NIOS PYQ's SOLUTIONS

PREVIOUS YEARS' QUESTIONS & ANSWERS

APRIL-2024

Your Path to Success

SECTION - A

1. (i) The _____ tag in HTML allows the user to create an image in Web page.

(A) <image> **(B) <img>**

(C) <imag> **(D) <im>**

Ans - (B) <img>

OR

(ii) The _____ attribute is used to specify the URL of image for the Web page.

(A) src **(B) align**

(C) border **(D) height**

Ans - (A) src

2. (i) File > Print in presentation is equal to -

(A) Ctrl+N **(B) Ctrl+Q**

(C) Ctrl+P **(D) Ctrl+S**

Ans - (C) Ctrl+P

OR

(ii) Ctrl+N in presentation is equal to

(A) Save **(B) Save As**

(C) New **(D) Print**

Ans - (C) New

3. <OL> tag is used to create an _____ list in HTML.

(A) unordered **(B) ordered**

(C) organised **(D) unorganised**

Ans - (B) Ordered

4. sqrt(x) is a _____ function in C++.

(A) string **(B) mathematical**

(C) Character **(D) text**

Ans - (B) Mathematical

5. (i) Which of the following is used for making a text italic in HTML?

(A) <italic> **(B) <italics>**

(C) <i> **(D) <textitalic>**

Ans. (C) <i>

OR

(ii) Which of the following is used for displaying the text "NIOS" in BOLD UNDERLINE in HTML?

(A) <bu>NIOS</bu> **(B) <u>NIOS</u>**

(C) <u>NIOS</u> **(D) <ub>NIOS</ub>**

Ans - (C) <u>NIOS</u>

6. (i) _____ is used to represent tags in HTML.

(A) [] **(B)<>**

(C) () **(D) {}**

Ans - (B)<>

OR

(ii) Face is the attribute of _____ tag.

(A) <body> **(B) <html>**

(C) <font> **(D) <image>**

Ans - (C) <font>

7. (i) A pointer is a variable that represents the location of a data item such as.

(A) variable **(B) array element**

(C) Both (A) and (B) **(D) program**

Ans - (C) Both (A) and (B)

OR

(ii) Find the output produced by the following program segment. Assume all the header functions are included:

```
void main ()
{
int a=22;
int *b=&a; *b =* b+2;
cout <<* b;
}
```

Ans - Output

The program will output : 24

8. _____ file format is the best option for images with transparency effects.

(A) jpg **(B) jpeg**

(C) gif **(D) png**

Ans - (D) png

9. _____ attribute is used to specify the thickness in the <HR> tag.

(A) Width **(B) Size**

(C) Border **(D) Noshade**

Ans - (B) Size

10. _____ is a component of the OpenOffice Impress Windows which displays the name of the file and name of the application along with minimize, maximize and close buttons.

(A) Workspace **(B) Title bar**

(C) Cell **(D) Status bar**

Ans - (B) Title bar

11. _____ features allows us to embed objects like charts, pictures, audio, video, etc. in our document.

(A) Object-linked evidence

(B) Object linking and embedding

(C) Oral limited embedding

(D) None of the above

Ans - (B) Object linking and embedding

12. (i) Autofill feature of OpenOffice Calc supports which of the following datatypes?

(A) Numerical **(B) String**

(C) Both Numerical and String **(D) None of the above**

Ans - (C) Both Numerical and String

OR

(ii) Active cell in OpenOffice Calc is identified by having

(A) Yellow colour filled on it

(B) Red colour border across it

(C) Thick black outline

(D) Thick red outline

Ans - (C) Thick black outline

13. Expand ISP.

Ans - Internet Service Provider

14. (a) The octal equivalent of $(200)_{10}$ is _____.

Ans - 310_8

OR

(b) The binary equivalent of 45 is_____.

Ans - $(101101)_2$

15. (a) What will be the output produced by the following program if the value of the variable x is 15 and y is 6?

```
#include<iostream.h>
int main ()
{
int x, y;
cin>>x>>y;
if(x>y)
cout << "Smiley face";
else
cout << "Sad face";
}
```

Ans - (a) Program Analysis:

```
#include<iostream.h>
int main()
{
   int x, y;
   cin >> x >> y;
   if (x > y)
      cout << "Smiley face";
```

```
    else
        cout << "Sad face";
}
```

Input values : and

The condition if (x > y) is checked:

→ true

Final Output : Smiley face

OR

(b) What will be the output produced by the following program if the value of the variable x is 3 and y is 4?

```
#include <iostream.h>
void main ()
{
int x, y, z;
cin>>x;
cin>>y;
z=x*x+y;
   if(x>y)
cout << "Good morning";
else
cout << "Good evening";
}
```

Ans - (b) Program Analysis:

```
#include <iostream.h>
void main()
{
```

```
    int x, y, z;
    cin >> x;
    cin >> y;
    z = x * x + y;
    if (x > y)
        cout << "Good morning";
    else
        cout << "Good evening";
}
```

Input values: and

The program performs the following operations:

It checks the condition if (x > y):

→ false

Final Output : Good evening

16. (a) The decimal equivalent of $(D2A)_{16}$ is _____.

Ans - (a) The decimal equivalent of $(D2A)_{16}$ is **3370** .

OR

(b) The decimal equivalent of the binary number is 1100 is _____.

Ans - The decimal equivalent of the binary number is 1100 is **12** .

17. (a) Which tag is used to create a paragraph in a Web page?

Ans - <p> tag is used to create a paragraph in a Web page

OR

(b) Which tag is used to create link break in a Web page?

Ans -
 tag is used to create link break in a Web page.

18. (a) What is the header file for acos(x)?

Ans - The header file for acos(x) is math.h.

OR

(b) What is the header file for isdigit(c)?

Ans - The header file for isdigit(c) is ctype.h.

19. What is the ASCII value of 'A'?

Ans - The **ASCII** (American Standard Code for Information Interchange) value of 'A' is 65 in decimal.

20. Expand WWW.

Ans - The World Wide Web **(WWW)** or simply the 'web' is a system of Internet servers that support documents formatted using HTML.

21. Consider the following program. What output will be produced if the value for the variable ch is entered as 'B'?

```
#include <iostream.h>
void main ()
{
char ch;
cin>>ch;
switch(ch)
{
case 'A' :          cout << "A Grade"; break;
case 'B':           cout << "B Grade";
case 'C':           cout << "C Grade"; break;
case 'D':           cout << "D Grade"; break;
default:
cout << "NO Grade";
        }
}
```

Ans - The given program will produce the following output if the value for the variable ch is entered as 'B':

Output : B GradeC Grade

22. (a) What will be the output produced by the following code?

```
#include<iostream.h>
void main()
{
int i, s=0;
for(i=1;i<5;i++)
    {
s=s-i;
     }
cout << s;
}
```

Ans - Output :

The program prints the value of s, which is -10.

Key Point : The loop subtracts the values of i (from 1 to 4) from s, resulting in s = -10 at the end of the loop.

OR

(b)

```
#include <iostream.h>
int main()
{
int i=0, s=0;
while(i<5)
{
s=s-i;
i++;
}
cout << s;
}
```

Ans - Output : -10

23. (a) Write a C++ program to create a structure named STUDENT using the following members:

Name : string of 20 characters

Marks : integer number

Ans - C++ program that defines a structure named STUDENT with a name and marks. It also takes input from the user and displays the student's details.

```
#include <iostream>
#include <string>
using namespace std;
struct STUDENT {
    char name[20];
    int marks;
};
int main() {
    STUDENT s;
    cout << "Enter student name (max 20 characters): ";
    cin.getline(s.name, 20);
    cout << "Enter student marks: ";
    cin >> s.marks;
    cout << "\nStudent Details:" << endl;
    cout << "Name: " << s.name << endl;
    cout << "Marks: " << s.marks << endl;
    return 0;
}
```

OR

(b) What does the following statement do? typedef int b;

Ans - The statement typedef int b; creates a new type alias, b, for the int data type. This means that, after this typedef, you can use b anywhere an int would be used in your code. **For example :**

b a = 5; **// Equivalent to: int a = 5;**

In this case, b is just another name for int, so the variable a is still an integer, but you can refer to it as b instead of int.

24. What will be the output produced by the following code snippet? Assume all header files included :

```
#include<iostream.h>
void change(int);
void main()
{
int a = 5;
cout << "a=" << endl;
change(a);
cout << "a=" << a;
}
void change (int b)
{
b=20 ;
}
```

Ans - Output :

a=

a=5

Key Points :

- The change function does **not** modify the value of a in the main function because the parameter b is passed by value.

- The first cout statement does not print the value of a due to the missing << a in the statement. This is likely a mistake in the code, but we are solving it as given.

25. Fill in the blanks (any two) :

(a) The output stream in file handling requires _____.

Ans - The output stream in file handling requires **ofstream** .

(b) seekg() moves_____ to a specified location.

Ans - seekg() moves **get pointer** to a specified location.

(c) Input pointer is also known as_____.

Ans - Input pointer is also known as **get pointer** .

(d) The function open() have_____ parameters.

Ans - The function open() have **Two** parameters.

26. State whether the following statements are True or False (any two) :

(a) Considering the structure variable student, student ptr declares a pointer variable ptr to a student.

Ans - True (In **C++**, student *ptr; declares a pointer variable ptr that can store the address of a student structure.)

(b) Object pointers are used to create objects during runtime.

Ans - True

(c) A pointer is a user defined function which is equal to a simple variable in C++.

Ans - False

27. Give one word for the following blanks (any two) :

(a) _____ means arranging data in ascending or descending order.

Ans - **Sorting** means arranging data in ascending or descending order.

(b) _____ is the combination of absolute and relative referencing.

Ans - **Mixed referencing** is the combination of absolute and relative referencing.

(c) _____ feature of OpenOffice Calc blocks or hides the data based on specified criteria for a column.

Ans - **Filtering** feature of OpenOffice Calc blocks or hides the data based on specified criteria for a column.

(d) A _____ is a form of pictorial representation of data.

