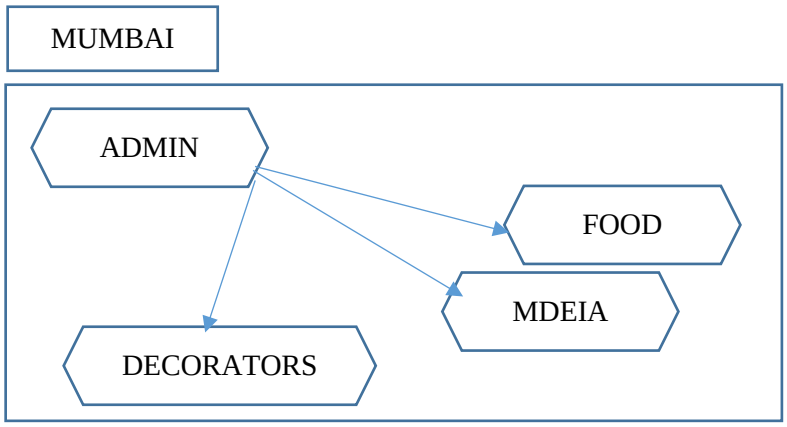
a) Video Conferencing
b) Email
c) Telephony
d) Instant Messaging

B) What type of network (PAN, LAN, MAN, or WAN) will be set up among the computers connected in the MUMBAI campus?

Ans: (I) ADMIN Block as it has maximum number of computers.

(II) Switch

(III)



Cable: Coaxial cable

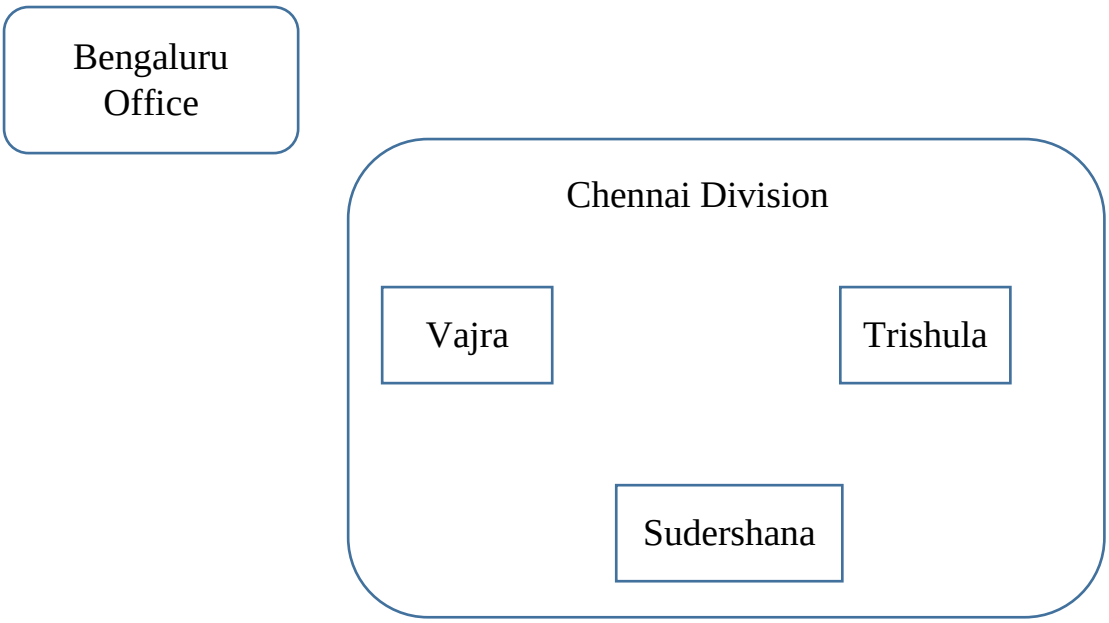
(IV) There is no requirement of the Repeat as the optical fibre cable used for the network can carry the data to much longer distances than within the campus.

(V) (A) a) Video Conferencing

OR

(B) LAN

2. Infotainment Ltd. is an event management company with its prime office located in Bengaluru. The company is planning to open its new division at three different locations in Chennai named as - Vajra, Trishula and Sudershana.
You, as a networking expert need to suggest solutions to the questions in part (i) to (v), keeping in mind the distances and other given parameters.



Distances between various locations:

Vajra to Trishula	350 m
Trishula to Sudershana	415 m
Sudershana to Vajra	300 m
Bengaluru Office to Chennai	2000 km

Number of Computers installed at various locations :

Vajra	120
Sudershana	75
Trishula	65
Bengaluru Office	250

(i) Suggest and draw the cable layout to efficiently connect various locations in Chennai division for connecting the digital devices.

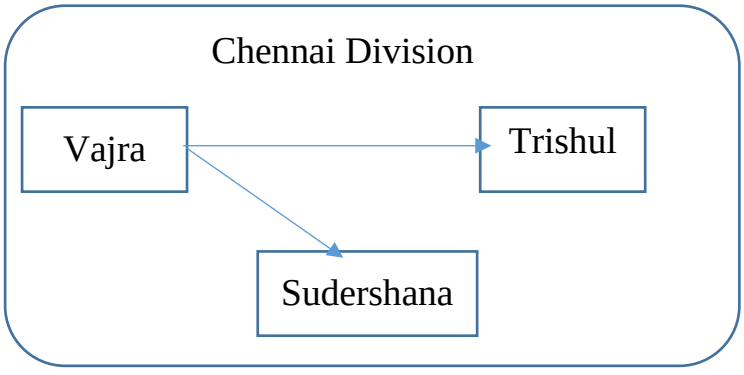
(ii) Which block in Chennai division should host the server? Justify your answer.

(iii) Which fast and effective wired transmission medium should be used to connect the prime office at Bengaluru with the Chennai division?

(iv) Which network device will be used to connect the digital devices within each location of Chennai division so that they may communicate with each other ?

