Time allowed: 3 Hours   **Maximum Marks: 70**

General Instructions:

• Please check this question paper contains 35 questions.
• The paper is divided into 5 Sections- A, B, C, D and E.
• Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark.
• Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
• Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
• Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
• Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.

<u>**Section-A**</u>

1. State True or False: "In a Python program, if a break statement is given in a nested loop, it terminates the execution of all loops in one go."

2. In a table in MYSQL database, an attribute A of datatype varchar (20) has the value "Keshav". The attribute B of datatype char (20) has value "Meenakshi". How many characters are occupied by attribute A and attribute B?
       a. 20,6   b. 6,20   c. 9,6   d. 6,9

3. Which of the following statement(s) would give an error during execution of the following code?
       tup = (20,30,40,50,80,79)
       print(tup)   #Statement 1
       print(tup[3]+50)   #Statement 2
       print(max(tup))   #Statement 3
       tup[4]=80   #Statement 4

       Options: a. Statement 1   b. Statement 2   c. Statement 3   d. Statement 4

4.
```
Consider the code given below:

b=100
def test(a):
    _____        # missing statement
    b=b+a
    print(a,b)
test(10)
print(b)
```
Which of the following statements should be given in the blank for #Missing Statement, if the output produced is 110?
Options: a. global a   b. global b=100   c. global b   d. global a=100

5.   Which of the following statements is FALSE about keys in a relational database?
   a. Any candidate key is eligible to become a primary key.
   b. A primary key uniquely identifies the tuples in a relation.
   c. A candidate key that is not a primary key is a foreign key.
   d. A foreign key is an attribute whose value is derived from the primary key of another relation.

6. Which of the following functions changes the position of file pointer and returns its new position?
       a. flush()   b. tell()   c. seek()   d. offset()

7. Which of the following mode in file opening statement results or generates an error if the file does not exist?
       (a) a+   (b) r+   (c) w+   (d) None of the above

8. Fill in the blank: _____ command is used to remove primary key from the table in SQL.
    (a) update   (b)remove   (c) alter   (d)drop

9. Fill in the blank: The SELECT statement when combined with _____ clause, returns records without repetition.
    (a) DESCRIBE   (b) UNIQUE   (c) DISTINCT   (d) NULL

10. Which function is used to display the total number of records from table in a database?
    (a) sum(*)   (b) total(*)   (c) count(*)   (d) return(*)

11. Which of the following statement is incorrect in the context of binary files?
    a. Information is stored in the same format in which the information is held in memory.
    b. No character translation takes place
    c. Every line ends with a new line character
    d. pickle module is used for reading and writing

12. Which of the following statement opens a binary file record.bin in write mode and writes data from a list lst1 = [1,2,3,4] on the binary file?
    a.   with open('record.bin','wb') as myfile:
               pickle.dump(lst1,myfile)
    b.   with open('record.bin','wb') as myfile:
               pickle.dump(myfile,lst1)
    c.   with open('record.bin','wb+') as myfile:
               pickle.dump(myfile,lst1)
    d.   with open('record.bin','ab') as myfile:
               pickle.dump(myfile,lst1)

13. Which of the following function header is correct?
    a. def cal_si(p=100, r, t=2)
    b. def cal_si(p=100, r=8, t)
    c. def cal_si(p, r=8, t)
    d. def cal_si(p, r=8, t=2)

14. Group by changes the sequence of records actually in table [T/F]

15. _____ file has cross language compatibility. It means the data can be shared from python to a non python environment.

16. To eliminate blank row in a CSV file a _____ argument is passed with open( ).

Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as
    (a) Both A and R are true and R is the correct explanation for A
    (b) Both A and R are true and R is not the correct explanation for A
    ® A is True but R is False
    (d) A is false but R is True

17. Assertion (A):- If the arguments in a function call statement match the number and order of arguments as defined in the function definition, such arguments are called positional arguments.
Reasoning ®:- During a function call, the argument list first contains default argument(s) followed by positional argument(s).

18. Assertion (A): CSV (Comma Separated Values) is a file format for data storage which looks like a text file.
Reason ®: The information is organized with one record on each line and each field is separated by comma.

19. Write a function, lenWords (STRING), that takes a string as an argument and returns a list containing length of each word of a string. For example, if the string is "Come let us have some fun", the tuple will have [4, 3, 2, 4, 4, 3]

20. Anand is working in a database named SPORT, in which he has created a table named "Sports" containing columns SportId, SportName, no_of_players, and category. After creating the table, he realized that the attribute, category has to be deleted from the table and a new attribute TypeSport of data type string has to be added. This attribute TypeSport cannot be left blank. Help Anand write the commands to complete both the tasks.