Ans - A **chart** is a form of pictorial representation of data.

(e) _____ is used as prefix in front of formula.

Ans - **equals sign (=)** is used as prefix in front of formula.

SECTION B

28. (a) Explain radio wave transmission.

Ans - Radio waves spread in all directions from the source, just like how light from a bulb spreads everywhere. This is called Omni-directional broadcasting. Since the waves travel in all directions, the transmitter (sender) and receiver (receiver) don't need to be perfectly lined up.

OR

(b) Explain router.

Ans - A router is a device that helps different networks communicate with each other. It works like a traffic manager for internet data. A router connects at least two networks (like two LANs or a LAN and the internet). It also helps send data from one network to another so that devices can communicate properly.

29. (a) What do you mean by data integrity?

Ans - Data integrity refers to the accuracy, consistency, and reliability of data throughout its lifecycle. It ensures that data remains unaltered and intact from its creation or input to its storage, retrieval, and eventual deletion.

OR

(b) Define relational database.

Ans - A relational database is a database in which data is organized in two dimensional tables (also called relations). A Table consists of rows (also called tuples or records) and columns (also called attributes or fields).

30. Write SQL queries for the following based on the TEACHER table given below:

TEACHER			
TID	**NAME**	**AGE**	**GENDER**
T01	**ARJUN**	**36**	**M**
T02	**RAJU**	**45**	**M**
T03	**SUMA**	**58**	**F**
T04	**KIRAN**	**44**	**F**
T05	**JENNI**	**38**	**F**

(a) Insert the record T06, VARUN, 45, M into the table TEACHER.

(b) Display the details of the teachers whose age is above 40.

Ans -

(a)

```
INSERT INTO TEACHER (TID, NAME, AGE, GENDER)
VALUES ('T06', 'VARUN', 45, 'M');
```

(b)

```
SELECT * FROM TEACHER
WHERE AGE > 40;
```

Explanation :

1. Insert Query : The **INSERT INTO** statement is used to add a new record to the **TEACHER** table. The columns (TID, NAME, AGE, GENDER) are specified, followed by the corresponding values for the new record.

2. Select Query : The **SELECT*** statement retrieves all columns from the **TEACHER** table where the AGE is greater than 40.

31. Write the steps to move a selected text in Office Writer.

Ans - The steps to move the text are as follows:

1. Select the text that you want to move.

2. Place the mouse pointer anywhere on the selected text.

3. Drag the selected text to the desired place.

You may also use the Cut, Copy and Paste buttons on the Standard toolbar to cut, copy and paste the text in the document respectively.

32. Define empty element in HTML and also provide an example.

Ans - An empty element in HTML is an element that does not have any content or closing tag. These elements are self-closing and are typically used for structural purposes, like adding line breaks, images, or metadata. The <br> tag is an example of an empty element. It is used to insert a line break in the text.

Other Examples of Empty Elements : <img>, <input>, <link>etc.

33. Consider the following code segment :

```
#include<string.h>

#include<string.h>

struct emp { char empname[20]; int salary; };

void main(){

_____/ / statement 1

cin >> struct6.empname;

_____/ / statement 2

}
```

Complete the above code for the following :

Statement 1 : Create two variables struct6 and struct7 of type emp.

Statement 2 : Display the value of the variable empname of the structure variable struct6.

Ans -

```
#include <iostream>
#include <string.h>
using namespace std;
struct emp {
    char empname[20];
    int salary;
};
int main() {
     emp struct6, struct7;
    cin >> struct6.empname;
    cout << struct6.empname;
    return 0;
}
```

Explanation :

1. Statement 1: emp struct6, struct7;

- This declares two structure variables struct6 and struct7 of type emp.

2. Statement 2 : cout << struct6.empname;

- This prints the value of empname stored in struct6.

Additionally, I replaced void main() with int main() as per standard C++ conventions.

34. Write SQL queries to create the following TEACHER table :

TEACHER		
TID	**VARCHAR (6)**	**PRIMARY KEY**
NAME	**VARCHAR (15)**	
AGE	**INT (2)**	
GENDER	**CHAR**	

Ans - To create the TEACHER table as described, you can use the following SQL query:

```
CREATE TABLE TEACHER (
   TID VARCHAR(6) PRIMARY KEY,
   NAME VARCHAR(15),
   AGE INT(2),
   GENDER CHAR
);
```

This query defines a table named TEACHER with four columns :

- **TID** of type VARCHAR(6) which is the primary key.
- **NAME** of type VARCHAR(15).
- **AGE** of type INT(2).
- **GENDER** of type CHAR.

The primary key constraint ensures that each **TID** is unique within the table.

OR

Define decimal and date datatypes.

Ans -

Decimal Data Type : The decimal data type stores exact numeric values with a fixed number of digits before and after the decimal point. It is used for precise calculations, especially in financial applications.

Example : DECIMAL(5, 2) represents a number with 3 digits before the decimal and 2 digits after.

Date Data Type : The date data type stores date values in the format YYYY-MM-DD, representing a specific day without any time information.

Example : 2025-03-18 represents March 18, 2025.

35. Define the following terms (any two) :

(a) Object

(b) Member functions

(c) Destructor

(d) Parameterized constructor

Ans -

(a) An object is an instance of a class that has a unique identity, state (attributes/variables), and behavior (methods/functions). It is created using the blueprint defined by a class.

(b) Member functions are functions defined inside a class that operate on the data members of that class. They help in defining the behavior of the objects and can access private, protected, or public data members of the class.

(c) It is used to destroy the objects that have been created by a constructor. The destructor is a member function whose name is the same as the class name but is preceded by a tilde.

(d) The constructors that can take arguments are called parameterized constructors. It allows different objects to be initialized with different values when they are instantiated.

36. Create a Web page using the following instructions:

(a) The background of the Web page should be yellow.

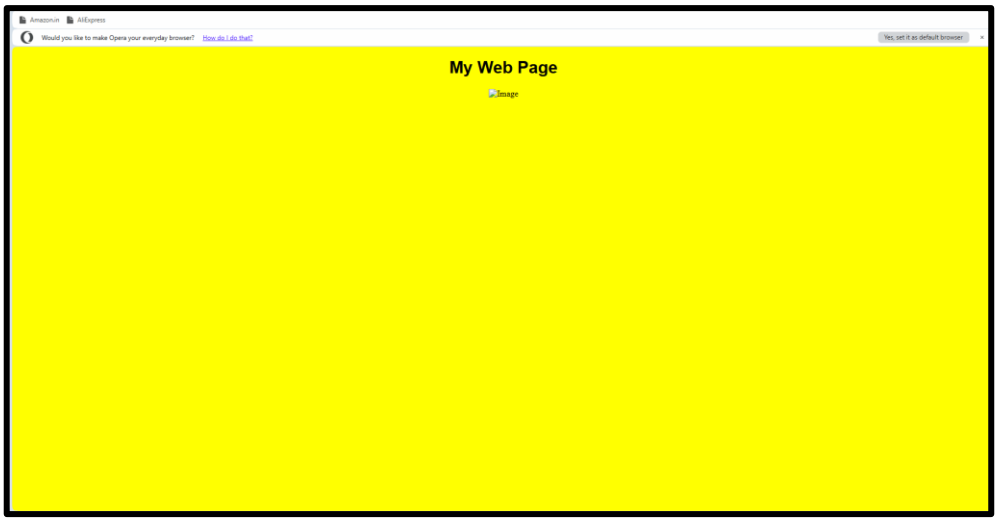
(b) The heading "My Web page" should be in center of the Web page in Arial Bold font with size 6.

(c) An image to be set having the file name "niosB.jpg" with height=20 and width=15.

Ans - Here's the HTML code for your webpage following the given instructions :

```
<!DOCTYPE html>
<html>
<head>
    <title>My Web Page</title>
    <style>
        body {
            background-color: yellow;
            text-align: center;
        }
        h1 {
            font-family: Arial, sans-serif;
            font-size: 32px;
            font-weight: bold;
        }
    </style>
</head>
<body>
    <h1>My Web Page</h1>
    <img src="niosB.jpg" alt="Image" height="20" width="15">
</body>
</html>
```

Example Of Web Page -



37. Define the following terms (any three) :

(a) Tuple

(b) Candidate key

(c) Schema

(d) Logic data model

(e) Relation

Ans -

(a) A tuple is a single row in a database table, representing a set of related data. For example, in a student table, a tuple could be (1, "Alice", "Math"), showing a student's ID, name, and course. Each value in the tuple corresponds to a column in the table.

(b) A candidate key is a column or set of columns that uniquely identifies a row in a table. It must be unique and minimal. For example, in a student table, both student ID and email can be candidate keys if they uniquely identify each student.

(c) A schema is the basic structure of a database. It defines how data is organized, including tables, columns, data types, and relationships. It acts like a blueprint that shows how different parts of the database are connected and how data flows logically.

(d) A logical data model provides a detailed view of a database. While a conceptual model focuses on entities (like students, courses) and their relationships, the logical model describes their attributes in detail.

(e) A relation (or a table) is a collection of data corresponding to the same kinds of entities in a database. A relation may contain data of all the books in a library, or data of all the items in a shop etc. A database contains one or more than one relations.

38. (a) Answer the questions from (i) to (iv) based on the following code, assume all header files are included :

```
class Emp{
int Empno;
char Ename[20];
float salary;
protected:
void Res();
public:
Emp();
void Enr();
void Disp();
}
class Emp1{
long Emp1code;
char Emp1Name[20];
protected:
float salary2;
public:
Emp10);
void Enter();
void Show();
}
class Training: public Emp, private Emp1{
```

long Trcode[10];

char TrName[50];

char StartDate [8], EndDate[8];

public:

Training ();

void Commence ();

void CDetail();

}

(i) Write the names of member functions which are accessible from objects of Class Training.

(ii) Write the names of all the data members which is/are accessible from member function Commence of Class Training.

(iii) Write the names of all the members which are accessible from objects of Class Emp1.

(iv) Which type of inheritance is illustrated in the above C++ code?