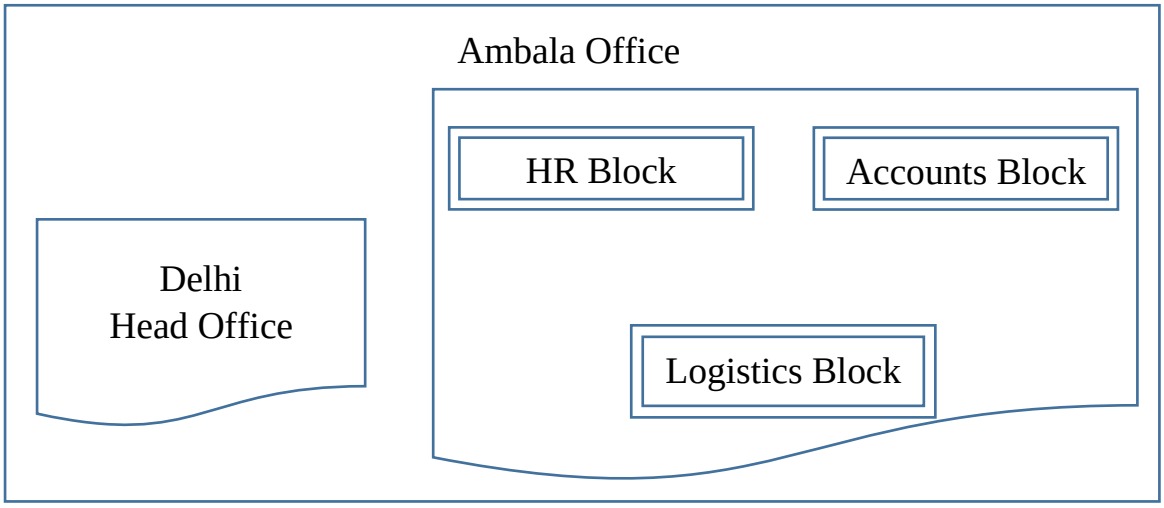
(v) A considerable amount of data loss is noticed between the different locations of the Chennai division, which are connected in the network. Suggest a networking device that should be installed to refresh the data and reduce the data loss during transmission to and from different locations of Chennai division.

Ans: i)



ii) Vajra can host the server as it has a maximum number of computers.
iii) Optical Fiber
iv) Switch/Hub/Router
v) Repeater

3. Logistic Technologies Ltd. is a Delhi based organization which is expanding its office set-up to Ambala. At Ambala office campus, they are planning to have 3 different blocks for HR, Accounts and Logistics related work. Each block has a number of computers, which are required to be connected to a network for communication, data and resource sharing.



As a network consultant, you have to suggest the best network related solutions for them for issues/problems raised in (i) to (v), keeping in mind the distances between various block/locations and other given parameters.

Distances between various blocks/locations :

HR Block to Accounts Blocks	400 meters
Accounts Block to Logistics Block	200 meters
Logistics Block to HR Block	150 meters
Delhi Head Office to Ambala Office	220 Km

Number of computers installed at various blocks are as follows :

HR Block	70
Accounts Block	40
Logistics Block	30

i) Suggest the most appropriate block/location to house the SERVER in the Ambala office. Justify your answer.
ii) Suggest the best wired medium to efficiently connect various blocks within the Ambala office compound.
iii) Draw an ideal cable layout (Block to Block) for connecting these blocks for wired connectivity.
iv) The company wants to schedule an online conference between the managers of

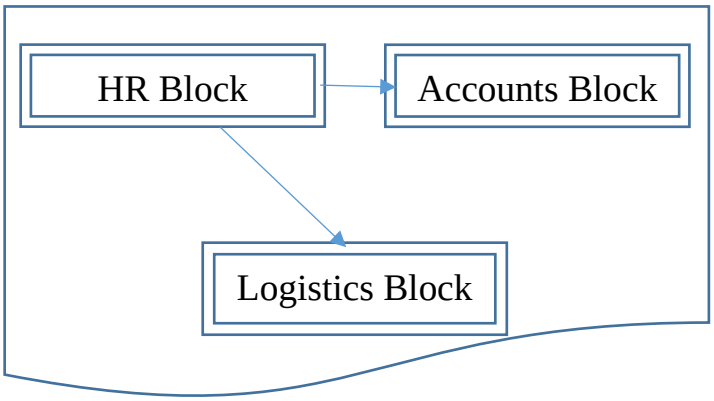
Delhi and Ambala offices. Which protocol will be used for effective voice communication over the Internet ?

v) Which kind of network will it be between Delhi office and Ambala office ?

Ans: i) HR Block as it has maximum number of computers

ii) Optical Fiber

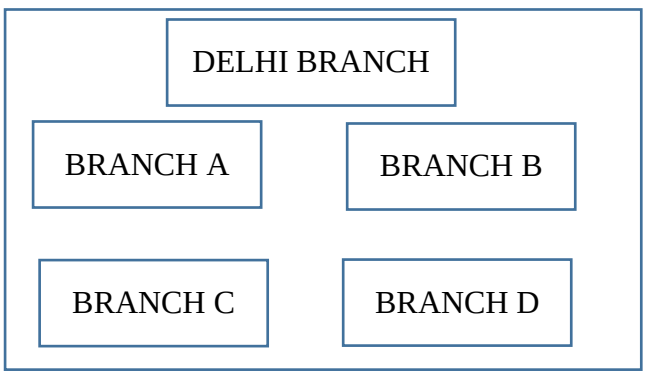
iii)



iv) VoIP

v) WAN

4. Quickdev, an IT based firm, located in Delhi is planning to set up a network for its four branches within a city with its Marketing department in Kanpur. As a network professional, give solutions to the questions (i) to (v), after going through the branches locations and other details which are given below: Distance between various branches is as follows :



Distance between various branches is as follows:

Branch	Distance
Branch A to Branch B	40 M
Branch A to Branch C	80 M
Branch A to Branch D	65 M
Branch B to Branch C	30 M
Branch B to Branch D	35 M
Branch C to Branch D	15 M
Delhi Branch to Kanpur	300Km

Number of computers in each of the branches:

Branch	Number of Computers
Branch A	15
Branch B	25
Branch C	40
Branch D	115

(i) Suggest the most suitable place to install the server for the Delhi branch with a suitable reason.

