

Sample Paper 02
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.
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SECTION A

1. State True or False

“Given a dictionary Studict, the statement Studict.items() displays only the keys of the items.”

2. Given the list L = [10, 20, 30, 40, 50], the result of print(L[-2]) is:

- | | |
|--------|--------|
| (a) 20 | (b) 40 |
| (c) 40 | (d) 30 |

3. The method used to get the position of file pointer is

- | | |
|------------|------------|
| (a) pos() | (b) get() |
| (c) seek() | (d) tell() |

4. This function is used to calculate total occurrence of given elements of list.

- | | |
|-------------|--------------|
| (a) len() | (b) sum() |
| (c) count() | (d) extend() |

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

```
text = "Artificial Intelligence"  
print(text[3:15:4])
```

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6. You can repeat the elements of the tuple using which operator?
(a) * (b) +
(c) ** (d) %
7. The rule of referential integrity is based on.....
(a) Primary key (b) Foreign key
(c) Alternate key (d) None of these
8. Which method retrieves the next row from the result set as a tuple?
(a) fetchone () (b) fetchall ()
(c) fetchmany () (d) rowcount
9. Which of the following command displays the attributes of a table along with their types and sizes?
(a) Alter (b) Show structure
(c) Show create table (d) View structure
10. Write the missing statement to complete the following code:

```
file = open("sample.txt", "r")
line1 = file.readline()
last_data = file.read()
file.close()
```
11. State whether the following statement is True or False:
The `except` block in Python is executed only when an exception occurs in the `try` block.
12. Which command is used to add records to a table?
(a) ADD (b) APPEND
(c) ADDRECORD (d) INSERT
13. In a.....topology, the nodes are connected by separate cables.
(a) Star (b) Bus
(c) Tree (d) Mesh
14. Given a list Lst = [25, 60, 15, 40, 75]. What will be the output of Lst[: :]?
(a) [25, 60, 15, 40, 75] (b) []
(c) Error (d) [25]
15. Which module is to be imported to use the floor() function?
(a) statistics (b) matplotlib
(c) random (d) math

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16. Which function is used to convert string into tuple?
(a) string() (b) tup()
(c) tuple() (d) str_tuple()
17. In which mode can a file be opened for both reading and writing?
(a) r (b) r+
(c) a (d) None of these
18. The.....clause can be used as an alternative to multiple OR.
(a) IN (b) BETWEEN
(c) NOT (d) range
19. The purpose of the primary key in a database is to
(a) unlock the database (b) provide a map of the data
(c) uniquely identify a record (d) establish constraints on database operations

Directions : (Q.Nos. 20 and 21) are Assertion and Reason based Questions.

20. **Assertion (A)** : To use the randint() function , the random module needs to be included in the program.
Reason (R) : Some functions are present in modules and to use them the respective module needs to be imported.
(a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true.
21. **Assertion (A)** : The contents of a Binary file are not directly interpretable.
Reason (R) : Modes in which binary files can be opened are suffixed with 'b' like : rb/wb etc.
(a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true.

SECTION - B

22. Find the error in following (s).
- | | |
|-------------------|-------------|
| L1 = [7, 2, 3, 4] | Statement 1 |
| L2 = L1 + 2 | Statement 2 |
| L3 = L1 * 2 | Statement 3 |
| L = L1.pop(7) | Statement 4 |

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23. (a) Observe the code and write the output:

```
t = 'APPLE'  
t1 = tuple(t)  
print(t1)
```

(b) Predict the output of the following code

```
x = (2, 3, 4)  
y = (3, 4)  
t = x + y  
print(t)
```

24. Name two switching techniques used to transfer data between two terminals (computers).

or

Arrange the following network in ascending order of their area:

LAN, PAN, WAN, MAN

25. Differentiate between an attribute and a tuple with an example.

26. (a) Write the full forms of

(i) WVVW

(ii) TCP/IP

(b) List down the types of computer networks.

27. Identify the output of the following Python code.

```
D = {1: "One", 2: "Two", 3: "Three"}  
L = [ ]  
for K, V in D.items():  
    if V[0] == "T":  
        L.append(K)  
print(L)
```

or

Identify the output of the following Python statement.

```
lst1 = [10, 15, 20, 25, 30]  
lst1.insert(3, 4)  
lst1.insert(2, 3)  
print (lst1[- 5])
```

28. Describe the following terms

(i) Domain

(ii) DB2

or

Identify commands/functions for the following actions :

(i) To add a new column to a table.

(ii) To get the sum of all values in a column of a table.



SECTION - C

29. Write a function Del() to delete the 4th word from a text file school.txt.

or

Write a function countmy() in Python to read the text file "Data.txt" and count the number of times "my" occurs in the file.

For example If the file contents are:

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

No. of times "my" occur : 2

30. Write Push (contents) and Pop (contents) methods in Python to add numbers and remove numbers considering them to act as Push and Pop operations of stack.

or

Write the Push operation of stack containing person names. Notice that the name should only accept characters, spaces and period (.) except digits. Assume that Pname is a class instance attribute.

31. Write a user-defined function find-name (name), where name is an argument in Python to delete phone number from a dictionary phone-book on the basis of the name, where name is the key.

or

Given below is a code to open a text file and perform some operations on it. Answer questions with respect to the code given

```
myfile=open("detail.txt", "r")
s =.....          Line 2
print(s)
myfile.close( )
```

(i) In which mode is the file opened?

(ii) If the entire file is to be read, write a statement in place of Line 2.

(iii) What is the original code performing?

SECTION - D

32. Does python create a file itself if the file doesn't exist in the memory? Illustrate your answer with an example:

Write a program using following functions :

(a) inputStud() :To input details of as many students and add them to a csv file "college.csv" without removing the previous records.