Ans -

(i) Since the class Training is derived from Emp (publicly) and Emp1 (privately), we analyze the accessibility of member functions:

1. From Emp (public inheritance) :

- Emp() (Constructor)
- Enr()
- Disp()

Since public members of **Emp** remain **public** in **Training**, these can be accessed from **Training** objects.

2. From Emp1 (private inheritance) :

- Emp1() (Constructor)
- Enter()
- Show()

Since **public** members of **Emp1** become **private** in **Training**, they cannot be accessed directly from **Training** objects.

2. From Training (own members) :

- Training() (Constructor)
- Commence()
- CDetail()

Thus, the accessible member functions from objects of Training are : Enr(), Disp(), Commence(), and CDetail()

(ii) Within the member function Commence() of Training, we can access :

1. From Emp (public inheritance) :

- Res() (Protected, accessible within derived class)
- Empno (Private, not accessible)
- Ename (Private, not accessible)
- salary (Private, not accessible)

Only Res() (protected) can be accessed.

2. From Emp1 (private inheritance) :

- Emp1code (Private, not accessible)
- Emp1Name (Private, not accessible)
- salary2 (Protected, accessible within derived class)
- Only salary2 (protected) can be accessed.

3. From Training itself :

- Trcode
- TrName
- StartDate
- EndDate

Thus, the data members accessible from Commence() in Training are : salary2, Res(), Trcode, TrName, StartDate, and EndDate

(iii) Since Emp1 is an independent class, we analyze its members:

1. **Accessible from objects of Emp1:**

- Enter() (Public)
- Show() (Public)

2. **Not accessible (because they are either private or protected):**

- Emp1code (Private)
- Emp1Name (Private)
- salary2 (Protected)

Thus, the accessible members from objects of Emp1 are : Enter() and Show()

(iv) The inheritance structure in Training is :

- **Public Inheritance from Emp :** This means public members of Emp remain public in Training, and protected members remain protected.
- **Private Inheritance from Emp1 :** This means public and protected members of Emp1 become private in Training.

Thus, the inheritance type illustrated is : Hybrid Inheritance (since Training inherits from Emp using public mode and from Emp1 using private mode).

OR

(b) Define multilevel inheritance. Display the structure by taking an example with proper syntax.

Ans - The mechanism of deriving a class from another derived class is called as multilevel inheritance.

Example Structure :

Class A → Class B (inherits from A) → Class C (inherits from B)

C++ Example :

```
#include <iostream>
using namespace std;
// Base class
class A {
public:
    void showA() {
        cout << "Class A function" << endl;
    }
};
// Derived class from A
class B : public A {
public:
    void showB() {
        cout << "Class B function" << endl;
    }
};
```

```
// Derived class from B
class C : public B {
public:
    void showC() {
        cout << "Class C function" << endl;
    }
};

int main() {
    C obj;
    obj.showA(); // Function of Class A
    obj.showB(); // Function of Class B
    obj.showC(); // Function of Class C
    return 0;
}
```

Output :

Class A **function**

Class B **function**

Class C **function**

Explanation :

1. Class A is the base class.

2. Class B inherits from Class A.
3. Class C inherits from Class B.
4. Object of Class C can access functions of Class A and Class B due to inheritance.

39. (a) Write a program to create an array of N elements, accept a location and number from the user. Insert the accepted number after the location in the array and print the new array.

Ans - Certainly! Below is a C++ program that creates an array of N elements, accepts a location and a number from the user, inserts the number after the specified location, and then prints the new array.

```
#include <iostream.h>
int main()
{
   int n, i, pos, num;
   int a[20];
   cout << "Enter number of elements: ";
   cin >> n;
   cout << "Enter array elements: ";
   for(i = 0; i < n; i++)
      cin >> a[i];
   cout << "Enter location: ";
   cin >> pos;
   cout << "Enter number to insert: ";
   cin >> num;
   for(i = n; i > pos+1; i--)
   {
      a[i] = a[i-1];
   }
   a[pos+1] = num;
   n++;
   cout << "New array: ";
   for(i = 0; i < n; i++)
      cout << a[i] << " ";
   return 0;
```

Example Run :

Enter the number of elements in the array : 5

Enter 5 elements : 10 20 30 40 50

Enter the location (0-based index) after which to insert the number : 2

Enter the number to insert : 25

New array after insertion : 10 20 30 25 40 50

This program will correctly insert the number 25 after the 2nd index (0-based) in the array [10, 20, 30, 40, 50], resulting in the **new array** [10, 20, 30, 25, 40, 50].

OR

(b) Write a C++ program that accepts two numbers from the user and passes to a function, the function will subtract the accepted numbers and return the difference to the main program which display the output to the user.

Ans - Below is a simple C++ program that accepts two numbers from the user, passes them to a function that performs subtraction, and then displays the result.

C++ Program: Subtracting Two Numbers :

```
#include <iostream>
using namespace std;
// Function to subtract two numbers
int subtract(int a, int b) {
    return a - b;
}
int main() {
    int num1, num2, result;
// Accepting input from the user
    cout << "Enter first number: ";
    cin >> num1;
    cout << "Enter second number: ";
    cin >> num2;
 // Calling the function and storing the result
    result = subtract(num1, num2);
 // Displaying the result
    cout << "The difference is: " << result << endl;
    return 0;
}
```

Explanation :

- The program asks the user to enter two numbers.
- The numbers are passed to the subtract() function.
- The function calculates the difference and returns it.
- The main function displays the result.

Output :

```
Enter first number : 10

Enter second number : 3

The difference is : 7
```

NIOS PYQ's SOLUTIONS

PREVIOUS YEARS' QUESTIONS & ANSWERS

OCTOBER-2024

Your Path to Success

SECTION - A

SET – A

1. Identify the attribute of the < img > tag that is used to specify the URL of the image that helps you to create a image in webpage.

(A) Source **(B) url**

(C) src **(D) Path**

Ans - (C) src

2. What is the use of Ctrl + Q in presentation ?

(A) Open a presentation **(B) Close a presentation**

(C) Queue a presentation **(D) Print a Presentation**

Ans - (B) Close a presentation

3. Which of the following is used to create Bulleted List in HTML ?

(A) <bl> **(B) **

(C) ** **(D) <dl>

Ans -

4. Which category of header files among the following has exp(x) function in C++ ?

(A) String **(B) Mathematical**

(C) Character **(D) Text**

Ans - (B) Mathematical

5. Which of the following is used for displaying the text "OCTOBER" in BOLD in HTML ?

(A) <bold> OCTOBER </bl>

(B) <bl> OCTOBER </underline>

**(C) OCTOBER **

(D) <bb> OCTOBER </bb>

Ans - (C) OCTOBER

6. Identify the closing tag for :

(A) </br>

(B) <br//>

(C) no ending tag

(D) <*br>

Ans - (C) no ending tag

7. Find the output produced by the following program segment. Assume all header functions are included.

```
void main()
{ int x = 88;
int *y = &x ;
cout << *y;
}
```

(A) 88

(B) *88

(C) &88

(D) &x

Ans - (A) 88

8. Which of the following attribute is used to specify the width of border for an image in HTML?

(A) line

(B) box

(C) border

(D) blackline

Ans - (C) border

9. Which of the following is used to create line break in HTML?

(A) < break > **(B) < br >**

(C) < line > **(D) < linebreak >**

Ans - (B) < br >

10. Which of the following can be added in an Impress presentation ?

(A) Text **(B) Pictur**

(C) Audio **(D) All the above**

Ans - (D) All the above

11. Which of the following is supported by Word Processor ?

(A) Creating data **(B) Formatting data**

(C) Printing data **(D) All the above**

Ans - (D) All the above

12. Which among the following is an example of spread sheet software ?

(A) MS Word **(B) Impress**

(C) Lotus 1-2-3 **(D) All the above**

Ans - (C) Lotus 1-2-3

13. Give one example of Protocol used in communication.

Ans - Transmission Control Protocol (TCP)

14. The octal equivalent of $(343)_{10}$ is _____.

Ans - The octal equivalent of $(343)_{10}$ is **527_8** .

15. What will be the output produced by the below given program if the value of the variable x is 18 ?

```
#include <iostream.h>

int main()

{

int x;

int y;

cin>>x;

y=3;

if (x/y < 12)

cout << "Good Morning";

else

cout << "Good Afternoon";

return 0;

}
```

Ans - **Output :** Good Morning

16. The decimal equivalent of $(AAA)_{16}$ is _____.

Ans - $AAA_{16} = 2730_{10}$

17. Which tag is used to create a heading with the biggest size in a webpage ?

Ans - The <h1> tag is used to create a heading with the biggest size in a webpage.

18. What is the header file for log10(x) ?

Ans - The header file for log10(x) is math.h.

19. What is the ASCII value of 'B' ?

Ans - The ASCII value of 'B' is 66.

20. Expand ARPANET.

Ans - Advanced Research Projects Agency Network

21. Consider the below given program, what output will be produced if the value for the variable ch is entered as 'a' ?

```
#include <iostream.h>

void main()

{

char ch;

cin>> ch;

switch(ch)

   {

case 'A' :

cout << "A Grade";

break;

case 'B' :

cout << "B Grade";

break;

case 'C' :

cout << "C Grade";

break;

case 'D' :

cout << "D Grade";

break; default :

cout << "NO Grade";

   }

}
```

Ans - **Output** when ch = 'a':

= NO Grade

22. What will be the output produced by the below given program ?

```
#include <iostream.h>
void main()
{
int i=0, s=0;
while (i<4)
{
s= s+ i;
i++:
}
cout << s; return 0;
}
```

Ans - Output : 6

23. What will be the output produced by the below given program ?

```
#include <iostream.h>
void main()
{
struct emp
{
int eno ;
float sal ;
};
struct emp E;
E.eno = 1234;
E.sal = 15643.5;
cout << E.eno << E.sal;
```

```
}
```

Ans - Output : 123415643.5

24. What is statement 1 in the below given program ? Assume all header files are included.

```
#include <iostream.h>
void change(int); //Statement1
void main()
{
int a = 5
cout <<"a = " << a << endl;
change(a);
cout <<"a = " << a;
}
void change(int b)
{
b = 10;
}
```

Ans -

Statement 1 : `void change(int); // Statement1`

Statement 1 is a function declaration (also called a function prototype).