(ii) Suggest an ideal layout for connecting all these branches within Delhi.

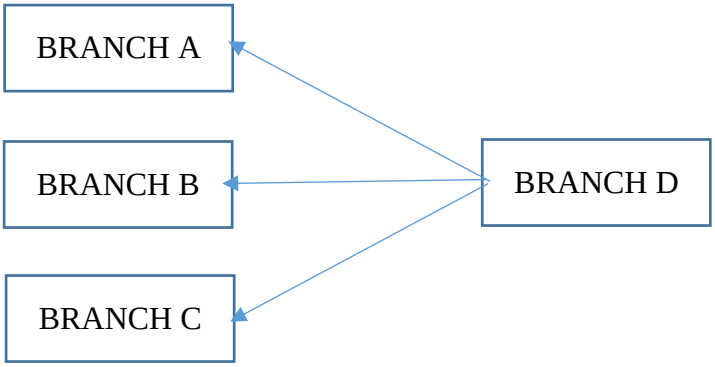
(iii) Which device will you suggest, that should be placed in each of these branches to efficiently connect all the computers within these branches?

(iv) Delhi firm is planning to connect to its Marketing department in Kanpur which is approximately 300 km away. Which type of network out of LAN, WAN or MAN will be formed? Justify your answer.

(v) Suggest a protocol that shall be needed to provide help for transferring of files between Delhi and Kanpur branch.

Ans: i) Branch D, as it has maximum number of computers

ii)

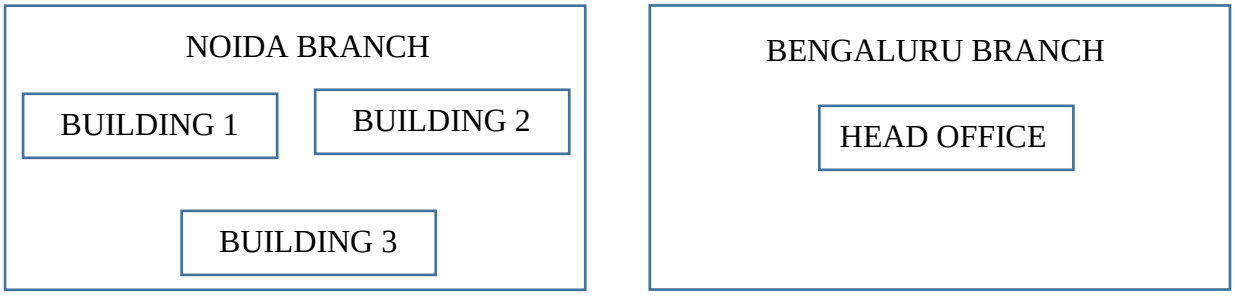


iii) Switch/Hub/Router

iv) WAN – as the network is spread across different geographical locations of the country.

v) FTP

5. ABC Consultants are setting up a secure network for their office campus at Noida for their day-to-day office and web-based activities. They are planning to have connectivity between three buildings and the head office situated in Bengaluru. As a network consultant, give solutions to the questions (i) to (v), after going through the building locations and other details which are given below :



Distance between various blocks/locations:

Building	Distance
Building 1 to Building 3	120 m
Building 1 to Building 2	50 m
Building 2 to Building 3	65 m
Noida Branch to Head Office	1500 km

Number of computers

Building	Number of Computers
Building 1	25
Building 2	51
Building 3	150
Head Office	10

i) Suggest the most suitable place to install the server for this organization. Also, give reason to justify your suggested location.

ii) Suggest the cable layout of connections between the buildings inside the campus.

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

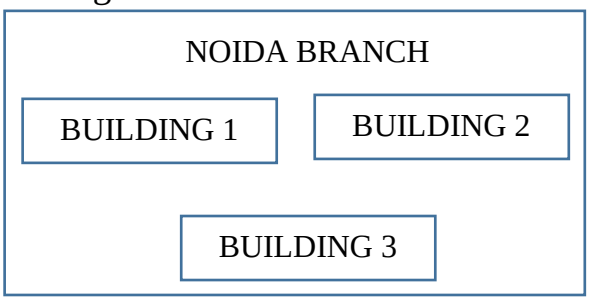
- Switch
- Repeater

iv) The organization is planning to provide a high-speed link with the head office situated in Bengaluru, using a wired connection. Suggest a suitable wired medium for the same.

v) The System Administrator does remote login to any PC, if any requirement arises. Name the protocol, which is used for the same.

Ans: i) Building 3 It has maximum number of computers

ii)



iii) Switch to be placed in each building for establishing connection Repeater to be placed between Building 1 and Building 3 because distance is more than 100 meters between these two buildings. However, if the second layout given in this marking scheme is considered, repeater will not be required at all.

