Sample Paper 05

Computer Science (083)

CLASS XII 2024-25

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

General Instructions:

1. This question paper contains 37 questions.
2. All questions are compulsory. However, internal choices have been provided in some questions. Attempt only one of the choices in such questions
3. The paper is divided into 5 Sections- A, B, C, D and E.
4. Section A consists of 21 questions (1 to 21). Each question carries 1 Mark.
5. Section B consists of 7 questions (22 to 28). Each question carries 2 Marks.
6. Section C consists of 3 questions (29 to 31). Each question carries 3 Marks.
7. Section D consists of 4 questions (32 to 35). Each question carries 4 Marks.
8. Section E consists of 2 questions (36 to 37). Each question carries 5 Marks.
9. All programming questions are to be answered using Python Language only.
10. In case of MCQ, text of the correct answer should also be written.

SECTION A

1. State True or False
Digits are one of the parts of the Python character set

2. Which command is used to modify or change existing records in a table?

(a) UPDATE (b) CHANGE
(c) ALTER (d) MODIFY

3. Which of the following operator cannot be used with string data type?

(a) + (b) in
(c) * (d) /

4. Which of the following is a category of SQL commands?

(a) DDL (b) TCL
(c) DML (d) All of these

5. What is the output of the following code?

```
num = 5 + float(9) / int(3.0)
print("num =", num)
```

(a) num = 8.0 (b) 7.5
(c) num : 6.5 (d) Error

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

text = "Data Structures"

print(text[5:15:3])

7. Given : s= "ComputerExam". What will be the output of `print(s[2]+s[8]+s[1:5)?`

(a) mEOMUU (b) mEompu

(c) mEomPU (d) MEompu

8. The clause to arrange the data of a column in descending order is

(a) DESC (b) GROUP BY

(c) LIKE (d) ASC

9. Which of the following is the most common type of constant?

(a) Keywords (b) Literals

(c) Variables (d) Identifiers

10. Complete the following code snippet with the appropriate statement:

file = open("report.txt", "r")

content = file.read(50)

file.seek(-10, 1)

remaining_content = file.read()

file.close()

11. State whether the following statement is True or False:

The `finally` block in Python executes whether or not an exception occurs in the `try` block.

12. Which of the following types of files will need the pickle module for working on it ?

(a) Binary files (b) Text files

(c) CSV files (d) All of these

13. In the following code, which lines will give error? (Assume the lines are numbered starting from 1.)

```
mul=3
value=10
for i in range (1, 6, 1):
     if (value % mul = 0):
        print (value * multiply)
     else
        print (value + multiply)
```

(a) 4,5 (b) 4,5,6

(c) 4,5,6,7 (d) No errors

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14. A relation can contain _____ foreign keys.

(a) 2 (b) 3

(c) 1 (d) Multiple

15. The_____clause with the COUNT() function counts only the unique values in an attribute.

(a) UNIQUE (b) HAVING

(c) DISTINCT (d) LIKE

16. Python scripts can be written to connect with MySQL using which of the following libraries?

(a) MySQL.connector library (b) SQL.connect library

(c) MySQL.connect library (d) None of these

17. Which protocol is used for remote login?

(a) HTIT (b) PPP

(c) IRCP (d) Telnet

18. Which of the following functions will read lines of a text file as list elements.

(a) read( ) (b) get()

(c) readline( ) (d) readlines( )

19. Which of the following will be the output of the statement given below?

```
print([12,34,56,78,90].pop())
```

(a) 78 (b) 90

(c) 12 (d) 12,34,56,78,90

Direction (Q.Nos. 20-21) are Assertion and Reason based questions.

20. **Assertion (A) :** In a cross join the number of records in the output will be the maximum.
Reason (R) : A cross join is also called a Cartesian product.

(a) Both A and R are true and R is the correct explanation for A.

(b) Both A and R are true but R is not the correct explanation for A.

(c) A is true but R is false.

(d) A is false but R is true.

21. **Assertion (A) :** A file that is opened using the open() function may not specify the mode of opening it.
Reason (R) : If the mode is not specified , the read mode is used by default..

(a) Both A and R are true and R is the correct explanation for A.

(b) Both A and R are true but R is not the correct explanation for A.

(c) A is true but R is false.

(d) A is false but R is true.

