

Sample Paper 09
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
“A tuple is a immutable data type.”
2. The alternate to math.pow() function is _____ operator.
(a) ** (b) ^ .
(c) + = (d) /
3. Two tables are joined using a common field known as _____.
(a) Alternate key (b) Foreign key
(c) Candidate key (d) None of these
4. To print all elements of tuple in reverse order using _____.
(a) [: - 1] (b) [: : - 1]
(c) [1 : :] (d) [: : 1]
5. Given : s=“Rajkumar@gmail.com”. What will be the output of print (s[2: :2]) ?
(a) ‘juagalcm’ (b) ‘jua@galcm’
(c) ‘ajua@galcm’ (d) ‘jua@gmalcm’

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

```
sentence = "Learning Python"  
print(sentence[8:15])
```

7. Which of the following Python functions do not require importing of a module?

- (a) type() (b) input()
(c) sqrt() (d) Both (a) and (b)

8. Which of the following modes open a text file, such that the new data is written in it keeping the existing contents ?

- (a) r+ (b) rw+
(c) w+ (d) a

9. The _____ clause with the update command specifies the attribute to be modified.

- (a) FIELD (b) ATTRIBUTE
(c) CHANGE (d) SET

10. Complete the code by filling in the blank with the appropriate line to move the file pointer:

```
file = open("output.txt", "r")  
data = file.read(20)  
file.seek(5) # Move the file pointer to position 5  
next_data = file.read(10)  
file.close()
```

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

The `raise` statement in Python is used to manually trigger an exception.

12. Which type of network is typically used for a single site, covering a small range around an individual, such as in a home or office setup?

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

13. Determine the output of the following code:

```
s1 = 'Hello'  
s2 = 'World'  
s = s1 + s2  
print(s)
```

- (a) Hello World (b) HelloWorld
(c) 'Hellow' 'World' (d) Error

14. The _____ clause with GROUP BY, can filter groups from the query output.

- (a) WHERE (b) FILTER
(c) HAVING (d) CHECK

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15. Given a list L= [6,12,9,40,2,1]. Which of the following statements will arrange the list in reverse order
- (a) L.arrange() (b) L.sort()
(c) L.sort(reverse=True) (d) L.sort(reverse=False)
16. Which method returns the next row from the result set as a tuple?
- (a) fetchone() (b) fetchmany()
(c) fetchall() (d) rowcount
17. An alternate key can be
- (a) only 1 in a table. (b) a table can have maximum 2 alternate keys.
(c) a table can have at most 3 alternate keys. (d) multiple in a relation.
18. Which SQL category provides statements for manipulating database objects?
- (a) DDL (b) DML
(c) DCL (d) TCL
19. Which attribute is used to return access mode with that file was opened?
- (a) file.mode (b) mode.file
(c) file*mode (d) None of these

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

20. **Assertion (A)** : A python function can return more than one value to the calling function.
Reason (R) : The return statement takes only a list as parameter.
- (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)** : While opening a binary file the mode may not be specified.
Reason (R) : The open function for file opening by default takes the mode parameter as 'rb' for binary files, if no mode is specified.
- (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.

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SECTION B

22. Find the output of the following code :

```
i = 1
while (i < 5):
    print(i)
    i = i * 2
```

23. (a) Correct the error if any in the following statement.

(i) $a + 5 = b$

(ii) $1 = 2b + c * d$

(iii) `name = Aryan`

(iv) $a = 20$

```
print a;
```

(b) Evaluate the following expression

If $a = b = 10, c = 5$

$a = b*3//4 + c//4 + 4 - b + 5//6$

24. Provide one appropriate example of a URL and a domain name.

or

Is it possible to use a URL to access a webpage? If so, how?

25. Explain the UPDATE command in SQL, including its basic syntax and an example.

26. (a) Write any two characteristics of IP address.

(b) What is VoIP?

27. Write the one example of following terms.

(i) Identifier

(ii) Punctuator

(iii) Keyword

(iv) Constant

or

What will be the output of the following code?

```
a, b = 8, 4
x, y = a + b, b - 2
z = x - y
print("x:", x, "y:", y, "z:", z)
```

28. Expand the following abbreviation :

(i) SQL

(ii) DML

(iii) DDL

(iv) TCL

or

Mention two characteristics of SQL.

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SECTION C

29. Write a Python function that accepts a sentence and counts the occurrences of the words “is” and “was”.

Example

Input: “It is what it is. The situation was complex and still is.”

Output:

Number of “is”: 3

Number of “was”: 1

or

Write a definition of a function that takes input a sentence and display the list of words that start with a lowercase vowel and list of words that start with an uppercase vowel separately.

Example

Input : A quick black elephant enters Into a jungle.

Output

List of words starting with lowercase vowels ['elephant', 'enters', 'a']

List of words starting with uppercase vowels ['A', 'Into']

30. How can you create a Python function to repeatedly accept person names and add them to a list, ensuring that each name only contains letters, spaces, and periods (.) without any digits?

or

Find the final contents of a stack that encounters the following tokens.

Assume that an operand is pushed to stack and a binary operator pops two operands from stack and pushes the result to the stack.

100,8,3,*,50,2,+,+,*

31. Write a program that calculates the sum and mean of a series of numbers entered by the user.

or

A user-defined method to open a text file “para.txt” and write its contents to another file after removing the 3rd line

```
def Func():
    with open('Para.txt', 'r') as f:
        l=f.readlines()
    f.close()
    print(l)
    del l[3]
    print(l)
    f=open('Para.txt', 'w')
    f.....
    f.close()
```

- Which module needs to be imported to use operating system functions like rename() and remove().
- Write the function name to open a text file.
- Fill the blank as marked in above code.