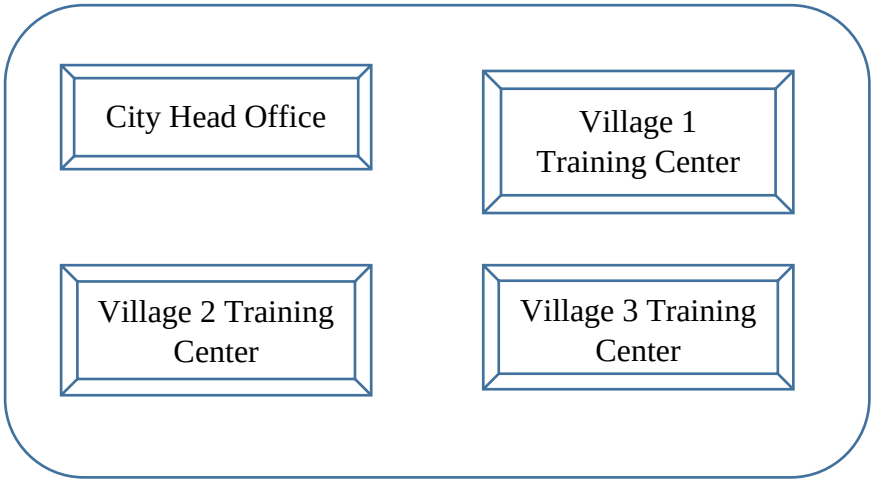
iv) Optical Fibre

v) Telnet

6. 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.

Layout of the City Head Office and Village Training Centers :



Shortest distances between various Centers:

Village 1 Training Center to City Head Office	2 KM
Village 2 Training Center to City Head Office	1.5 KM
Village 3 Training Center to City Head Office	3 KM
Village 1 Training Center to Village 2 Training Center	3.5 KM
Village 1 Training Center to Village 3 Training Center	4.5 KM
Village 2 Training Center to Village 3 Training Center	3.5 KM

Number of Computers installed at various centers are as follows:

Village 1 Training Center	10
Village 2 Training Center	15
Village 3 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 out of the following, which needs to be placed along the path of the wire connecting one village with another to refresh the signal and forward it ahead.

i) MODEM
ii) ETHERNET CARD
iii) REPEATER
iv) HUB

(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, out of the following, will you suggest to connect all the computers within the premises of every Village Training Center ?

i) SWITCH
ii) MODEM
iii) REPEATER
iv) ROUTER

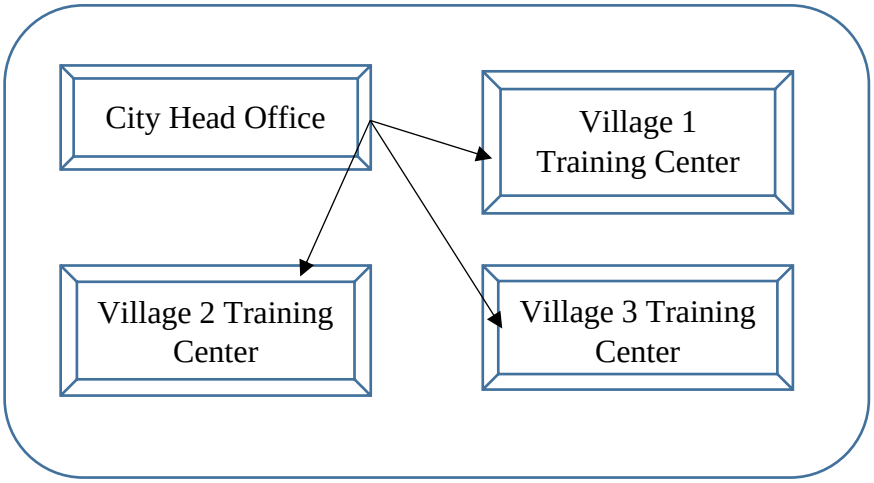
(d) Which protocol, out of the following, will be most helpful to conduct online interactions of Experts from the City Head Office and people at the three Village Training Centers ?

i) FTP
ii) PPP
iii) SMTP
iv) VoIP

(e) Suggest the most suitable place to install the server for this organization. Also, give reason to justify your suggested location.

Ans: a) (iii) REPEATER

b)



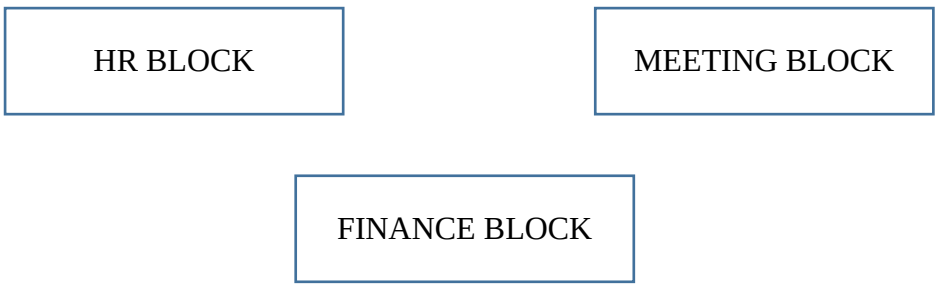
c) (i) SWITCH

d) iv) VoIP

e) City Head Office, because it has maximum number of computers.

7. M/s Computer Solutions 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 M/s Computer Solutions



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 M/s Computer Solutions 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
- Infrared
- Ethernet

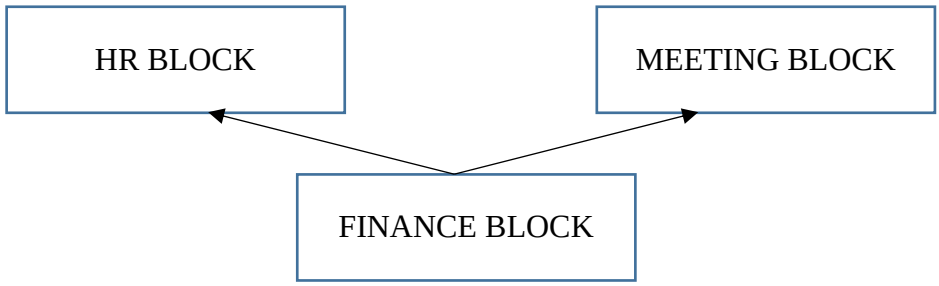
(iv) Which of the following device will be suggested by you to connect each computer in each of the buildings?