25. Fill in the blanks :

(a) Writing data on the data file requires _____ header file.

Ans - Writing data on the data file requires **ofstream.h** header file.

(b) ios :: app opens the file in _____ mode.

Ans - ios :: app opens the file in **Output** mode.

26. State whether the following statements are True or False :

(a) A pointer is a variable that refers to the location of another variable.

Ans - True

(b) Object pointers are used to create objects during run time.

Ans - True

27. Give one word for the following :

(i) Cell in Calc is _____.

Ans - Cell in Calc is the intersection of a row and a column in a spreadsheet.

(ii) Individual page of a spreadsheet is known as _____.

Ans - Individual page of a spreadsheet is known as Worksheet.

SECTION B

28. What do you mean by simplex transmission ?

Ans - In simplex transmission, data only flows in one direction. This means the sender sends information, but the receiver cannot send anything back to the sender. It's like watching TV: the TV station sends the show to your screen, but you can't talk back to the station through the TV. Simplex is a one-way communication system.

OR

What do you mean by bandwidth?

Ans - **Bandwidth** refers to the data-carrying capacity of a communication channel. In telecommunication networks, there are three main types: **narrowband**, which carries small amounts of data; **wideband**, which supports moderate data transmission; and **broadband**, which allows high-speed transmission of large amounts of data.

29. Define Attribute.

Ans - An attribute is a property or characteristic of an entity in a database. In a relational database, an attribute corresponds to a column in a table and describes a specific piece of information about the entity.

OR

Define Domain.

Ans - A domain (of a column) is a pool of values from which that column draws its actual values. For example, domain of the column RollNumber may be integers from 1 to 50.

30. Write SQL queries for the following based on the below given BUS table.

BUS			
BUS NO	**BUS NAME**	**YEAR**	**TYPE**
B001	**NEERU**	**2024**	**VOLVO**
B002	**RAVANA**	**2022**	**SCANIA**
B003	**MAHAVEER**	**2019**	**VOLVO**
B004	**ROLI**	**2024**	**TATA**
B005	**VIKRM**	**2019**	**BENZ**

(a) Insert the record B005, LAXMI, 2023, VOLVO.

(b) Display the details of volvo buses.

Ans - Here are the SQL queries for the given tasks :

(a) Insert the record B005, LAXMI, 2023, VOLVO

```
INSERT INTO BUS (BUS_NO, BUS_NAME, YEAR, TYPE)
VALUES ('B005', 'LAXMI', 2023, 'VOLVO');
```

Note : If B005 already exists in the table, this will cause a duplicate entry error. If BUS_NO is a primary key, use a different BUS_NO like B006 instead.

(b) Display the details of Volvo buses

```
SELECT * FROM BUS
WHERE TYPE = 'VOLVO';
```

This query retrieves all rows where the TYPE is 'VOLVO'.

31. Name any two components of Writer Window.

Ans - Two components of the Writer Window are :

1. Menu Bar : Below the title bar is the menu bar which contains various menu items - File, Edit, View, Insert, Format, Table, Tools, Window and Help.

2. Formatting Toolbar : This toolbar consists of commands that help in formatting the document like font style, size, colour, bold, italic, underline etc.

32. Why HTML document should be saved with the extension .html and Name one browser that helps us to open a HTML document.

Ans - An HTML document should be saved with the .html extension because it tells the web browser that the file contains HyperText Markup Language (HTML) code. This allows the browser to correctly interpret and display the web page's content, including text, images, and links. One browser that helps us open an HTML document is Google Chrome.

33.

```
#include <iostream.h>
#include <string.h>
struct ITEM
{
char iname [20];
int price;
 };
void main()
{

_____ // statement 1

_____ // statement 2

cout << s1.iname ;

cout << s2.price ;

}
```

Complete the above code for the following :

Statement 1 : Create two objects s1 and s2 of type ITEM.

Statement 2 : Input the value for the variable iname of the StructureVariable s1.

Ans -

```
#include <iostream>
#include <string.h>
using namespace std;
struct ITEM
{
   char iname[20];
   int price;
};

int main()
{
   // Statement 1: Create two objects s1 and s2 of type ITEM
   ITEM s1, s2;
   // Statement 2: Input the value for the variable iname of the StructureVariable s1
   cout << "Enter the name of the item for s1: ";
   cin.getline(s1.iname, 20);
   // Example : Assigning a value to s2.price for demonstration
   s2.price = 100;
   cout << "Item name (s1): " << s1.iname << endl;
   cout << "Item price (s2): " << s2.price << endl;
   return 0;
}
```

Explanation :

1. **Statement 1 : ITEM s1, s2;** creates two objects s1 and s2 of type ITEM.
2. **Statement 2 : cin.getline (s1.iname, 20);** allows the user to input a string (up to 19 characters) for the iname member of the s1 object.
3. The cout statements output the values of **s1.iname** and **s2.price.**

34. Write SQL queries to create the below given BUS table.

BUS		
BUS NO	**VARCHAR(6)**	**PRIMARY KEY**
BUS NAME	**VARCHAR(15)**	
YEAR	**INT(4)**	
TYPE	**CHAR**	

Ans - SQL query to create the BUS table as per the given specifications :

```
CREATE TABLE BUS (
    BUS_NO VARCHAR(6) PRIMARY KEY,
    BUS_NAME VARCHAR(15),
    YEAR INT(4),
    TYPE CHAR(1)
);
```

OR

Differentiate fixed length and variable length datatype.

Feature	Fixed-Length Datatype	Variable-Length Datatype
Definition	Fixed-length data types allocate a predefined, constant amount of storage space for each value, regardless of the actual content.	Variable-length data types allocate storage space based on the actual size of the data being stored.
Example Datatypes	CHAR(n), INT, FLOAT	VARCHAR(n), TEXT, BLOB

35. Define the following terms : (Any two)

(a) Member Functions

(b) Objects

(c) :: operator

(d) Inline Member Function

Ans -

(a) Member functions are functions defined inside a class that operate on the data members of that class. They help in defining the behavior of the objects and can access private, protected, or public data members of the class.

(b) An object is an instance of a class that has a unique identity, state (attributes/variables), and behavior (methods/functions). It is created using the blueprint defined by a class.

(c) The scope resolution operator (::) is used in C++ to define a function outside a class, access global variables when a local variable has the same name, and access static members of a class.

(d) An inline member function is a function defined inside the class declaration using the inline keyword or directly inside the class.

36. Create a webpage using the following instructions :

(a) Heading 'Examination' on the center of the webpage with the smallest heading font.

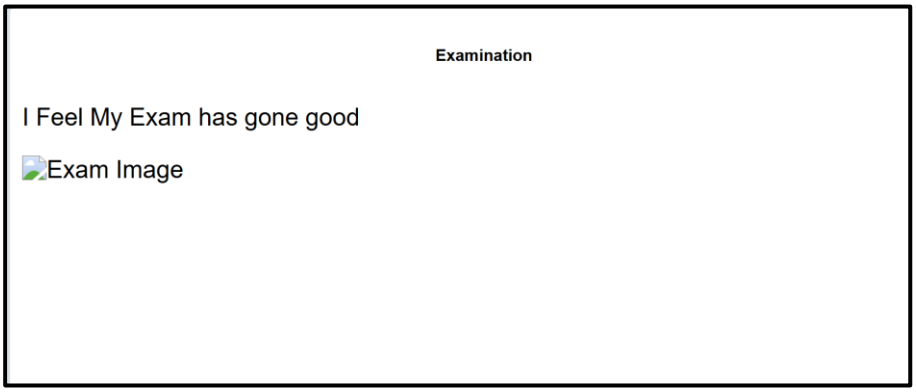
(b) The Paragraph ''I Feel My Exam has gone good'' on towards the left of the webpage.

(c) An image to be set having the file name ''NIOS2024.jpg'' with a height of 6 and width of 3.

Ans -

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width,  initial-scale=1.0">
    <title>Examination</title>
    <style>
        body {
            text-align: left;
            font-family: Arial, sans-serif;
        }
        h6 {
            text-align: center;
        }
    </style>
</head>
<body>
    <h6>Examination</h6>
    <p>I Feel My Exam has gone good</p>
    <img src="NIOS2024.jpg" alt="Exam Image" height="6" width="3">
</body>
</html>
```

Example Of The Webpage :



37. Define the following terms : (Any three)

(i) Primary key

(ii) Physical Data Model

(iii) Domain

(iv) Degree

(v) Default Constraint

Ans - (i) The group of one or more columns used to uniquely identify each row of a relation is called its Primary Key. For example, in a students table AdmissionNumber can be the primary key.

(ii) Physical data model represents the actual implementation of the Logical Data Model. A physical data model shows all the table structures including column names, column data types, column constraints, primary key, foreign key and relationship between tables.

(iii) A domain (of a column) is a pool of values from which that column draws its actual values. For example, domain of the column RollNumber may be integers from 1 to 50.

(iv) The degree of a relation (table) in a database refers to the number of attributes (columns) it has. For example, if a table has four columns, its degree is 4.

(v) A default constraint in a database is used to assign a default value to a column if no value is provided during record insertion. For example, setting a default value of 'Active' for a status column.

38. Answer the questions from (i) to (iv) based on the below given program (assume all header files are included).

