SAMPLE QUESTION PAPER - 1
Computer Science (083)
Class XII (2024-25)

Time Allowed: 3 hours

Maximum Marks: 70

General Instructions:

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

Section A

1. State true or false: [1]

   Do both the following represent the same list.
   ['a', 'b', 'c']
   ['c', 'a', 'b']

2. Which of the following is not an aggregate function? [1]

   a) Min   b) With

   c) Avg   d) Sum

3. What is the best way to represent attributes in a large database? [1]

   a) All of these   b) Concatenation

   c) Dot Representation   d) Relational-and

4. What will be the output of the following Python code? [1]

   def add (num1, num2):
      sum = num1 + num2
   sum = add(20, 30)
   print(sum)

   a) None   b) Null

   c) 50   d) 0

5. Discuss the utility and significance of Tuples, briefly. [1]

6. CDMA stands for? [1]

a) Call Division Multiple Access   b) Channel Division Multiple Access

c) Cell Division Multiple Access   d) Code Division Multiple Access

7. To read the entire remaining contents of the file as a string from a file object infi, we use   **[1]**

     a) infi.readlines( )   b) infi.read(all)

     c) infi.readline( )   d) infi.read( )

8. Which command is used to display the name of existing databases?   **[1]**

     a) show databases;   b) display databases;

     c) result databases;   d) output databases;

9. Which operator performs pattern matching?   **[1]**

     a) LIKE operator   b) BETWEEN operator

     c) INTO operator   d) EXISTS operator

10. Write a line of code that writes "Hello world!" to a file opened with file object my file.   **[1]**

11. State true or false: **[1]**

     In Python, a variable is a placeholder for data.

12. Process of removing an element from stack is called _____.   **[1]**

     a) Evaluation   b) Push

     c) Create   d) Pop

13. Differentiate between commands DROP TABLE and DROP VIEW in SQL.   **[1]**

14. A _____ is a network spread across a small area connecting various related devices such as laptop,   **[1]**
mobile phone, wifi, printers etc.

     a) WAN   b) MAN

     c) PAN   d) LAN

15. Which of the following four code fragments will yield following output?   **[1]**
Ziva

Diva

Riva

[Notice blank lines in between]

Select all of the function calls that result in this output.

     a) print('Ziva
       Diva
       Riva')   b) print("'ZivaDivaRiva'")

     c) print('Ziva\nDiva\nRiva')   d) print("'Ziva
                                \nDiva

\nRiva'")

16. Which of the following sublanguages of SQL is used to define the structure of the relation, deleting relations and relating schemas? **[1]**

   a) Relational Schema

   b) DDL (Data Definition Language)

   c) DML (Data Manipulation Language)

   d) Query

17. Find ODD parity bit for 11100011 **[1]**

   a) 1

   b) 2

   c) 3

   d) 0

18. Which command is used for finding the IP address and default gateway of your network? **[1]**

   a) netstat

   b) ping

   c) ipconfig

   d) ifconfig

19. **Assertion (A):** While creating series by specifying data as a scalar value, the index must be provided. **[1]**
   Reason (R): The scalar value is repeated to match the length of the index.

   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.

20. **Assertion (A):** By using "a" access mode, it appends the content to the file if the file already exists with the specified name. **[1]**
   Reason (R): By using "w" access mode, It overwrites the existing file.

   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):** A function doesn't accept the parameter. **[1]**
   Reason (R): The function block is started with the colon (:) and block statements must be at the same indentation.

   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. Define the following terms: **[2]**

   i. Amplitude modulation

   ii. Frequency modulation

23. Given below is a table Item in database Inventory. **[2]**

ItemID	ItemName	Quantity	UnitPrice
101	ABC	5	120
102	XYZ	7	70
103	PQR	8	65
104	XYZ	12	55

Riya created this table but forget to add column ManufacturingDate. Can she add this column after creation of table? If yes, write the code where user's name and password are system and test respectively.

24. To find the number is even or odd with compound statement. **[2]**

OR

Predict the output of the following code fragment.

b = 20
a = 90/b
print("value of a is :", a)

25. Which data will get added in table Company by following code? **[2]**

```
import mysql.connector
con = mysql.connector.connect(host = "localhost",user = "system",passwd = "hello",database = "connect")
cur = con.cursor()
sql = "insert into Company(Name, Dept, Salary) values (%s, %s, %s)"
val = ("ABC", "DBA", 35000)
cur.execute(sql, val)
con.commit()
```

26. Write a program that repeatedly asks from users some numbers until string 'done' is typed. The program should print the sum of all numbers entered. **[2]**

OR

Predict the output of following code fragment:
```
fruit = { }
fl = ['Apple', 'Banana', 'apple', 'Banana']
for index in fl :
if index in fruit:
fruit [index] += 1
else:
fruit[index] =1
print(fruit)
print (len(fruit))
```

27. Write a program that check to see if the file name exists, it will give you an error message, if not, it will create the file. **[2]**

OR

Write a program to count the number of uppercase letters in a text file "Article.txt".