- Switch
- Modem
- 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) M/s Computer Solutions should install its server in finance block as it is having maximum number of computers.

ii)

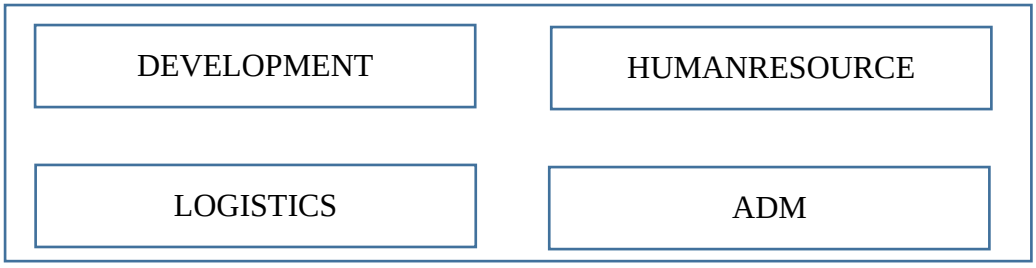


iii) Satellite Link.

iv) Switch.

v) LAN

8. Hitech Info Limited wants to set up their computer network in 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 as a network expert have to suggest answers to these parts (a) to (e) raised by them.



Shortest distances between various blocks

Block DEVELOPMENT to Block HUMANRESOURCE	50 m
Block DEVELOPMENT to Block ADM	75 m
Block DEVELOPMENT to Block LOGISTICS	80 m
Block HUMANRESOURCE to Block ADM	110 m
Block ADM to Block LOGISTICS	140 m

Number of computers installed at various blocks

Block	Number of Computers
DEVELOPMENT	105
HUMANRESOURCE	130
ADM	190
LOGISTICS	55

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

b) Suggest the wired medium and Draw the cable layout (Block to Block) to economically connect various blocks.

c) Suggest the placement of the following devices with justification:
(i) Hub/Switch (ii)Repeater

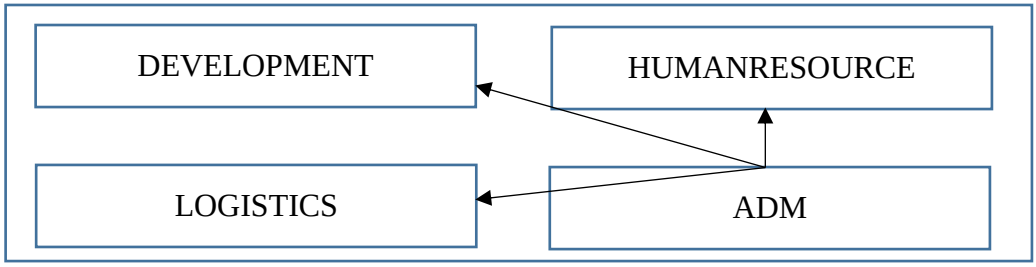
d) Suggest the device that should be placed in the Server building so that they can connect to Internet Service Provider to avail Internet Services.

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

Ans: a) ADM Block

Justification- It has maximum number of computers. Reduce traffic.

b) wired medium is ethernet cables. Following bus (cable cost efficient) or star with ADM as centre (network traffic efficient)



c) (i) Switches in all the blocks since the computers need to be connected to the network.

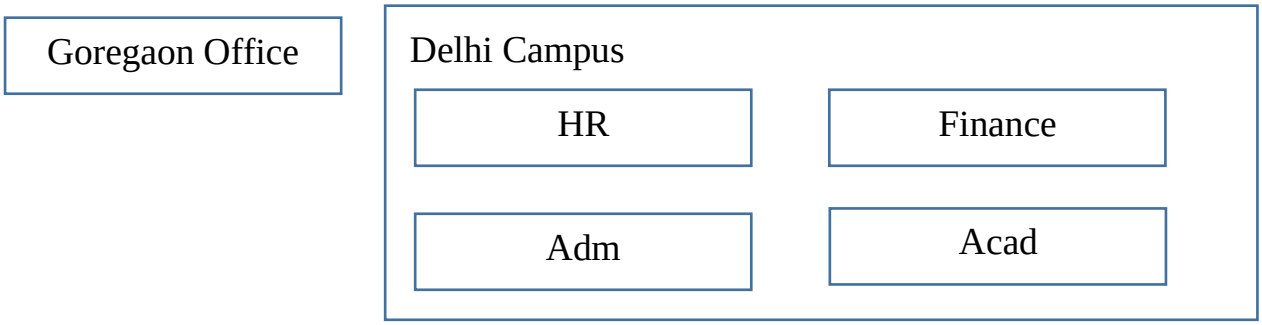
(ii) Repeaters between ADM and HUMANRESOURCE block & ADM and

Logistics block. The reason being the distance is more than 100m.

d) Modem should be placed in the Server building

e) Optical Fiber cable connection

9. Ripunjay is planning to connect its Delhi Campus with its head office at Goregaon. Its Delhi Campus is spread across an area of approx. 1 square kilometers consisting of 3 blocks. HR, Acad and Adm. You as a network expert have to suggest answers to the five queries (i) to (v) raised by them.



Shortest distances between various blocks

HR to Adm	120m
HR to Acad	75m
Acad to Adm	130m
HR to Finance	70m
Finance to Adm	90m
Goregaon to Delhi Campus	50 km

Number of computers installed at various blocks

Block	Number of Computers
HR	250
Adm	30
Acad	70
Finance	20
Goregaon	20

(i) Suggest the most suitable block in the Delhi Campus to host the server. Give a suitable reason with your suggestion.

(ii) Suggest the cable layout among the various blocks within the Delhi Campus for connecting the blocks.