```
class Graduate {
        int Rollno;
        char GName [20];
        float Marks1;
protected:
        void Result();
public:
Graduate();
```

```
        void Enroll();
        void Display();
}
class Lecturer{
        long TCode;
        char TName[20];
Protected:
        float Salary;
public:
        Lecturer();
        void Enter();
        void Show();
};
class Learn : public Graduate, private Lecturer {
long CCode[10];
char LearnName[50];
char StartDate[8], EndDate[8];
public;
Learn();
void Commence();
void CDetail();
};
```

(i) Write the names of member functions, which are accessible from objects of class Learn.

(ii) Write the names of all the data members, which is/are accessible to member function Commence of class Learn.

(iii) Write the names of all the members, which are accessible from objects of class Lecturer.

(iv) Which type of Inheritance is illustrated in the above C++ code ?

Ans -

(i) The class Learn is derived publicly from Graduate and privately from Lecturer. Hence, the accessible functions from an object of Learn are:

- **Enroll()** (public function of Graduate)
- **Display()** (public function of Graduate)
- **Commence()** (public function of Learn)
- **CDetail()** (public function of Learn)

Functions of Lecturer (Enter() and Show()) are not accessible because it is inherited privately.

(ii) The member function **Commence()** of **Learn** can access the following data members :

1. **Rollno** (inherited from Graduate)
2. **GName** (inherited from Graduate)
3. **Marks1** (inherited from Graduate)
4. **CCode** (defined in Learn)
5. **LearnNam**e (defined in Learn)
6. **StartDat**e (defined in Learn)
7. **EndDate (**defined in Learn)

(iii) From objects of the Lecturer class, the following members are accessible :

1. **TCode** (public data member)
2. **TName** (public data member)
3. **Enter()** (public member function)
4. **Show()** (public member function)

(iv) The inheritance used in the given code is Multiple Inheritance because class Learn is inheriting from both Graduate (public) and Lecturer (private).

OR

Define Virtual Base Class. Display the structure by taking an example or with syntax.

Ans - Virtual base classes are used for preventing multiple "instances" of a given class appearing in an inheritance.

Syntax :

```
class Base {
    // Base class members
};
class Derived1 : virtual public Base {
    // Derived1 inherits Base virtually
};
class Derived2 : virtual public Base {
    // Derived2 inherits Base virtually
};
class FinalDerived : public Derived1, public Derived2 {
    // Only one copy of Base exists in FinalDerived
};
```

Example :

```
#include <iostream>
using namespace std;
class Base {
public:
    int data;
    Base() { data = 10; }
    void show() { cout << "Base data: " << data << endl; }
};
class Derived1 : virtual public Base { };
class Derived2 : virtual public Base { };
class FinalDerived : public Derived1, public Derived2 { };
int main() {
    FinalDerived obj;
    obj.show(); // Accessing Base class function
    return 0;
}
```

39. (i) Write a program to create an array of N elements, accept a number from the user, delete the accepted number from the array and print the new array.

Ans - Below is a C++ program that creates an array of N elements, accepts a number from the user, deletes the accepted number from the array, and then prints the new array.

```
#include <iostream>
using namespace std;
int main() {
    int N; 0
    // Accept the number of elements in the array
    cout << "Enter the number of elements in the array: ";
    cin >> N

    int arr[N];
    // Accept the elements of the array
    cout << "Enter the elements of the array: ";
    for (int i = 0; i < N; i++) {
        cin >> arr[i];
    }
    int numToDelete;
    // Accept the number to delete from the array
    cout << "Enter the number to delete from the array: ";
    cin >> numToDelete;
```

```
// Delete the number from the array
    int newSize = 0;
    for (int i = 0; i < N; i++) {
        if (arr[i] != numToDelete) {
            arr[newSize] = arr[i];
            newSize++;
        }
    }
    // Print the new array
    cout << "The new array after deletion is: ";
    for (int i = 0; i < newSize; i++) {
        cout << arr[i] << " ";
    }
    cout << endl;
    return 0;
}
```

```
Enter the number of elements in the array : 5
Enter the elements of the array : 1 2 3 4 5
Enter the number to delete from the array : 3
The new array after deletion is : 1 2 4 5
```

OR

(ii) Write a C++ program that accepts two numbers (a, b) from the user and passes to a function, the function will perform (a*a)+(b*b) to the main program which will display the output to the user.

Ans - Below is a simple C++ program that accepts two numbers from the user, passes them to a function that calculates the sum of their squares, and then displays the result.

```cpp
#include <iostream>
using namespace std;
// Function to calculate the sum of squares
int sumOfSquares(int a, int b) {
    return (a * a) + (b * b);
}
int main() {
    int a, b;
// Accepting input from the user
    cout << "Enter the first number (a): ";
    cin >> a;
    cout << "Enter the second number (b): ";
    cin >> b;
// Calling the function and storing the result
    int result = sumOfSquares(a, b);
// Displaying the result
    cout << "The sum of squares of " << a << " and " << b << " is: " << result << endl;
    return 0;
}
```

Example Output :

Enter two numbers : 3 4

The result of (a*a) + (b*b) is : 25

This program is a basic example of how to use functions in C++ to perform calculations and return results to the main program.

SECTION - A

SET – B

1. What is the use of Ctrl + Q in presentation ?

(A) Open a presentation

(B) Close a presentation

(C) Queue a presentation

(D) Print a Presentation

Ans - (B) Close a presentation

2. Which of the following is used to create Bulleted List in HTML ?

(A) <bl>

**(B) **

**(C) **

(D) <dl>

Ans -

3. Which category of header files among the following has exp(x) function in C++ ?

(A) String

(B) Mathematical

(C) Character

(D) Text

Ans - (B) Mathematical

4. Which of the following is used for displaying the text "OCTOBER" in BOLD in HTML ?

(A) <bold> OCTOBER </bl>

(B) <bl> OCTOBER </underline>

**(C) OCTOBER **

(D) <bb> OCTOBER </bb>

Ans - (C) OCTOBER

5. Identify the closing tag for :

(A) </br> **(B) <br//>**

(C) no ending tag **(D) <*br>**

Ans - (C) no ending tag

6. Find the output produced by the following program segment. Assume all header functions are included.

```
void main()
{ int x = 88;
int *y = &x ;
cout << *y;
}
```

(A) 88 **(B) *88**

(C) &88 **(D) &x**

Ans - (A) 88

7. Which of the following attribute is used to specify the width of border for an image in HTML?

(A) line **(B) box**

(C) border **(D) blackline**

Ans - (C) border

8. Which of the following is used to create line break in HTML?

(A) < break > **(B) < br >**

(C) < line > **(D) < linebreak >**

Ans - (B) < br >

9. Which of the following can be added in an Impress presentation ?

(A) Text **(B) Pictur**

(C) Audio **(D) All the above**

Ans - (D) All the above

10. Which of the following is supported by Word Processor ?

(A) Creating data **(B) Formatting data**

(C) Printing data **(D) All the above**

Ans - (D) All the above

11. Which among the following is an example of spread sheet software ?

(A) MS Word **(B) Impress**

(C) Lotus 1-2-3 **(D) All the above**

Ans - (C) Lotus 1-2-3

12. Identify the attribute of the < img > tag that is used to specify the URL of the image that helps you to create a image in webpage.

(A) Source **(B) url**

(C) src **(D) Path**

Ans - (C) src

13. The octal equivalent of $(343)_{10}$ is _____.

Ans - The octal equivalent of $(343)_{10}$ is **527_8** .

14. What will be the output produced by the below given program if the value of the variable x is 18 ?

```
#include <iostream.h>

int main()

{
```

```
int x;

int y;

cin>>x;

y=3;

if (x/y < 12)

cout << "Good Morning";

else

cout << "Good Afternoon";

return 0;

}
```

Ans - **Output :** Good Morning

15. The decimal equivalent of $(AAA)_{16}$ is _____.

Ans - $AAA_{16} = 2730_{10}$

16. Which tag is used to create a heading with the biggest size in a webpage ?

Ans - The <h1> tag is used to create a heading with the biggest size in a webpage.

17. What is the header file for log10(x) ?

Ans - The header file for log10(x) is math.h.

18. What is the ASCII value of 'B' ?

Ans - The ASCII value of 'B' is 66.

19. Expand ARPANET.

Ans - Advanced Research Projects Agency Network

20. Consider the below given program, what output will be produced if the value for the variable ch is entered as 'a' ?

```
#include <iostream.h>
```

```
void main()
{
char ch;
cin>> ch;
switch(ch)
  {
case 'A' :
cout << "A Grade";
break;
case 'B' :
cout << "B Grade";
break;
case 'C' :
cout << "C Grade";
break;
case 'D' :
cout << "D Grade";
break; default :
cout << "NO Grade";
  }
}
```

Ans - Output when ch = 'a':

= NO Grade

21. What will be the output produced by the below given program ?

```
#include <iostream.h>
void main()
{
```

```
int i=0, s=0;
while (i<4)
{
s= s+ i;
i++:
}
cout << s; return 0;
}
```

Ans - Output : 6

22. What will be the output produced by the below given program ?

```
#include <iostream.h>
void main()
{
struct emp
{
int eno ;
float sal ;
};
struct emp E;
E.eno = 1234;
E.sal = 15643.5;
cout << E.eno << E.sal;
}
```

Ans - Output : 123415643.5

23. What is statement 1 in the below given program ? Assume all header files are included.