28. What are the errors in the following codes? Correct the code and predict output: **[2]**

```
i. total = 0;
   def sum(arg1, arg2):
   total = arg1 + arg2;
   print("Total:", total)
   return total;
   sum(10, 20);
   print("Total :", total)
```

```
ii. def Tot(Number) #Method to find Total
   Sum = 0
   for C in Range (1, Number + 1) :
   Sum += C
   RETURN Sum
   print (Tot[3]) #Function Calls
   print (Tot[6])
```

Section C

29. Consider a function with following header: [3]

   def info(object, spacing = 10, collapse = 1)

   Here are some function calls given below. Find out which of these are correct and which of these are incorrect stating reasons?

   For correct function call statements, specify the argument values too.

   i. info(obj1)

   ii. info(spacing=20)

   iii. info(obj2, 12)

   iv. info(obj11, object = obj12)

   v. info(obj3, collapse = 0)

   vi. info( )

   vii. info(collapse = 0, obj3)

   viii. info(spacing = 15, object = obj4)

OR

What will be the output of following programs?

```
i. num = 1
   def myfunc():
   return num
   print(num)
   print(myfunc())
   print(num)
```

```
ii. num = 1
   def myfunc():
   num = 10
   return num
   print(num)
```

```
    print(myfunc())
    print(num)
iii. num = 1
    def myfunc():
    global num
    num = 10
    return num
    print(num)
    print(myfunc())
    print(num)
iv. def display ():
    print ("Hello", end = ' ')
    display()
    print("there!")
```

30. What do you understand by Union and Cartesian Product operations performed upon two relations? **[3]**

<p align="center">OR</p>

a. A SQL table **BOOKS** contains the following column names:
   BOOKNO, BOOKNAME, QUANTITY, PRICE, AUTHOR
   Write the SQL statement to add a new column **REVIEW** to store the reviews of the book.

b. Write the names of any two commands of **DDL** and any two commands of **DML** in SQL.

31. From the program code given below, identify the parts mentioned below : **[3]**
    1. def processNumber(x):
    2. x = 72
    3. return x + 3
    4.
    5. y = 54
    6. res = processNumber(y)

    Identify these parts: function header, function call, arguments, parameters, function body, main program.

<p align="center">OR</p>

Answer the questions (i) to (iv) based on the following:

```
class Book
{
char Bno[20];
protected:
float Price;
public:
void GetB();
void ShowB();
};
class Member
{
char Mno[20];
```

```
protected:
char Name[20];
public:
void GetM();
void ShowM();
};
class Library : public Member, private Book
{
char Lname[20];
public:
void GetL();
void ShowL();
};
void main()
{
Library L;
}
```

i. Which type of Inheritance out of the following is illustrated in the above example?

   - **Single Level Inheritance, Multilevel Inheritance, Multiple Inheritance**

ii. Write the names of **all the data members,** which are directly accessible by the member function **GetL()** of class **Library.**

iii. Write the names of **all the member functions,** which are directly accessible by the member function **ShowL()** of class **Library.**

iv. Write the names of **all the members,** which are directly accessible by the object **L** of class **Library** declared in the **main()** function.

Section D

32. Write Addnew(Book) and Remove(Book) methods in Python to Add a new Book and Remove a Book   **[4]**
    from a List of Books, considering them to act as PUSH and POP operations of the data structure stack.

                                        OR

    Write a function to push any student's information to stack.

33. Write a point of difference between append **(a)** and write **(w)** modes in a text file.   **[4]**
    Write a program in Python that defines and calls the following user defined functions:

    i. Add_Teacher() : It accepts the values from the user and inserts the record of a teacher to a csv file 'Teacher.csv'. Each record consists of a list with field elements as **T_id, Tname** and **desig** to store teacher ID, teacher name and designation respectively.

    ii. Search_Teacher() : To display the records of all the PGT (designation) teachers.

34. Give output for following SQL queries as per given table(s):   **[4]**

Table : CLUB

COACH-ID	COACHNAME	AGE	SPORTS	DATEOFAPP	PAY	SEX
1.	KUKREJA	35	KARATE	27/03/1996	1000	M
2.	RAVINA	34	KARATE	20/01/1998	1200	F

Write the Python code for the following

i. To display details of those mobiles whose price is greater than 8000.

ii. To increase the price of mobile Samsung by 2000.