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

a. Switch / Hub

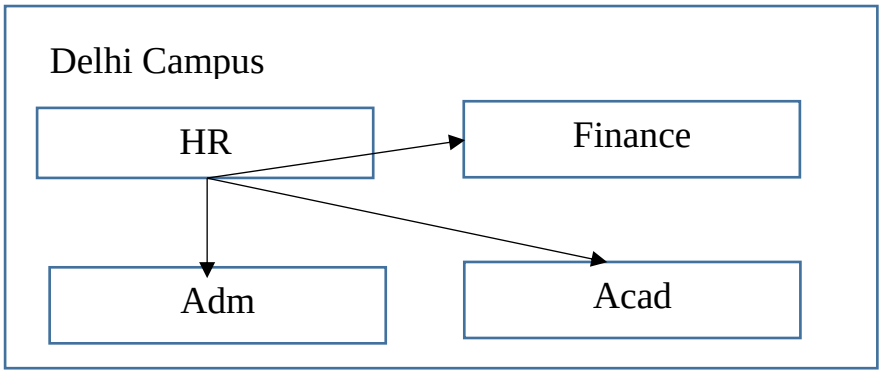
b. Repeater

(iv) Suggest a protocol that shall be needed to provide Video Conferencing solution between Goregaon Office and Delhi campus.

(v) Suggest the type of network to connect Goregaon Office and Delhi campus.

Ans: i) HR because it has maximum number of computers

ii) Star topology with HR at centre



iii) Switch need to be installed in each of the block repeater where distance is greater than 100m

iv) VoIP

v) WAN

10. Oxford college, in Delhi is starting up the network between its different wings. There are four Buildings named as SENIOR, JUNIOR, ADMIN and HOSTEL as shown below:

The distance between various building is as follows:

ADMIN TO SENIOR	200 m
ADMIN TO JUNIOR	150 m
ADMIN TO HOSTEL	50 m
SENIOR TO JUNIOR	250 m
SENIOR TO HOSTEL	350 m
JUNIOR TO HOSTEL	350 m

Number of computer in each building is:

SENIOR	130
JUNIOR	80
ADMIN	160
HOSTEL	50

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

ii) Suggest the most suitable place (i.e., building) to house the server of this college, provide a suitable reason.

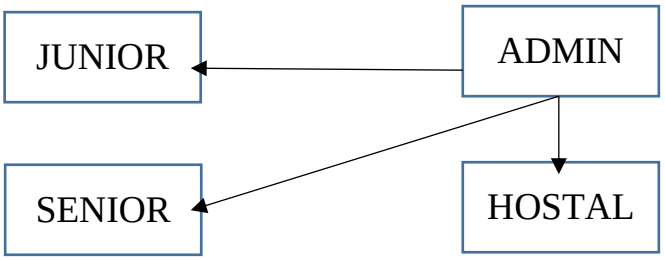
iii) Is there a requirement of a repeater in the given cable layout? Why/Why not?

iv) Suggest the placement of hub/switch with justification.

v) The organisation also has inquiry office in another city about 50-60 km away in hilly region. Suggest the suitable transmission media to interconnect to college and inquiry office out of the following:

a. Fiber optic cable
b. Microwave
c. Radiowave

Ans: i)



ii) ADMIN, as number of computers are more in ADMIN building

iii) Yes, between ADMIN TO JUNIOR and ADMIN TO SENIOR distance is more than 100 m.

iv) In all building as it is required to connect all computers in to a network.

v) Radio wave

UNIT III
CHAPTER 11 – SIMPLE QUERIES IN SQL
5 Marks Questions and Answers

1. Write the output of the queries (a) to (e) on the table, SCHOOL given below:

CODE	TEACHER	SUBJECT	DOJ	PERIODS	EXPERIENCE
1001	RAVI SHANKAR	ENGLISH	12/02/2000	24	10
1009	PRIYA RAI	PHYSICS	03/09/1998	26	12
1203	LIS ANAND	ENGLISH	09/04/2000	27	5
1045	YASHRAJ	MATHS	16/07/1999	24	15
1123	GAGAN	PHYSICS	28/08/2000	28	3
1167	HARISH B	CHEMISTRY	19/10/1999	27	5
1215	UMESH	PHYSICS	11/05/1998	22	16

(a) SELECT MAX(EXPERIENCE) FROM SCHOOL;

(b) SELECT TEACHER FROM SCHOOL WHERE EXPERIENCE>12 ORDER BY TEACHER;

(c) SELECT SUM(PERIODS) FROM SCHOOL WHERE SUBJECT LIKE("E%");

(d) SELECT SUBJECT FROM SCHOOL WHERE PERIODS<25 AND EXPERIENCE>15;

(e) SELECT TEACHER FROM SCHOOL WHERE PERIODS BETWEEN 24 AND 28;

Ans: (a)

MAX(EXPERIENCE)
16

(b)

Teacher
UMESH
YASHRAJ

(c)

SUM(PERIODS)
51

(d)

SUBJECT
PHYSICS

(e)

TEACHER
RAVI SHANKAR
PRIYA RAI
LIS ANAND
YASHRAJ
GAGAN
HARISH B

2. Write the output of the queries (a) to (e) based on the table Student given below:
Student

Adm	Name	Subject	Fees	Age	Gender
1	JATIN MANHAS	BIOLOGY	650	17	M
2	VANSH KHATRI	HINDI	600	18	F
3	SIMRAN	COMPUTER	600	17	F
4	ABHISHEK	COMPUTER	600	16	M
5	KUNAL	ECONOMICS	470	18	M
6	LALIT KALA	BIOLOGY	650	18	M
7	MANISH	HINDI	770	17	F
8	JAGDEEP	ENGLISH	800	16	M

(a) SELECT Name FROM Student WHERE Name LIKE "J%";
(b) SELECT Adm, Age FROM Student WHERE Subject = "BIOLOGY";
(c) SELECT MAX(Fees), Name FROM Student;
(d) SELECT Name, Age FROM Student WHERE Subject = "Hindi" AND Fees > 650;
(e) SELECT * FROM Student WHERE Subject in ("MATHS","PHYSICS", "ENGLISH");