```
#include <iostream.h>
void change(int); //Statement1
```

```
void main()
{
int a = 5;
cout <<"a = " << a << endl;
change(a);
cout <<"a = " << a;
}
void change(int b)
{
b = 10;
}
```

Ans -

Statement 1 : `void change(int); // Statement1`

Statement 1 is a function declaration (also called a function prototype).

24. Give one example of Protocol used in communication.

Ans - Transmission Control Protocol (TCP)

25. State whether the following statements are True or False :

(a) A pointer is a variable that refers to the location of another variable.

Ans - True

(b) Object pointers are used to create objects during run time.

Ans - True

26. Give one word for the following :

(i) Cell in Calc is _____.

Ans - Cell in Calc is the intersection of a row and a column in a spreadsheet.

(ii) Individual page of a spreadsheet is known as _____.

Ans - Individual page of a spreadsheet is known as Worksheet

27. Fill in the blanks :

(a) Writing data on the data file requires _____ header file.

Ans - Writing data on the data file requires **ofstream.h** header file.

(b) ios :: app opens the file in _____ mode.

Ans - ios :: app opens the file in **Output** mode.

SECTION - B

28. What do you mean by analog transmission ?

Ans - Analog transmission uses a continuous signal to send voice, data, or images between systems. For example, telephones convert sound vibrations into electrical signals of the same shape for transmission over traditional lines.

OR

What do you mean by transfer rate ?

Ans - It is the amount of digital data that is moved from one place to another in a given time. Usually in second's time. The data transfer rate can be viewed as the speed of travel of a given amount of data from one place to another.

29. Define degree.

Ans - The degree of a relation (table) in a database refers to the number of attributes (columns) it has. For example, if a table has four columns, its degree is 4.

OR

Define tuple.

Ans - A tuple corresponds to a row of a relation. A tuple contains data corresponding to an entity. The number of tuples in a relation is called the cardinality of the relation.

30. Write SQL queries for the following based on the below given BUS table.

BUS			
BUS NO	**BUS NAME**	**YEAR**	**TYPE**
B001	**NEERU**	**2024**	**VOLVO**
B002	**RAVANA**	**2022**	**SCANIA**
B003	**MAHAVEER**	**2019**	**VOLVO**
B004	**ROLI**	**2024**	**TATA**
B005	**VIKRM**	**2019**	**BENZ**

(a) Insert the record B005, LAXMI, 2023, VOLVO.

(b) Display the details of volvo buses.

Ans - Here are the SQL queries for the given tasks :

(a) Insert the record B005, LAXMI, 2023, VOLVO

```
INSERT INTO BUS (BUS_NO, BUS_NAME, YEAR, TYPE)
VALUES ('B005', 'LAXMI', 2023, 'VOLVO');
```

Note : If B005 already exists in the table, this will cause a duplicate entry error. If BUS_NO is a primary key, use a different BUS_NO like B006 instead.

(b) Display the details of Volvo buses

```
SELECT * FROM BUS
WHERE TYPE = 'VOLVO';
```

This query retrieves all rows where the TYPE is 'VOLVO'.

31. Name any two ways of selecting text in open office writer.

Ans - Two ways to select text in OpenOffice Writer are:

1. **Ctrl + A -** To select the complete document.
2. **Ctrl + Shift + Home -** To select the text from the cursor position to the beginning of the document.

32. Is it required that a HTML document should be saved with the extension .htm or .html, Justify your answer.

Ans - Yes, an HTML document should be saved with the .htm or .html extension because web browsers recognize these extensions as HTML files and render them accordingly. While both extensions work the same way, .html is more commonly used.

33. Write SQL queries to create the below given BUS table.

BUS		
BUS NO	**VARCHAR(6)**	**PRIMARY KEY**
BUS NAME	**VARCHAR(15)**	
YEAR	**INT(4)**	
TYPE	**CHAR**	

Ans - SQL query to create the BUS table as per the given specifications :

```
CREATE TABLE BUS (
    BUS_NO VARCHAR(6) PRIMARY KEY,
    BUS_NAME VARCHAR(15),
    YEAR INT(4),
    TYPE CHAR(1)
);
```

OR

Differentiate fixed length and variable length datatype.

Feature	Fixed-Length Datatype	Variable-Length Datatype
Definition	Fixed-length data types allocate a predefined, constant amount of storage space for each value, regardless of the actual content.	Variable-length data types allocate storage space based on the actual size of the data being stored.
Example Datatypes	CHAR(n), INT, FLOAT	VARCHAR(n), TEXT, BLOB

34. Define the following terms : (Any two)

(a) Member Functions

(b) Objects

(c) :: operator

(d) Inline Member Function

Ans -

(a) Member functions are functions defined inside a class that operate on the data members of that class. They help in defining the behavior of the objects and can access private, protected, or public data members of the class.

(b) An object is an instance of a class that has a unique identity, state (attributes/variables), and behavior (methods/functions). It is created using the blueprint defined by a class.

(c) The scope resolution operator (::) is used in C++ to define a function outside a class, access global variables when a local variable has the same name, and access static members of a class.

(d) An inline member function is a function defined inside the class declaration using the inline keyword or directly inside the class.

35. #include <iostream.h>

```
#include <string.h>
struct ITEM
{
char iname [20];
int price;
 };
void main()
{
_________ // statement 1
_________ // statement 2
cout << s1.iname ;
cout << s2.price ;
}
```

Complete the above code for the following :

Statement 1 : Create two objects s1 and s2 of type ITEM.

Statement 2 : Input the value for the variable iname of the StructureVariable s1.

Ans -

```
#include <iostream>
#include <string.h>
using namespace std;
struct ITEM
{
    char iname[20];
    int price;
};

int main()
{
    // Statement 1: Create two objects s1 and s2 of type ITEM
    ITEM s1, s2;
    // Statement 2: Input the value for the variable iname of the StructureVariable s1
    cout << "Enter the name of the item for s1: ";
    cin.getline(s1.iname, 20);
    // Example : Assigning a value to s2.price for demonstration
    s2.price = 100;
    cout << "Item name (s1): " << s1.iname << endl;
    cout << "Item price (s2): " << s2.price << endl;
    return 0;
}
```

Explanation :

- **Statement 1 : ITEM s1, s2;** creates two objects s1 and s2 of type ITEM.
- **Statement 2 : cin.getline (s1.iname, 20);** allows the user to input a string (up to 19 characters) for the iname member of the s1 object.
- The cout statements output the values of **s1.iname** and **s2.price.**

36. Create a webpage using the following instructions :

(a) Heading 'Examination' on the center of the webpage with biggest heading font.

(b) The Paragraph ''I feel My Exam has gone good'' on towards the right of the webpage.

(c) An image to be set having the file name ''NIOS2024.jpg'' with a border of 3.

Ans -

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Examination</title>
    <style>
        body {
            text-align: left;
            font-family: Arial, sans-serif;
        }
        h6 {
            text-align: center;
        }
    </style>
</head>
<body>
    <h6>Examination</h6>
    <p>I Feel My Exam has gone good</p>
    <img src="NIOS2024.jpg" alt="Exam Image" height="6" width="3">
</body>
</html>
```

Example Of The Webpage :

Examination

I Feel My Exam has gone good

Exam Image

37. Define the following terms : (Any three)

(i) Data Redundancy

(ii) Relational Database

(iii) Attribute

(iv) Cardinality

(v) Candidate key

Ans -

(i) Data redundancy occurs when the same piece of data is stored in multiple places within a database. This can lead to inefficiencies, increased storage requirements, and potential inconsistencies if the data is not updated uniformly across all locations.

(ii) A relational database is a database in which data is organized in two dimensional tables (also called relations). A Table consists of rows (also called tuples or records) and columns (also called attributes or fields).

(iii) An attribute is a property or characteristic of an entity in a database. In a relational database, an attribute corresponds to a column in a table and describes a specific piece of information about the entity.

(iv) Cardinality refers to the number of instances or occurrences of one entity that can be associated with another entity in a database relationship.

(v) A candidate key is a field or a group of fields in a table that can be used as a primary key because it uniquely identifies each record. A table can have multiple candidate keys, but only one is chosen as the primary key.

38. (i) Write a program to create an array of N elements, accept a number from the user, delete the accepted number from the array and print the new array.

Ans - Below is a C++ program that creates an array of N elements, accepts a number from the user, deletes the accepted number from the array, and then prints the new array.

```
#include <iostream>
using namespace std;
int main() {
    int N; 0
    // Accept the number of elements in the array
    cout << "Enter the number of elements in the array: ";
    cin >> N
    int arr[N];
    // Accept the elements of the array
    cout << "Enter the elements of the array: ";
    for (int i = 0; i < N; i++) {
        cin >> arr[i];
    }
    int numToDelete;
    // Accept the number to delete from the array
    cout << "Enter the number to delete from the array: ";
    cin >> numToDelete;
```

```
// Delete the number from the array
    int newSize = 0;
    for (int i = 0; i < N; i++) {
        if (arr[i] != numToDelete) {
            arr[newSize] = arr[i];
            newSize++;
        }
    }
    // Print the new array
    cout << "The new array after deletion is: ";
    for (int i = 0; i < newSize; i++) {
        cout << arr[i] << " ";
    }
    cout << endl;
    return 0;
}
```

Example Output :

Enter the number of elements in the array : 5

Enter the elements of the array : 1 2 3 4 5

Enter the number to delete from the array : 3

The new array after deletion is : 1 2 4 5

(ii) Write a C++ program that accepts two numbers (a, b) from the user and passes to a function, the function will perform (a*a)+(b*b) to the main program which will display the output to the user.

Ans - Below is a simple C++ program that accepts two numbers from the user, passes them to a function that calculates the sum of their squares, and then displays the result.

```
#include <iostream>
using namespace std;
// Function to calculate the sum of squares
int sumOfSquares(int a, int b) {
    return (a * a) + (b * b);
}
int main() {
    int a, b;
// Accepting input from the user
    cout << "Enter the first number (a): ";
    cin >> a;
    cout << "Enter the second number (b): ";
    cin >> b;
// Calling the function and storing the result
    int result = sumOfSquares(a, b);
// Displaying the result
    cout << "The sum of squares of " << a << " and " << b << " is: " << result << endl;
    return 0;
}
```

Example Output :

Enter two numbers : 3 4

The result of (a*a) + (b*b) is : 25

This program is a basic example of how to use functions in C++ to perform calculations and return results to the main program.

39. Answer the questions from (i) to (iv) based on the below given program (assume all header files are included).

```
class Graduate {
        int Rollno;
        char GName [20];
        float Marks1;
protected:
        void Result();
public:
Graduate();
        void Enroll();
        void Display();
}
class Lecturer{
        long TCode;
        char TName[20];
Protected:
        float Salary;
public:
        Lecturer();
        void Enter();
        void Show();
};
class Learn : public Graduate, private Lecturer {
long CCode[10];
char LearnName[50];
char StartDate[8], EndDate[8];
public;
```

Learn();

void Commence();

void CDetail();

};

(i) Write the names of member functions, which are accessible from objects of class Learn.

(ii) Write the names of all the data members, which is/are accessible to member function Commence of class Learn.