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SECTION D

32. (a) Write a Python program to find maximum and minimum elements in a tuple.
 (b) Consider the table MobileStock with following fields
 M_Id, M_Name, M_Qty, M_Supplier
 Write the Python code to fetch all records with fields M_Id, M_Name and M_Supplier from database Mobile.
- or**
- (a) Which of the following are invalid names and why?
 (i) PaidInterest (ii) S-num
 (iii) Percent (iv) 123
- (b) Write the steps for Database connectivity with short explanation of each step.
33. What does tell() method do?
 (a) AddRegistration() :To accept more student registration data and store them to the binary file keeping the existing registration data.
 A Binary file “Registration.dat” exists storing details of students who have been registeredfor CBSE board exams. The file stores following data of students :
 RegnNo StudName class No of subjects
- (b) CountRegistrations() : Display count of registrations using the functions.
34. Consider the following tables PRODUCT and CLIENT

TABLE : PRODUCT			
PID	ProductName	Manufacturer	Price
TP01	Powder	LAK	40
FW05	Face Cleaner	ABC	45
BS01	Liquid Soap	ABC	55
SH06	Dove Shampoo	XYZ	120
FW12	Face Wash	XYZ	95

TABLE : CLIENT			
C_ID	ClientName	City	P_ID
01	Cosmetic Shop	Delhi	FW05
06	Total Health	Mumbai	BS01
12	Life care	Delhi	SH06
15	Pretty Store	Delhi	FW12
16	Dreams	Bengaluru	TP01

- (a) To display the ClientName, City from table CLIENT and ProductName and Price from table PRODUCT, with their corresponding matching P_ID.
 (b) Write SQL queries for statements (i) to (iv)

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- (i) To display the details of those Clients, whose City is Delhi.
- (ii) To display the details of products, whose Price is in the range of 50 to 100 (both values included).
- (iii) To display product name and their manufacturer whose Price is more than 100.
- (iv) To display client name for those whose product id is FW12.

35. Write SQL commands (i) to (iv) for the following tables :

TABLE : STUDENT						
S NO	NAME	STREAM	FEES	AGE	SEX	AID
1	RAJAN KUMAR	COMPUTER	750.00	17	M	A1
2	DEEPA JENEJA	COMPUTER	750.00	18	F	A2
3	KESHAR MEHRA	BIOLOGY	500.00	16	M	A2
4	SACHIN SINGH	ENG. DR	350.00	18	M	A1
5	PRACHI	ECONOMICS	300.00	19	F	A3
6	NISHA ARORA	COMPUTER	750.00	15	F	A3
7	NEEL KUMAR	ECONOMICS	300.00	16	M	A1
8	SARIKA VASWANI	BIOLOGY	500.00	15	F	A1

TABLE: ADDRESS	
AID	City
A1	Jaipur
A2	Bengaluru
A3	Delhi

- (i) List the name of all the students, who have taken stream as COMPUTER.
- (ii) To count the number of female students.
- (iii) To display the number of students stream wise.
- (iv) To display names of the students with corresponding cities.

or

Write the command to display all the tables in the database.

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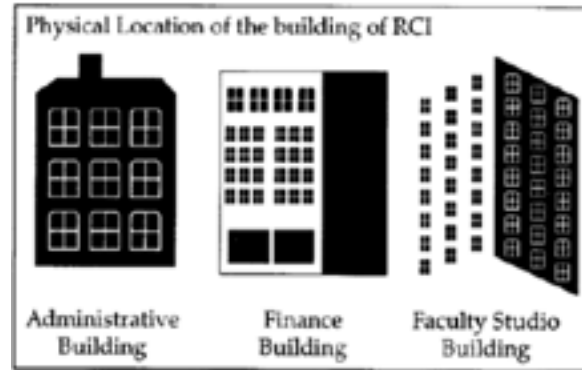
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SECTION E

36. Expertia Professional Global (EPG) is an online corporate training provider specializing in IT-related courses. The company is establishing a new campus in Mumbai, and as a network expert, you are tasked with analyzing the physical layout of various buildings and determining the optimal number of computers to be installed in each location. During the planning phase, you must provide the most effective solutions for the queries (i) to (v) that have been raised by the company..

Physical locations of the buildings of EPG



Building to building distance (in metre)

From	To	Distance
Administrative Building	Finance Building	60
Administrative Building	Faculty Studio Building	120
Finance Building	Faculty Studio Building	70

Expected computers to be installed in each building

Buildings	Computers
Administrative Building	20
Finance Building	40
Faculty Studio Building	120

- Suggest the most appropriate building, where EPG should plan to install the server.
- Suggest the most appropriate building to building cable layout to connect all three buildings for efficient communication.
- Which type of network out of the following is formed by connection the computers of these three buildings?
 - LAN
 - MAN
 - WAN
- Write the difference between LAN and MAN.
- Expand the following
 - WAN
 - MAN

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37. Consider the following table ORDERS :

TABLE : ORDERS			
O_Id	Order Date	OrderPrice	Customer
1	2008/11/12	1000	Hansen
2	2008/10/23	1600	Nilsen
3	2008/09/02	700	Hansen
4	2008/09/03	300	Hansen
5	2008/08/30	2000	Jensen
6	2008/10/04	100	Nilsen

- (i) Write a statement to create the above table.
- (ii) Write a command to change the width of Customer column to varchar(30)
- (iii) Write statements to :
- (a) Display the field names, their type , size and constraints .
- (b) Display details of orders where orderprice is in the range 500 to 1500

or (Option for part iii only)

- (a) Write a command to increase orderprice of all orders by 15%.
- (b) Name the constraint that will restrict both NULL and DUPLICATE values in the O_Id field.

END

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