Ans: (a)

Name
JATIN MANHAS
JAGDEEP

(b)

Adm	Age
1	17
6	18

(c)

MAX(Fees)	Name
800	JAGDEEP

(d)

Name	Age
MANISH	17

(e)

Adm	Name	Subject	Fees	Age	Gender
8	JAGDEEP	ENGLISH	800	16	M

3. Consider the following tables GAMES. Give outputs for SQL queries (i) to (v).
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

(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;
(v) SELECT * FROM GAMES ORDER BY PrizeMoney;

Ans: (i)

COUNT(DISTINCT Number)
2

(ii)

MAX(Scheduledate)	MIN(Scheduledate)
19-Mar-2004	12-Dec-2003

(iii)

SUM(PrizeMoney)
59000

(iv)

GCode	GameName	Number	PrizeMoney	ScheduleDate
108	Lawn Tennis	4	25000	19-Mar2004

(v)

GCode	GameName	Number	PrizeMoney	ScheduleDate
101	Carom Board	2	5000	23-Jan-2004
103	Table Tennis	4	8000	14-Feb-2004
105	Chess	2	9000	01-Jan-2004
102	Badminton	2	12000	12-Dec-2003
108	Lawn Tennis	4	25000	19-Mar-2004

4. Give the output of the following SQL statements using table CLUB.

Table : CLUB

CID	CNAME	AGE	GENDER	SPORTS	PAY	DOAPP
5246	AMRITA	35	FEMALE	CHESS	900	27/03/2006
4687	SHYAM	37	MALE	CRICKET	1300	15/04/2004
1245	MEENA	23	FEMALE	VOLLYBALL	1000	18/06/2007
1622	AMRIT	28	MALE	KARATE	1000	05/09/2007
1256	KRISHNA	36	MALE	CHESS	1100	15/08/2003
1720	MANJU	33	FEMALE	KARATE	1250	10/04/2004
2321	VIRAT	35	MALE	CRICKET	1050	30/04/2005

(i) SELECT CNAME FROM CLUB WHERE SPORTS="CHESS";

(ii) SELECT NAME,AGE, FROM CLUB WHERE AGE BETWEEN 25 AND 35;

(iii) SELECT COUNT(DISTINCT SPORTS) FROM CLUB;

(iv) SELECT MIN(AGE) FROM CLUB WHERE GENDER="FEMALE";

(v) SELECT SUM(PAY) FROM CLUB WHERE DOAPP<"30/04/2005";
ORDER BY AGE DESC;

Ans: (i)

CNAME
AMRITA
KRISHNA

(ii)

CNAME	AGE
AMRIT	28
MANJU	33
AMRITA	35
VIRAT	35

(iii)

COUNT(DISTINCT SPORTS)
4

(iv)

MIN(AGE)
23

(v)

SUM(PAY)
3650

5. Write the output of the queries (a) to (e) based on the table, PERSON given below:

EMPNO	ENAME	JOB	MGR	HIREDATE	SALARY	COMM	DEPTNO
8369	SMITH	CLERK	8902	18-12-90	800	NULL	20
8499	ANYA	SALESMAN	8698	20-02-91	1600	300	30
8521	SETH	SALESMAN	8698	22-02-91	1250	500	30
8566	MAHADEV	MANAGER	8839	02-04-91	2985	NULL	20
8654	MOMIN	SALESMAN	8698	28-09-91	1250	1400	30
8698	BINA	MANAGER	8839	01-05-91	2850	NULL	30

(a) SELECT ENAME,JOB FROM PERSON;

(b) SELECT ENAME FROM PERSON ENAME LIKE '%A';

(c) SELECT MIN(SALARY) FROM PERSON;

(d) SELECT ENAME,SALARY+500 FROM PERSON;

(e) SELECT EMPNO,MGR FROM PERSON WHERE COMM IS NULL;

Ans: (a)

ENAME	JOB
SMITH	CLERK
ANYA	SALESMAN
SETH	SALESMAN
MAHADEV	MANAGER
MOMIN	SALESMAN
BINA	MANAGER

(b)

ENAME
ANYA
BINA

(c)

MIN(SALARY)
800

(d)

ENAME	SALARY+500
SMITH	1300
ANYA	2100
SETH	1750
MAHADEV	3485
MOMIN	1750
BINA	3350

(e)

EMPNO	MGR
SMITH	8902
MAHADEV	8839
BINA	8839

CHAPTER 13 – GROUPING RECORDS, JOINS IN SQL
5 Marks Questions and Answers

1. Write queries (a) to (e) based on the tables SHOP and ACCESSORIES given below:

Table :SHOP

ID	SNAME	AREA
100	Chaudhary & Sons	GK
101	Sharma Tech	CP
102	Gupta Bros.	Punjabi Bagh
103	Mehta Textiles	Vigyan Vihar

Table : ACCESSORIES

No	Name	Price	ID
1	Mouse	600	101
2	Keyboards	670	103
3	Webcams	2000	100
4	Cables	200	101
5	LCD	6000	102

a. To display Name and Price of all the Accessories in ascending order of their Price.
b. To display Id and SName of all Shops.
c. To display name of accessories whose price is less than 1000.
d. To display Minimum and Maximum Price of each Name of Accessories.
e. To display Area, Name of accessories in the above table.

Ans: (a)SELECT Name,price FROM ACCESSORIES ORDER BY PRICE ASC;
(b)SELECT ID,SNAME FROM SHOP;
(c)SELECT NAME FROM ACCESSORIES WHERE PRICE<1000;
(d)SELECT Name,MIN(PRICE),MAX(PRICE) FROM ACCESSORIES;
(e) SELECT Area,Name FROM ACCESSORIES;

2. Consider the following tables BOOKS and ISSUED. Write SQL commands for the statements (i) to (v).

Table: BOOKS

BID	BNAME	AUNAME	PUBNAME	PRICE	TYPE	QTY
COMP11	LET US C	YASHWANT	ARIHANT	350	COMPUTER	15
GEOG33	INDIA MAP	RANJEET P	ATLAS	150	GEOG RAPHY	20
HIST66	HISTORY	R BALA	GAMMA	210	HISTORY	25
COMP12	C++	VINOD DUA	WHITE BIRD	330	COMPUTER	18
LITR88	DREAMS	ARVIND AD	TIGERWOOD	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 computer books by 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.