(iii) Write the names of all the members, which are accessible from objects of class Lecturer.

(iv) Which type of Inheritance is illustrated in the above C++ code ?

Ans -

(i) The class Learn is derived publicly from Graduate and privately from Lecturer. Hence, the accessible functions from an object of Learn are:

- **Enroll()** (public function of Graduate)
- **Display()** (public function of Graduate)
- **Commence()** (public function of Learn)
- **CDetail()** (public function of Learn)

Functions of Lecturer (Enter() and Show()) are not accessible because it is inherited privately.

(ii) The member function **Commence()** of **Learn** can access the following data members :

8. **Rollno** (inherited from Graduate)
9. **GName** (inherited from Graduate)
10. **Marks1** (inherited from Graduate)
11. **CCode** (defined in Learn)
12. **LearnNam**e (defined in Learn)
13. **StartDat**e (defined in Learn)
14. **EndDate (**defined in Learn)

(iii) From objects of the Lecturer class, the following members are accessible :

5. **TCode** (public data member)
6. **TName** (public data member)
7. **Enter()** (public member function)
8. **Show()** (public member function)

(iv) The inheritance used in the given code is Multiple Inheritance because class Learn is inheriting from both Graduate (public) and Lecturer (private).

OR

Define Virtual Base Class. Display the structure by taking an example or with syntax.

Ans - Virtual base classes are used for preventing multiple "instances" of a given class appearing in an inheritance.

Syntax :

```
class Base {
    // Base class members
};
class Derived1 : virtual public Base {
    // Derived1 inherits Base virtually
};
class Derived2 : virtual public Base {
    // Derived2 inherits Base virtually
};
class FinalDerived : public Derived1, public Derived2 {
    // Only one copy of Base exists in FinalDerived
};
```

Example :

```
#include <iostream>
using namespace std;
class Base {
public:
    int data;
    Base() { data = 10; }
    void show() { cout << "Base data: " << data << endl; }
};
class Derived1 : virtual public Base { };
class Derived2 : virtual public Base { };
class FinalDerived : public Derived1, public Derived2 { };
int main() {
    FinalDerived obj;
    obj.show(); // Accessing Base class function
    return 0;
}
```

SECTION - A

SET – C

1. Which of the following is used to create Bulleted List in HTML ?

(A) <bl>

**(B) **

**(C) **

(D) <dl>

Ans -

2. Which category of header files among the following has exp(x) function in C++ ?

(A) String

(B) Mathematical

(C) Character

(D) Text

Ans - (B) Mathematical

3. Which of the following is used for displaying the text "OCTOBER" in BOLD in HTML ?

(A) <bold> OCTOBER </bl>

(B) <bl> OCTOBER </underline>

**(C) OCTOBER **

(D) <bb> OCTOBER </bb>

Ans - (C) OCTOBER

4. Identify the closing tag for :

(A) </br>

(B) <br//>

(C) no ending tag

(D) <*br>

Ans - (C) no ending tag

5. Find the output produced by the following program segment. Assume all header functions are included.

void main()

```
{ int x = 88;
int *y = &x ;
cout << *y;
}
```

(A) 88 **(B) *88**

(C) &88 **(D) &x**

Ans - (A) 88

6. Which of the following attribute is used to specify the width of border for an image in HTML?

(A) line **(B) box**

(C) border **(D) blackline**

Ans - (C) border

7. Which of the following is used to create line break in HTML?

(A) < break > **(B) < br >**

(C) < line > **(D) < linebreak >**

Ans - (B) < br >

8. Which of the following can be added in an Impress presentation ?

(A) Text **(B) Pictur**

(C) Audio **(D) All the above**

Ans - (D) All the above

9. Which of the following is supported by Word Processor ?

(A) Creating data **(B) Formatting data**

(C) Printing data **(D) All the above**

Ans - (D) All the above

10. Which among the following is an example of spread sheet software ?

(A) MS Word **(B) Impress**

(C) Lotus 1-2-3 **(D) All the above**

Ans - (C) Lotus 1-2-3

11. Identify the attribute of the < img > tag that is used to specify the URL of the image that helps you to create a image in webpage.

(A) Source **(B) url**

(C) src **(D) Path**

Ans - (C) src

12. What is the use of Ctrl + Q in presentation ?

(A) Open a presentation **(B) Close a presentation**

(C) Queue a presentation **(D) Print a Presentation**

Ans - (B) Close a presentation

13. What will be the output produced by the below given program if the value of the variable x is 18 ?

```
#include <iostream.h>

int main()

{

int x;

int y;

cin>>x;

y=3;

if (x/y < 12)

cout << "Good Morning";

else

cout << "Good Afternoon";

return 0;

}
```

Ans - **Output :** Good Morning

14. The decimal equivalent of $(AAA)_{16}$ is _____.

Ans - $AAA_{16} = 2730_{10}$

15. Which tag is used to create a heading with the biggest size in a webpage ?

Ans - The <h1> tag is used to create a heading with the biggest size in a webpage.

16. What is the header file for log10(x) ?

Ans - The header file for log10(x) is math.h.

17. What is the ASCII value of 'B' ?

Ans - The ASCII value of 'B' is 66.

18. Expand ARPANET.

Ans - Advanced Research Projects Agency Network

19. Consider the below given program, what output will be produced if the value for the variable ch is entered as 'a' ?

```
#include <iostream.h>

void main()

{

char ch;

cin>> ch;

switch(ch)

   {

case 'A' :

cout << "A Grade";

break;

case 'B' :

cout << "B Grade";

break;

case 'C' :

cout << "C Grade";

break;

case 'D' :

cout << "D Grade";

break; default :

cout << "NO Grade";

   }

}
```

Ans - **Output** when ch = 'a':

= NO Grade

20. What will be the output produced by the below given program ?

```
#include <iostream.h>
void main()
{
int i=0, s=0;
while (i<4)
{
s= s+ i;
i++:
}
cout << s; return 0;
}
```

Ans - Output : 6

21. What will be the output produced by the below given program ?

```
#include <iostream.h>
void main()
{
struct emp
{
int eno ;
float sal ;
};
struct emp E;
E.eno = 1234;
E.sal = 15643.5;
cout << E.eno << E.sal;
```

```
}
```

Ans - **Output :** 1234 15643.5

22. What is statement 1 in the below given program ? Assume all header files are included.

```
#include <iostream.h>
void change(int); //Statement1
void main()
{
int a = 5;
cout <<"a = " << a << endl;
change(a);
cout <<"a = " << a;
}
void change(int b)
{
b = 10;
}
```

Ans -

Statement 1 : `void change(int); // Statement1`

Statement 1 is a function declaration (also called a function prototype).

23. Give one example of Protocol used in communication.

Ans - Transmission Control Protocol (TCP)

24. The octal equivalent of $(343)_{10}$ is _____.

Ans - The octal equivalent of $(343)_{10}$ is **527_8** .

25. Give one word for the following :

(i) Cell in Calc is _____.

Ans - Cell in Calc is the intersection of a row and a column in a spreadsheet.

(ii) Individual page of a spreadsheet is known as _____.

Ans - Individual page of a spreadsheet is known as Worksheet.

26. Fill in the blanks :

(a) Writing data on the data file requires _____ header file.

Ans - Writing data on the data file requires **ofstream.h** header file.

(b) ios :: app opens the file in _____ mode.

Ans - ios :: app opens the file in **Output** mode.

27. State whether the following statements are True or False :

(a) A pointer is a variable that refers to the location of another variable.

Ans - True

(b) Object pointers are used to create objects during run time.

Ans – True

SECTION - B

28. What do you mean by digital transmission ?

Ans - Digital transmission uses discrete states, unlike analog transmission. A light bulb is either on or off, and a digital clock changes in one-minute intervals. The signal consists of 0s and 1s, where 1 (On) is the peak and 0 (Off) is the bottom.

OR

What do you mean by twisted pair cable ?

Ans - A twisted pair of wires consists of two insulated copper wires, typically about 1 mm thickness. The wires are twisted together in a helical shape. These are commonly used in local telephone communication.

29. Define key.

Ans - A column or a combination of columns which can be used to identify a row (tuple) in a table is called its key. In general, any column or any combination of columns in a table is a key.

OR

Define row.

Ans - A tuple corresponds to a row of a relation. A tuple contains data corresponding to an entity. The number of tuples in a relation is called the cardinality of the relation.

30. Write SQL queries for the following based on the below given BUS table.

BUS			
BUS NO	**BUS NAME**	**YEAR**	**TYPE**
B001	**NEERU**	**2024**	**VOLVO**
B002	**RAVANA**	**2022**	**SCANIA**
B003	**MAHAVEER**	**2019**	**VOLVO**
B004	**ROLI**	**2024**	**TATA**
B005	**VIKRM**	**2019**	**BENZ**

(a) Insert the record B005, LAXMI, 2023, VOLVO.

(b) Display the details of volvo buses.

Ans - Here are the SQL queries for the given tasks :

(a) Insert the record B005, LAXMI, 2023, VOLVO

```
INSERT INTO BUS (BUS_NO, BUS_NAME, YEAR, TYPE)
VALUES ('B005', 'LAXMI', 2023, 'VOLVO');
```

Note : If B005 already exists in the table, this will cause a duplicate entry error. If BUS_NO is a primary key, use a different BUS_NO like B006 instead.

(b) Display the details of Volvo buses

```
SELECT * FROM BUS
WHERE TYPE = 'VOLVO';
```

This query retrieves all rows where the TYPE is 'VOLVO'.

31. Name the ways by which cursor can be brought to the beginning and ending of a file in writer Window ?

Ans - In a Writer window you can bring the cursor to the beginning and end of a file using the following methods :

- **Keyboard Shortcut :** Press Ctrl + Home.
- **Keyboard Shortcut** : Press Ctrl + End.
- **Shift + End :** To select the line from cursor position to end of the line.
- **Ctrl + Shift + Home :** To select the text from the cursor position to the beginning of the document.