SrNo Studname City Percentage

(b) readCollege() : To open the file "college.csv" and display records whose city is "Kolkata"

or

Write a statement to create a data.txt file with the following text.

Python file handling is very interesting and useful.

Write a python code using two functions as follows

(a) removerow() : To remove a record from the college file "College.csv" having following structure.

SrNo Studname City Percentage

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(b) getCollege() : To read the records of the college file "College.csv" and display names of students whose names start with a lowercase vowel.

33. (a) Consider the tables CARS and SUPPLIER given below. What will be the output of the statement given?

TABLE: CARS						
Ccode	Car-Name	Make	Color	Capa-city	Charges	Scode
501	A-star	Suzuki	RED	3	14	1
503	Indigo	Tata	SILVER	3	12	2
502	Innova	Toyota	WHITE	7	15	2
509	SX4	Suzuki	SILVER	4	14	2
510	C-Class	Merc-edes	RED	4	35	4

Table : SUPPLIER	
Scode	Sname
1	Great Suppliers
2	Himalayan Vehicles
3	Road Motors
4	Speed

SELECT CarName, Sname, Charges FROM CARS C, SUPPLIER S WHERE C.Scode= S. Scode AND Charges > 15;

(b) Write the output for SQL queries (i) to (iv), which are based on the table CARDEN.

TABLE: CARDEN					
Ccode	CarName	Make	Color	Capa-city	Charges
501	A-star	Suzuki	RED	3	14
503	Indigo	Tata	SILVER	3	12
502	Innova	Toyota	WHITE	7	15
509	SX4	Suzuki	SILVER	4	14
510	C-Class	Mercedes	RED	4	35

(i) SELECT COUNT(DISTINCT Make) FROM CARDEN;

(ii) SELECT COUNT(*) Make FROM CARDEN;

(iii) SELECT CarName FROM CARDEN WHERE Capacity = 4;

(iv) SELECT SUM (Charges) FROM CARDEN WHERE Color = "SILVER";

34. Write the output of the queries (i) to (iv) based on the table FURNITURE given below.

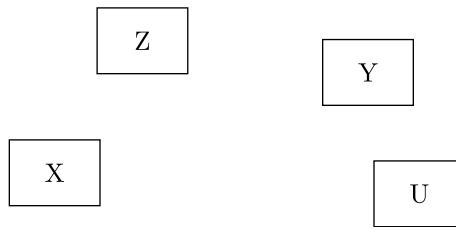
Table : FURNITURE				
FID	NAME	DATE OF PURCHASE	COST	DISCOUNT
B001	Double Bed	03-JAN-2018	45000	10
T010	Dinning Table	10-MAR-2020	51000	5
B004	Single Bed	19-JUL-2021	22000	0
C003	Long back Chair	30-DEC-2016	12000	3



T006	Console Table	17-NOV-2019	15000	12
B006	Bunk bed	01-JAN-2021	28000	14

- (i) SELECT SUM(DISCOUNT) FROM FURNITURE WHERE COST>15000;
- (ii) SELECT MAX(DATEOFPURCHASE) FROM FURNITURE;
- (iii) SELECT * FROM FURNITURE WHERE DISCOUNT>5 AND FID LIKE "T%";
- (iv) SELECT DATEOFPURCHASE FROM FURNITURE WHERE NAME IN ("Dinning Table", "Console Table");

35. Sony corporation has set up its 4 offices in the city of Srinagar, with its offices X, Z, Y, U:



Branch to Branch distance is given below:

X to Z	40 m
Z to Y	60 m
Y to X	135 m
X to U	70 m
Z to U	165 m
Z to U	80 m

Number of computers in each of the offices is as follows:

X	50
Z	130
Y	40
U	15

- (i) Suggest a suitable cable layout of connectivity of the offices.
- (ii) Suggest placement of server in the network with suitable reason.
- (iii) Suggest placement of following devices in the network:
 - (a) Switch/Hub
 - (b) Repeater
- (iv) Suggest a suitable topology for connecting the computers in each building.

SECTION - E

36. Consider the table APPLICANTS

TABLE: APPLICANTS					
No	NAME	FEE	GEN-DER	C_ID	JOINYEAR

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1012	Amandeep	30000	M	A01	2012
1102	Avisha	25000	F	A02	2009
1103	Ekant	30000	M	A02	2011
1049	Arun	30000	M	A03	2009
1025	Amber	40000	M	A02	2011
1106	Ela	40000	F	A05	2010
1017	Nikita	35000	F	A03	2012
1108	Arluna	30000	F	A03	2012
2109	Shakti	35000	M	A04	2011
1101	Kirat	25000	M	A01	2012

- (i) Which field qualifies to be the Primary key.
- (ii) If all the records of Male applicants are deleted, what will be the cardinality of the table.
- (iii) Write statements to
- Increase FEE of "M" (Male) applicants by 2000.
 - Display details of "F" (Female) applicants in descending order of FEE.

or

(Option for part (iii) only)

Write statements to

- Change width of column FEE to 20.
- Remove the column C_ID.

37. (a) Carefully observe the following Python code and answer the question that follow:

```
x = 5
def func2():
    x = 3
    global x
    x = x + 1
    print(x)
    print(x)
```

On execution the above code, produces the following output:

6 3

Explain the output with respect to the scope of the variables.

- (b) Write the code to create a table Product in database Inventory with following fields

Fields	Datatype
PID	varchar(5)
PName	char(30)
Price	float
Rank	varchar(2)

Note the following to establish the connection between Python and MySQL:

Host : localhost

Username : system

Password : hello

Database : Inventory

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