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SECTION B

22. Observe the given list and find the answer of questions that follows.

```
list1 = [23, 45, 63, 'Hello', 20
                'World', 15, 18]
```

(i) `list1[-3]` (ii) `list1[3]`

23. (a) Find the output

```
L = [15, 28, 55, 88, 15, 33, 5]
```

(i) `L[2:6]` (ii) `L[::-3]`

(b) Find the error(s).

```
L1 = [7, 2, 3, 4]
L2 = L1 + 2
L3 = L1 * 2
L = L1.pop(7)
```

24. What is the advantage of using switch over hub?

or

Write some benefits of networking.

25. What do you understand by RDMS?

26. (a) Write the full forms of :

(i) POP

(ii) HTTP

(b) Differentiate between the terms Internet and Intranet.

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

```
dic = {'a':1, 'b':2, 'c':3, 'd':4}
print(dic)
if 'a' in dic :
   del dic['a']
print(dic)
```

or

Distinguish between tuple and list.

28. Describe the concept of candidate keys and provide a suitable example to illustrate.

or

Observe the following table carefully and write the names of the most appropriate columns, which can be considered as (i) candidate keys and (ii) primary key.

Table: Product

CID	CNAME	AMOUNT	COUNTRY	ITEM
101	ALLE	100000	JMEKA	SHOES

111	BEN	20000	FRANCE	
110	RIKI	25000	AMERICA	BAG
011	BRETT LEE	105000	AUSTRALIA	BAT

SECTION C

29. Write Push(contents) and Pop() methods in Python to add and remove numbers, simulating stack operations.

or

Find the final contents of a stack on which the following operations are done.

1. Push(100)
2. Push(200)
3. Push(50)
4. Push(50)
5. Pop()
6. Push()
7. Pop(2)
8. Pop()

30. The binary file "emp.dat" contains employee records with the following structure:

Eno	Ename	Salary
1	Mr. Raj	85000
⋮		

Write a Python program to open "emp.dat" and display only the records where the employee's salary exceeds 75000.

or

Write a program to read the content from a text file "status.txt", count and display the total number of lines and blank spaces present in it. e.g. if the "status.txt" file contains the following lines:
Welcome to your one-step solutions for all your study, practice and assessment needs for various competitive & recruitment examinations and school segment. We have been working tirelessly for over a decade to make sure that you have best in class study resources because you deserve SUCCESS AND NOTHING LESS...
The output will be:
The status file contents are
Total lines in file are: 4
Total spaces in file are: 43

31. The code given below reads a text file and displays those words that begin with an uppercase vowel and end with a lowercase vowel . Some of the codes are missing .Write codes to fill up the blanks.

```
f=open("emp.txt")
filedata=f.read()
count=0
print(filedata)
data=filedata.split(' ')
for.......... in data : #Blank1
   if words[-1] in "aeiou" and ...in "AEIOU": # Blank2
   print(......... .)        # Blank3
f.close()
```


(i) Write the missing code for Blank1.

(ii) Write the missing code for Blank2.

(iii) Write the missing code for Blank3.

or

Write a user defined function change(L) to accept a list of numbers and replace the numbers in the list with their sum of digits.
Example
Input : [32,142,215,26,7]
Output : [5, 7 , 8 , 8, 8,7]

SECTION D

32. (a) Underline the syntax errors in the following program

```
x = int(input("Enter first number:))
y = int(input("Enter second number:"))
z = int(input("Enter third number:")
a = x+ b+ z
print ("Result = ", b)
```

(b) Write the code to create the following table Student with the following fields

RollNo
FirstName
LastName
Address
ContactNo
Marks
Course
Rank

In the table, Rank should be Good, Best, Bad, Worst, Average.

or

(a) Differentiate between a logical error and syntax error. Also, give suitable examples of each in Python.

(b) What is the use of fetchone() method? Write an example code to fetch a single record from a database.

Note :

Database : PythonDB

Table : Student

Host : localhost

UsedlD : root

Password : arihant

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33. Which module is used to operate on CSV file?

Write a python program with following functions :

(a) addcsv():

File old.csv has come from branch in Pune and it needs to be added to file "updated.csv" which has data for all branches. Write the code in the function to perform the same.

(b) convertcsv() :

A file old.csv has come with separator ':' but your system can only read ';' Write a program to convert to "converted.csv" file. Write the function to change the separator of the file.

34. (a) Consider the tables Travel and Train given below.

