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Assignment 1 for Computer Science

1. Differentiate between private and public member functions
2. How are the features data abstraction and data encapsulation of OOP's implemented in classes.
3. What are inline functions ? How are member functions of a class made inline ? What are the restrictions of inline functions ?
4. Look at the following code fragment :

```
Int a, b;
class num {   int x;   float  y  ;   char z;
          void initval( )
          { x=0  ;  y=0. 0  ;  z='\0'  ;  }
  public  :    int   a,   b ;
                void sum  ( int  n )
          {   cout <<   x * n ;    cout  <<  y+ n  ;   }
               void  fn (  int I  ,  float   j  , char    k  )  ;
     }  ;
     void   num  ::  fn (  int  I  ,  float   j  , char    k  )
          { x =  l  ;  y =   j  ;  z=     k  ;  }
  num   A ;
      void  display()
    {  a = 7   ; b=  9 ; }
```

Which variables can be accessed by the following functions

(i) Sum () (ii) fn ( ) (iii) display ( ) (iv) initval ( )

5. Define a class Train in C++ with following description:

Private members

src of type string

Tnm of type string

dest of type string

charges of type float

• A member function Getdata to assign the following values for Charges

dest charges

Dest Charges

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Mumbai	1000
Chennai	2000
Kolkatta	2500.

Public members

- A function InputData() to allow the user to enter the values
- A function displaydata() to display all and call getdata function

6. Define a class Restra in C++ with following description:

Private Members

• FoodCode of type int

• Food of type string

• Foodtype of type string

• Sticker of type string

• A member function Getsticker to return the following values for Sticker as per the given Ftype:

Foodtype	Sticker
Vegetarian	green
Contains egg	yellow
Nonvegetarian	red

Public members

A function GetFood() to allow the user to enter the values for Foodcode, Food, Foodtype and call function GetSticker() to return Sticker.

A function ShowFood() to allow the users to view the contents of all the data members.

7. Define a class TravelPlan in C++ with the following descriptions:

Private Members:

PlanCode	of type long
Place	of type character array (string)
Number	of travelers of type integer
Number_of_buses	of type integer

Public Members:

A function NewPlan( ) which allows user to enter PlanCode, Place and Number_of_travellers. Also, return the value of Number_of_buses as per the Following conditions:

Number_of_travellers	**Number_of_buses**
Less than 20	1
Equal to or more than 20 and less than 40	2
Equal to 40 or more than 40	3

A function ShowPlan ( ) to display the content of all the data members on screen.

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8. Declare a class Shop with the following specifications :
   Private Data Members :
   Stock no , Stock Name , Stock Price , Discount Percentage , Total Price
   Define required public Member Functions
   Input the information of 15 Stock items and do the following :
   (i) Display the information with Total Price
   (ii) Input any Stock name , search and display the information of that Stock else display an appropriate message.

Computer Science Assignment 2 - Class XII
Classes and Objects

1. .What will be the output of the following program segment:
   (i)
```
class Num
        {   int x;  float y;
public:  void init(void)
        {x=y=0; }
        void read( int i, float j )
        {  x=i;  y=j;  }
        void display(void)
       {   cout << "x= >" << "\n";   cout << "y => "  <<y << "\n";  }
       };
main()
{  Num obj1, obj2;
   obj1.init()  ; obj2.init();
   obj1.read( 10, 5.63);
   obj1.display(); obj2.display();   }
```

2. . Write a C++ program to perform the various operations on a class STRING containing a string without using any language supported built-in string functions. The operations on a string class are:
   (a) Read a string *(b)* Display the string *(c)* reverse the string
   (d) Display the string in capital letters without using strupr or toupper .

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3. Declare a class student with three data members: name, roll number, marks of 5 subjects and member functions to assign streams on the basis of table given below:

Average Marks	Stream
96% or more	Computer Science
91%-95%.	Electronics
86% - 90%	Mechanical
81%-85%	Electrical
76% - 80%	Chemical
71%- 75%	Civil

Streams should be assigned in a private function and should be returned to the calling function .

4. Declare a class for Emp rec with following data members :.

Empname
Basic
Total Pay of type float = Basic –IT + Spl Allowance

Write public functions to input and display data and a private function to calculate the Total Pay .

IT = 33% of Basic above Rs 20,000/-, Spl Allowance = Rs 10,000

Input the data of 50 Employees and print the details of the employees getting the highest and lowest salary

5. Consider the following class declaration and answer the questions below:

```
class Object
{ private:  int some, more;
void err_I ( ) {cout <<"error";}
public:  void Adata( int d) {some = d; more = d++;}
         void Bdata() {cout<<some<<""<<more;}
  };
```

(i) Write the name that specifies the above class.
(ii) Write the data members of the class with their access scope.
(iii) Write all member functions of the class along with their access scope.
(iv) Indicate the member function of the Object that sets data.

6. . WAP to define a class Prime to generate prime numbers between two numbers with the following specifics :

private	num1 and num2 - integer
public	input( ) to input num1 and num2
	prime ( ) to generate prime numbers between num1 and num2

7. Define a class Admission with following description :

AD_NO	Integer (Range 10 – 2000)
NAME	String
Class	Character
Fees	Float

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Public Members Readata( ) to input data of an object
Display ( ) to display data of an object
Draw_Nos (Admission A[50]) to use the random function to generate the AD_NO of any two students and print the details of these two students.

Input the data of 50 students and call Draw_nos to print randomly the details of two students.

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