21. Predict the output of the Python code given below:
```
tuple1 = (11, 22, 33, 44, 55 ,66)
list1 =list(tuple1)
new_list = []
for i in list1: if i%2==0:
        new_list.append(i)
new_tuple = tuple(new_list)
print(new_tuple)
```

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

23. What will be the output of the given program
```
def ChangeVal(M,N):
    for i in range(N):
        if M[i]%5 == 0:
            M[i]//=5
        if M[i]%3 == 0:
            M[i]//=3
L = [25,8,75,12]
ChangeVal(L,4)
for i in L:
    print(i,end="#")
```

24. Differentiate between Alter table and Update command.

25. Define following in terms of SQL- Not Null, Default

26. Predict the output of the given code:
```
Text1="IND-23"
Text2=""
I=0
while I<len(Text1):
    if Text1[I]>="0" and Text1[I]<="9":
        Val = int(Text1[I])
        Val = Val + 1
        Text2=Text2 + str(Val)
    elif Text1[I]>="A" and Text1[I]<="Z":
        Text2=Text2 + (Text1[I+1])
    else:
        Text2=Text2 + "*"
    I+=1
print(Text2)
```

27. Consider the 'Hospital' table given below and write output of the given queries:

SNo	Doc_Name	Department	Gender	City	OPDCharges
1	Arpit	Surgery	M	Delhi	550
2	Atul	ENT	M	Jaipur	350
3	Simran	Cardiology	F	Kanpur	600
4	Shuchi	ENT	F	Jaipur	350
5	Palak	Orthopaedic	F	Delhi	400

(a) SELECT * FROM HOSPITAL
   WHERE GENDER='F' AND DEPARTMENT='ENT';
(b) SELECT COUNT(*), DEPARTMENT FROM HOSPITAL
   GROUP BY DEPARTMENT
   HAVING COUNT(*)>=2;
(C) SELECT DOC_NAME, OPDCHARGES FROM HOSPITAL
   WHERE DEPARTMENT LIKE'_ _ R*';

28. Consider this table and write queries based on the table below:

Table: TECH_COURSE

CID	CNAME	FEES	STARTDATE	TID
C201	Animation and VFX	12000	2022-07-02	101
C202	CADD	15000	2021-11-15	NULL
C203	DCA	10000	2020-10-01	102
C204	DDTP	9000	2021-09-15	104
C205	Mobile Application Development	18000	2022-11-01	101
C206	Digital marketing	16000	2022-07-25	103

(a) Write a query to increase FEES of those courses by Rs 4500 which start after year 2020.
(b) Write a query to delete those records which have NULL in TID
(c) Write a query to display Course name, Fees of those courses having fees between 10000 and 17000 in descending order of CID (Both inclusive).

29. A binary file 'Result' contains the records (each containing name and marks in English, Maths and Computer Science) of all the students. Write a function to display name of all students who have secured 90 and above marks in Maths and Computer Science.

30. Write a program to read a text file "Schools" containing (School number, name and city), display records of those schools whose name ends with a vowel.

Section-D

31. (a) Explain seek( ) and tell( ) with suitable examples.   [2]
    (b) Explain inconsistency of a database.   [2]

32. The file 'InterSchool.csv' keeps records of the number of the medals won by each school in the inter school sports meet. Write a function Medals( ) to read the records and display the total number of medals won by a particular school.

School Name	Gold	Silver	Bronze
Valley Green	1	3	2
JBA	3	2	1
Blue Hills	1	3	3
....	..	..	..

The user will enter the name of a school to display total number of medals won, if the name does not exist then it displays an appropriate message.   Pg.4

33. Navdeep creates a table RESULT with a set of records to maintain the marks secured by students in Sem 1, Sem2, Sem3 and their division. After creation of the table, he has entered data of 4 students in the table.

ROLL_NO	SNAME	SEM1	SEM2	SEM3	DIVISION
101	KARAN	366	410	402	I
102	NAMAN	300	350	325	I
103	KAPIL	345	300	375	II
104	NEETU	400	359	425	II
105	GAGAN	290	167	245	III

Based on the data given above answer the following questions:
(i) Identify the most appropriate column, which can be considered as Primary key.
(ii) If two columns are added and 2 rows are deleted from the table result, what will be the new degree and cardinality of the above table?
(iii) Write the statements to:
a. Insert the following record into the table Roll No- 108, Name- Aadit, Sem1- 470, Sem2-444, Sem3, Div – I.
b. Delete records of those students who have less than 250 marks in semester II and III.

34
Your teacher has given you a method/function FilterWords() in python which read lines from a text file NewsLetter.TXT, and display those words, which are lesser than 4 characters. Your teachers intentionally kept few blanks in between the code and asked you to fill the blanks so that the code will run to find desired result. Do the needful with the following python code.

```
def FilterWords():
    c=0
    file=open('NewsLetter.TXT', '_____')    #Statement-1
    line = file._____                        #Statement-2
    word = _____                             #Statement-3
    for c in word:
        if _____:                            #Statement-4
            print(c)
    _____                                    #Statement-5

FilterWords()
```

(i) Write mode of opening the file in statement-1?

(ii) Fill in the blank in statement-2 to read the data from the file.

(iii) Fill in the blank in statement-3 to read data word by word.

(iv) Fill in the blank in statement-4, which display the word having lesser than 4 characters

(v) Fill in the blank in Statement-5 to close the file.

35. Consider a binary file 'Library' with the structure [Bookid, Bookname,Qty, Price] , write a aprogram to add 10 to the Qty of those books which have price more than 200. Also write code to display edited content of the file.