Section E

36. Knowledge Supplement Organisation has set up its new center at Mangalore for its office and web-based **[5]** activities. It has 4 blocks of buildings as shown in the diagram below:
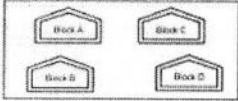
21

Center to center distances between various blocks

Block A to Block B	50 m
Block B to Block C	150 m
Block C to Block D	25 m

Number of Computers

Block A	25
Block B	50
Block C	125
Block D	10

i. What type of network will be formed if all blocks are connected?

ii. Suggest the most suitable place (i.e., block) to house the server of this organisation with a suitable reason.

iii. Suggest the placement of the following devices with justification

a. Repeater

b. Hub/Switch

iv. The organization is planning to link its front office situated in the city in a hilly region where cable connection is not feasible, suggest an economic way to connect it with reasonably high speed.

37. Write SQL queries for (i) to (vii) on the basis of tables given below: **[5]**

Table: PRODUCTS

PID	PNAME	QTY	PRICE	COMPANY	SUPCODE
101	DIGITAL CAMERA 14X	120	12000	RENBIX	SOI
102	DIGITAL PAD 11 i	100	22000	DIGI POP	S02
104	PEN DRIVE 16 GB	500	1100	STOREKING	SOI
106	LED SCREEN 32	70	28000	DISPEXPERTS	S02
105	CAR GPS SYSTEM	60	12000	MOVEON	S03

Table: SUPPLIERS

SUPCODE	SNAME	CITY
S01	GET ALL INC	KOLKATA
S03	EASY MARKET CORP	DELHI

S02	DIGI BUSY GROUP	CHENNAI

i. To display the details of all the products in ascending order of product names (i.e., PNAME).

ii. To display product name and price of all those products, whose price is in the range of 10000 and 15000 (both values inclusive).

iii. To display the number of products, which are supplied by each supplier, i.e., the expected output should be;

S01 2

S02 2

S03 1

iv. To display the price, product name, and quantity (i.e., qty) of those products which have a quantity of more than 100.

v. To display the names of those suppliers, who are either from DELHI or from CHENNAI.

vi. To display the name of the companies and the name of the products in descending order of company names.

vii. Obtain the outputs of the following SQL queries based on the data given in tables PRODUCTS and SUPPLIERS above.

a. SELECT DISTINCT SUPCODE FROM PRODUCTS;

b. SELECT MAX (PRICE), MIN (PRICE) FROM PRODUCTS;

c. SELECT PRICE*QTY FROM PRODUCTS WHERE PID = 104;

d. SELECT PNAME, SNAME FROM PRODUCTS P, SUPPLIERS S WHERE P. SUPCODE = S. SUPCODE AND QTY >100;

OR

Write SQL queries for (i) to (iv) and find outputs for SQL queries (v) to (viii), which are based on the tables:

TABLE: BOOK

Code	BNAME	TYPE
F101	The Priest	Fiction
L102	German easy	Literature
C101	Tarzan in the lost world	Comic
F102	Untold story	Fiction
C102	War heroes	Comic

TABLE: MEMBER

MNO	MNAME	CODE	ISSUEDATE
M101	RAGHAV SINHA	LI 02	2016-10-13
M103	S ARTHAKJ OHN	FI 02	2017-02-23
M102	ANISHA KHAN	C101	2016-06-12

i. To display all details from table MEMBER in descending order of ISSUEDATE.

ii. To display the BNO and BNAME of all Fiction Type books from the table Book.

iii. To display the TYPE and number of books in each TYPE from the table BOOK.

iv. To display all MNAME and ISSUEDATE of those members from table MEMBER who have books issued (i.e., ISSUEDATE) in the year 2017.

v. SELECT MAX (ISSUEDATE) FROM MEMBER

vi. SELECT DISTINCT TYPE FROM BOOK

vii. SELECT A.CODE, BNAME, MNO. MNAME FROM BOOK A. MEMBER B WHERE A.CODE= B.CODE

viii. SELECT BNAME FROM BOOK WHERE TYPE NOT IN ("FICTION", "COMIC")

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Section A

1.

   (b) False

   29.7

   Explanation:

   False

   The lists are ordered.

2.

   (b) With

   Explanation:

   With is not an aggregate function. The avg is used to find the average, the sum is used to sum the number of values and min is used to find the minimum.

3.

   (b) Concatenation

   Explanation:

   Example inst sec and student sec

4. **(a)** None

   Explanation:

   None

5. The tuple is similar to lists but the value of the items stored in the list can be changed, whereas the tuple is immutable, and the value of the items stored in the tuple cannot be changed.

6.

   (d) Code Division Multiple Access

   Explanation:

   CDMA stands for Code Division Multiple Access. In this, each user is allocated a unique code sequence, that is used to encode/decode the original data.

7.

   (d) infi.read( )

   Explanation:

   read( ) function reads the whole file and returns the text of the file as a string.

8. **(a)** show databases;

   Explanation:

   show databases;