32. Expand HTML and also mention how do you write a html program ?

Ans - HTML stands for Hyper Text Markup Language. It is the basic language used to create web pages. HTML provides the **structure** of a webpage using various elements such as headings, paragraphs, links, images, and forms.

Writing an HTML program is simple. You need a **text editor** (like Notepad, VS Code, or Sublime Text) and a **web browser** (like Chrome, Firefox, or Edge) to view the output.

33. Define the following terms : (Any two)

(a) Member Functions

(b) Objects

(c) :: operator```

(d) Inline Member Function

Ans -

(a) Member functions are functions defined inside a class that operate on the data members of that class. They help in defining the behavior of the objects and can access private, protected, or public data members of the class.

(b) An object is an instance of a class that has a unique identity, state (attributes/variables), and behavior (methods/functions). It is created using the blueprint defined by a class.

(c) The scope resolution operator (::) is used in C++ to define a function outside a class, access global variables when a local variable has the same name, and access static members of a class.

(d) An inline member function is a function defined inside the class declaration using the inline keyword or directly inside the class.

34. #include <iostream.h>

```
#include <string.h>
struct ITEM
{
char iname [20];
int price;
 };
void main()
{
_________ // statement 1
_________ // statement 2

cout << s1.iname ;

cout << s2.price ;
}
```

Complete the above code for the following :

Statement 1 : Create two objects s1 and s2 of type ITEM.

Statement 2 : Input the value for the variable iname of the StructureVariable s1.

Ans –

```
#include <iostream>
#include <string.h>
using namespace std;
struct ITEM
{
   char iname[20];
   int price;
};

int main()
{
   // Statement 1: Create two objects s1 and s2 of type ITEM
   ITEM s1, s2;
   // Statement 2: Input the value for the variable iname of the StructureVariable s1
   cout << "Enter the name of the item for s1: ";
   cin.getline(s1.iname, 20);
   // Example : Assigning a value to s2.price for demonstration
   s2.price = 100;
   cout << "Item name (s1): " << s1.iname << endl;
   cout << "Item price (s2): " << s2.price << endl;
   return 0;
}
```

Explanation :

- **Statement 1 : ITEM s1, s2;** creates two objects s1 and s2 of type ITEM.
- **Statement 2 : cin.getline (s1.iname, 20);** allows the user to input a string (up to 19 characters) for the iname member of the s1 object.
- The cout statements output the values of **s1.iname** and **s2.price.**

35. Write SQL queries to create the below given BUS table.

BUS		
BUS NO	**VARCHAR(6)**	**PRIMARY KEY**
BUS NAME	**VARCHAR(15)**	
YEAR	**INT(4)**	
TYPE	**CHAR**	

Ans - SQL query to create the BUS table as per the given specifications :

```
CREATE TABLE BUS (
    BUS_NO VARCHAR(6) PRIMARY KEY,
    BUS_NAME VARCHAR(15),
    YEAR INT(4),
    TYPE CHAR(1)
);
```

OR

Differentiate fixed length and variable length datatype.

Feature	Fixed-Length Datatype	Variable-Length Datatype
Definition	Fixed-length data types allocate a predefined, constant amount of storage space for each value, regardless of the actual content.	Variable-length data types allocate storage space based on the actual size of the data being stored.
Example Datatypes	CHAR(n), INT, FLOAT	VARCHAR(n), TEXT, BLOB

36. Create a webpage using the following instructions :

(a) Heading 'Examination' on the center of the webpage with biggest heading font.

(b) The Paragraph ''I feel My Exam has gone good'' on towards the right of the webpage.

(c) An image to be set having the file name ''NIOS2024.jpg'' with a border of 3.

Ans -

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width,  initial-scale=1.0">
    <title>Examination</title>
    <style>
        body {
            text-align: left;
            font-family: Arial, sans-serif;
        }
        h6 {
            text-align: center;
        }
    </style>
</head>
<body>
    <h6>Examination</h6>
    <p>I Feel My Exam has gone good</p>
    <img src="NIOS2024.jpg" alt="Exam Image" height="6" width="3">
</body>
</html>
```

Example Of The Webpage :

Examination

I Feel My Exam has gone good

Exam Image

37. Define the following terms : (Any three)

(i) Relation

(ii) Schema

(iii) Foreign key

(iv) Alternate key

(v) Attribute

Ans -

(i) A relation (or a table) is a collection of data corresponding to the same kinds of entities in a database. A relation may contain data of all the books in a library, or data of all the items in a shop etc. A database contains one or more than one relations.

(ii) Schema refers to the organization of data or skeleton structure that represents the logical flow of the entire database.

(iii) A **foreign key** is a column or set of columns in a table that establishes a link between data in two tables.

(iv) A table may have multiple candidate keys. One of these keys become the primary key of the table. All the remaining candidate keys are called alternate keys of the relation.

(v) An attribute is a property or characteristic of an entity in a database. In a relational database, an attribute corresponds to a column in a table and describes a specific piece of information about the entity.

38. Answer the questions from (i) to (iv) based on the below given program (assume all header files are included).

```
class Graduate {
        int Rollno;
        char GName [20];
        float Marks1;
protected:
```

```
        void Result();
public:
Graduate();
        void Enroll();
        void Display();
}
class Lecturer{
        long TCode;
        char TName[20];
Protected:
        float Salary;
public:
        Lecturer();
        void Enter();
        void Show();
};
class Learn : public Graduate, private Lecturer {
long CCode[10];
char LearnName[50];
char StartDate[8], EndDate[8];
public;
Learn();
void Commence();
void CDetail();
};
```

(i) Write the names of member functions, which are accessible from objects of class Learn.

(ii) Write the names of all the data members, which is/are accessible to member function Commence of class Learn.

(iii) Write the names of all the members, which are accessible from objects of class Lecturer.

(iv) Which type of Inheritance is illustrated in the above C++ code ?

Ans -

(i) The class Learn is derived publicly from Graduate and privately from Lecturer. Hence, the accessible functions from an object of Learn are:

- **Enroll()** (public function of Graduate)
- **Display()** (public function of Graduate)
- **Commence()** (public function of Learn)
- **CDetail()** (public function of Learn)

Functions of Lecturer (Enter() and Show()) are not accessible because it is inherited privately.

(ii) The member function **Commence()** of **Learn** can access the following data members :

15. **Rollno** (inherited from Graduate)
16. **GName** (inherited from Graduate)
17. **Marks1** (inherited from Graduate)
18. **CCode** (defined in Learn)
19. **LearnNam**e (defined in Learn)
20. **StartDat**e (defined in Learn)
21. **EndDate (**defined in Learn)

(iii) From objects of the Lecturer class, the following members are accessible :

9. **TCode** (public data member)
10. **TName** (public data member)
11. **Enter()** (public member function)
12. **Show()** (public member function)

(iv) The inheritance used in the given code is Multiple Inheritance because class Learn is inheriting from both Graduate (public) and Lecturer (private).

OR

Define Virtual Base Class. Display the structure by taking an example or with syntax.

Ans - Virtual base classes are used for preventing multiple "instances" of a given class appearing in an inheritance.

Syntax :

```
class Base {
    // Base class members
};
class Derived1 : virtual public Base {
    // Derived1 inherits Base virtually
};
class Derived2 : virtual public Base {
    // Derived2 inherits Base virtually
};
class FinalDerived : public Derived1, public Derived2 {
    // Only one copy of Base exists in FinalDerived
};
```

Example :

```
#include <iostream>
using namespace std;
class Base {
public:
    int data;
    Base() { data = 10; }
    void show() { cout << "Base data: " << data << endl; }
};
class Derived1 : virtual public Base { };
class Derived2 : virtual public Base { };
class FinalDerived : public Derived1, public Derived2 { };
int main() {
    FinalDerived obj;
    obj.show(); // Accessing Base class function
    return 0;
}
```

39. (i) Write a program to create an array of N elements, accept a number from the user, delete the accepted number from the array and print the new array.

Ans - Below is a C++ program that creates an array of N elements, accepts a number from the user, deletes the accepted number from the array, and then prints the new array.

```
#include <iostream>
using namespace std;

int main() {
    int N; 0
    // Accept the number of elements in the array
    cout << "Enter the number of elements in the array: ";
    cin >> N

    int arr[N];
    // Accept the elements of the array
    cout << "Enter the elements of the array: ";
    for (int i = 0; i < N; i++) {
        cin >> arr[i];
    }
    int numToDelete;
// Accept the number to delete from the array
    cout << "Enter the number to delete from the array: ";
    cin >> numToDelete;
```

```
// Delete the number from the array
    int newSize = 0;
    for (int i = 0; i < N; i++) {
        if (arr[i] != numToDelete) {
            arr[newSize] = arr[i];
            newSize++;
        }
    }
// Print the new array
    cout << "The new array after deletion is: ";
    for (int i = 0; i < newSize; i++) {
        cout << arr[i] << " ";
    }
    cout << endl;
    return 0;
}
```

Example Output :

```
Enter the number of elements in the array : 5
Enter the elements of the array : 1 2 3 4 5
Enter the number to delete from the array : 3
The new array after deletion is : 1 2 4 5
```

OR

(ii) Write a C++ program that accepts two numbers (a, b) from the user and passes to a function, the function will perform (a*a) + (b*b) to the main program which will display the output to the user.

Ans - Below is a simple C++ program that accepts two numbers from the user, passes them to a function that calculates the sum of their squares, and then displays the result.

```
#include <iostream>
using namespace std;
// Function to calculate the sum of squares
int sumOfSquares(int a, int b) {
    return (a * a) + (b * b);
}
int main() {
    int a, b;
// Accepting input from the user
    cout << "Enter the first number (a): ";
    cin >> a;
    cout << "Enter the second number (b): ";
    cin >> b;
// Calling the function and storing the result
    int result = sumOfSquares(a, b);
// Displaying the result
    cout << "The sum of squares of " << a << " and " << b << " is: " << result << endl;
    return 0;
}
```

Example Output :

Enter two numbers : 3 4

The result of (a*a) + (b*b) is : 25

This program is a basic example of how to use functions in C++ to perform calculations and return results to the main program.