Table : Travel				
Tcno	**Pname**	**Class**	**TId**	**Amt**
1	Rahul	AC	T1	2500
2	Sujit	SL	T2	4500
3	Ravi	AC	T1	6000
4	Ankita	AC	T3	1800

Table : Train	
TId	**Tname**
T1	Rajdhani
T2	Himgiri Exp
T3	Darjeeling Mail

Write the command to display the passenger names and the train names by which they are travelling for all passengers travelling by "Mail" trains.

(b) Considering the tables Train and Travel given above write commands for the following :

(i) Display passenger names , corresponding train names and amounts for records where amount >5000.

(ii) Increase amount of passengers by 20% who are travelling by 'AC"

(iii) Display a cross join of the two tables.

or

(iv) Remove records of passengers who are travelling by "Rajdhani".

35. Consider the following tables SENDER and RECIPINT. Write SQL commands for the statements (i) to (iv).

TABLE: SENDER			
SenderID	**SenderName**	**SenderAddress**	**SenderCity**
ND01	R Jain	2, ABC Appts	New Delhi
MU02	H Sinha	12, Newtown	Mumbai
MU15	S Jha	27/A, Park Street	Mumbai
ND50	T Prasad	122-K, SDA	New Delhi

TABLE: RECIPIENT				
Rec ID	**Sender lD**	**Rec Name**	**Rec Address**	**Rec City**
KO05	ND01	R Bajpayee	5, Central Avenue	Kolkata
ND08	MU02	S Mahajan	116, A Vihar	New Delhi
MU19	ND01	H Singh	2A, Andheri East	Mumbai
MU32	MU15	P K Swamy	B5, C S Terminus	Mumbai
ND48	ND50	S Tripathi	13, B1 D, Mayur Vihar	New Delhi

(i) To display the names of all Senders from Mumbai.

(ii) To display the RecID, SenderName, SenderAddress, RecName, RecAddress for every Recipient.

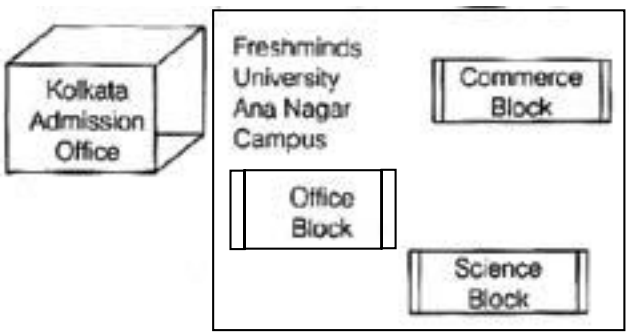
(iii) To display Recipient details in ascending order of RecName.

(iv) To display number of Recipients from each City.

SECTION E

36. Freshminds University of India is launching its first campus in Ana Nagar, South India, with a central admissions office in Kolkata. The campus spans 5 km and consists of three main blocks: Office, Science, and Commerce.

As a network expert, propose a network plan addressing points (i) to (v), considering the given distances and parameters.



Expected wire distance between various locations.

Office Block to Science Block	90 m
Office Block to Commerce Block	80 m
Science Block to Commerce Block	15 m
Kolkata Admission Office to Ana Nagar Campus	450 km

Expected number of computers to be installed at various locations in the university are as follows:

Office Block	10
Science Block	140
Commerce Block	30
Kolkata Admission Office	8

(i) Suggest the authorities, the cable layout amongst various blocks inside university campus for connecting the blocks.

(ii) Suggest the most suitable place (i.e. block) to house the server for this university with a suitable reason.

(iii) Suggest an efficient device from the following to be installed in each of the block to connect all the computers.

(a) Modem

(b) Switch

(c) Gateway

(iv) Suggest a suitable topology to connect the computers in each building.

(v) University is planning to connect its campus in Kolkata which is more than 100 km. Which type of network will be formed?

37. Consider the following table Person

P_Id	**LastName**	**First Name**	**Address**	**City**
1	Hansen	Ola	Timoteivn 10	Sandnes
2	Svendson	Tove	Borgvn 23	Sandnes
3	Pettersen	Kari	Storgt 20	Stavanger
4	Nilsen	Johan	Bakken 2	Stavanger

(i) What should be the constraint(s) of the P_Id column?

(ii) If 3 columns are added to the table , what will be its degree?

(iii) Write statements to :

(a) Display the Unique Cities.

(b) Display Firstnames of people who do not have a address.

or (Option for part (iii) only)

Write appropriate data types to store the following :

(a) Amounts carrying values with decimal.

(b) Joining dates.

END