(v) To display all the details of books and issued table.

Ans: (i) SELECT BNAME,AUNAME,PRICE FROM BOOKS WHERE TYPE='COMPUTER';

(ii) UPDATE BOOKS SET PRICE=PRICE+50 WHERE TYPE='COMPUTER';

(iii) SELECT * FROM BOOKS ORDER BY PRICE ASC;

(iv) SELECT BID,BNAME,QTY_ISSUED FROM BOOKS,ISSUED WHERE BOOKS.BID = ISSUED.BID;

(v) SELECT * FROM BOOKS,ISSUED WHERE BOOKS.BID = ISSUED.BID

3. Write SQL queries (i) to (v) based on the tables Watches & Sale.

TABLE: WATCHES

Watchid	Watch_Name	Price	Type	Qty_Store
W001	High Time	10000	Unisex	100
W002	Life Time	15000	Ladies	150
W003	Wave	20000	Gents	200
W004	High Fashion	7000	Unisex	250
W004	Golden Time	25000	Gents	100

TABLE: SALE

Watchid	Qty_Sold	Quarter
W001	10	1
W003	5	1
W002	20	2
W003	10	2
W001	15	3
W002	20	3
W005	10	3
W003	15	4

(i) To display all the details of those watches whose name ends with 'TIME'.

(ii) To display Watche's name and price of those watches which have price range in between 5000-15000.

(iii) To display total quantity in store unisex type watches.
(iv) To display watch name and their quantity sold in first quarter.
(v) To display the count of each type in watches.

Ans: (i) SELECT * FROM WATCHE8 WHERE WATCH_Name LIKE %TINE;
(ii) SELECT WATCH_Name,Price FROM WATCHES WHERE Price BETWEEN 5000 AND 15000;
(iii) SELECT SUM (Qty_Store) FROM WATCHES WHERE TYPE='Unisex';
(iv) SELECT WATCH_NAME,Qty_Sold FROM WATCHES,SALES WHERE WATCHES.Watchid=SALE.Watchid AND QUARTER=1;
(v) SELECT Type,Count(*) FROM WATCHES GROUP BY Type;

4. Write queries (a) to (e) based on the table SALESPERSON AND ITEM given below :
TABLE: SALESPERSON

Code	NAME	SALARY	ITCODE
1001	TANDEEP JHA	60000	I2
1002	YOGRAJ SINHA	70000	I5
1003	TENZIN TACK	45000	I2
1005	ANOKHI RAJ	50000	I7
1004	TARANA SEN	55000	I7

TABLE: ITEM

ITCODE	ITEMTYPE	TURNOVER
I5	STATIONARY	3400000
I7	HOSIERY	6500000
I2	BAKERY	10090000

(a) To display the CODE and NAME of all SALESPERSON having "I7" Item Type Code from the table SALESPERSON.
(b) To display all details from table SALESPERSON in descending order of SALARY.
(c) To display the number of SALESPERSON dealing in each TYPE of ITEM. (Use ITCODE for the same).
(d) To display NAME of all the salespersons from the SALESPERSON table along with their corresponding ITEMTYPE from the ITEM table.
(e) To display all the details from the Salesperson and item table.

Ans: (a) SELECT CODE NAME FROM SALESPERSON WHERE ICODE = '17';
(b) SELECT * FROM SALESPERSON ORDER BY SALARY DESC;
(c) SELECT ICODE,COUNT(*) FROM SALESPERSON GROUP BY IDCODE;
(d) SELECT NAME,ITEMTYPE FROM SALESPERSON,ITEM WHERE SALESPERSON.ITCODE=ITEM.ITCODE;
(e) SELECT * FROM SALESPERSON,ITEM WHERE SALESPERSON. ITCODE=ITEM.ITCODE;

5. Write SQL statements for the following queries (a) to (e) based on the relations CUSTOMER and TRANSACTION given below :

TABLE: CUSTOMER

ACNO	NAME	GENDER	BALANCE
C1	RISHABH	M	15000
C2	AAKASH	M	12500
C3	INDIRA	F	9750
C4	TUSHAR	M	14600
C5	ANKITA	F	22000

TABLE: TRANSACTION

ACNO	TDATE	AMOUNT	TYPE
C1	2020-07-21	1000	DEBIT
C5	2019-12-31	1500	CREDIT
C3	2020-01-01	2000	CREDIT

(a) To display all information about the CUSTOMERs whose NAME starts with 'A'.

(b) To display the NAME and BALANCE of Female CUSTOMER's (with GENDER as 'F') whose TRANSACTION Date (TDATE) is in the year 2019.

(c) To display the total number of CUSTOMERs for each GENDER.

(d) To display CUSTOMER NAME and their respective INTEREST for all CUSTOMERs where INTEREST is calculated as 8% of BALANCE.

(e) To display all the details from the customer and transaction table.

Ans: (a) SELECT * FROM CUSTOMER WHERE NAME LIKE 'A%';

(b) SELECT NAME,BALANCE FROM CUSTOMER,TRASACTION WHERE CUSTOMER ACNO = 'TRANSACTION' AND GENDER = F AND TDATE LIKE '2019%';

(c) SELECT GENDER,COUNT(*) FROM CUSTOMER GROUB BY GENDER;

(d) SELECT NAME,(BALANCE*0.08) AS INTREST FROM CUSTOMER;

(e) SELECT * FROM CUSTOMER NATURAL JOIN TRANSACTION;