Group A

Multiple choice questions $(1\times9=9)$

1. DBMS is an interface between ......
   - a. Database and User
   - b. Database application and database
   - c. Database and SQL
   - d. Data and Database

2. Neither multivalued nor composite attributes, nor their combinations, may be used in the ___ normal form.
   - a. First
   - b. Second
   - c. Third
   - d. fourth

3. The term .... is used to refer a row.
   - a. Attribute
   - b. Tuple
   - c. Field
   - d. Instance

4. HTTP is an example of?
   - a. Session Layer
   - b. Presentation Layer
   - c. Data Link Layer
   - d. Application Layer

5. What is the output of the following JS code?

```
var name= function name(){
console.log('2nd term');
}

function name(){
console.log('Exam');
}

name();
```
   - a. Exam
   - b. 2nd term
   - c. 2nd term Exam
   - d. Exam 2nd term

6. What is the output of the following JS code?

```
var total = 0;
for (var i = 1; i<= 4; i++) {
    var product = 1;
    for (var j = i; j <= i + 1; j++) {
        product *= j;
    }
    total += (product % 3 === 0) ? product / 2 : product;
}
console.log(total);
```
   - a. 21
   - b. 25
   - c. 31
   - d. 35

7. What will be the output of the following C code?

```
#include <stdio.h>
int res(int start, int end);
int main() {
printf("%d", res(2, 8));
    return 0;
}
int res(int start, int end) {
    if (start > end)
        return 0;
    else if (start % 2 == 0)
        return start * start + res(start + 2, end);
    else
        return res(start + 1, end);
}
```
   - a. 120
   - b. 125
   - c. 118
   - d. 121

8. In OOP, what term is used to represent a specialized version of a class?
   - a. Instance
   - b. Class
   - c. Object
   - d. Subclass

9. Which OOP principle emphasizes the idea that the behavior of an object can vary based on its type or class?

a. Encapsulation
b. Polymorphism
c. Abstraction
d. Inheritance

Group B

Short answer questions. (5×5=25)

1. Create an SQL query to establish a 'school' database, including a 'students' table with fields 'student_id' (auto-incremented primary key), 'name', 'grade', 'marks_math', 'marks_english', and 'marks_computer'. Write SQL query to perform the following operations. (5)

   a. Insert a minimum of five records into the 'students' table.

   b. Write an SQL query to present the names and grades of students who attained a score of 80 or higher across all subjects.

   c. Additionally, provide an SQL query to display the names in alphabetical order.

2. Differentiate between Centralize and Distributed database system. (5)

3. Discuss the concept of Object-Oriented Programming (OOP) and elaborate on the concept of: (3+2)

   a. Class and Object

   b. Polymorphism.

4. Design an HTML page that includes two text boxes and two buttons as described below. (5)

Enter string [   ]

Result [   ]

[Length] [Uppercase]

When a string is entered, clicking the "Length" button should show the length of the entered string in the Result field. Similarly, pressing the "Uppercase" button should display the uppercase version of the string in the Result field. Develop JavaScript code to manage these functionalities.

5. Write a C program to print prime number from 1 to n using function with argument and return type. (5)

Group C

Long answer questions. (8×2=16)

1. a. Explain Attenuation and Crosstalk. (2)

   b. Briefly explain star, ring and mesh topology with their advantages and disadvantages along with their diagram. (6)

2. a. What are the supporting units used by a function? (1)

   b. Write a C program to find factorial of number using recursion. (3)

   c. Write a C program to multiply two 3*5 matrices and display all the matrices in proper format using user defined function. (4)

'Good Luck'