HOLIDAY HOME WORK
COMPUTER SCIENCE
ASSIGNEMNT - 1
CLASS XII
TOPIC : REVISION TOUR

1. Rewrite the following program after removing the syntactical errors (if any). Underline each correction.

```
#include <iostream.h>
struct Pixels
{
        intColor,Style;
}
voidShowPoint(Pixels P)
{
        cout<<P.Color,P.Style<<endl;
}
void main()
{
        Pixels Point1=(5,3);
        ShowPoint(Point1);
        Pixels Point2=Point1;
        Color.Point1+=2;
        ShowPoint(Point2);
}
```

Give the output of the following programs :
(Assume that the required header files are already included)

2.
```
void len(char boy[10]);
void main()
{
    int b;
    charbboy[10];
    for (inti=0;i<10;i++)
            bboy[i]='s';
    cout<<endl;
    len(bboy);
    getch();
    return 0;
}
voidlen (char boy[10])
{
    int I;
    l=strlen(boy);
    cout<<l;
    cout<<endl;
    for (int j=0;j<10;j++)
    {
            char a = toupper(boy[j]);
            cout<<a;
    }
    return ;
}
```

3.
```
struct PLAY
{
        int Score, Bonus;
};
void Calculate(PLAY &P, int N=10)
{
        P.Score++;
        P.Bonus+=N;
}
void main()
{   PLAY PL={10,15};
        Calculate(PL,5);
        cout<<PL.Score<<":"<<PL.Bonus<<endl;
        Calculate(PL);
        cout<<PL.Score<<":"<<PL.Bonus<<endl;
        Calculate(PL,15);
        cout<<PL.Score<<":"<<PL.Bonus<<endl;
}
```

```
4. void Encrypt(char T[])
   {
   for (inti=0;T[i]!='\0';i+=2)
           if (T[i]=='A' || T[i]=='E')
                   T[i]='#';
           else if (islower(T[i]))
                   T[i]=toupper(T[i]);
           else
                   T[i]='@';
   }
   void main()
   {   char Text[]="SaVEEArtH";
       //The two words in the string Text are separated by single space
       Encrypt(Text);
       cout<<Text<<endl;
   }


5. voidWithdef(intHisNum = 30)
   {
           for (int I = 20; I <= HisNum; I += 5)
           cout<< I << " ";
           cout<<endl;
   }
   void Control(int&MyNum)
   {
           MyNum += 10;
           Withdef(MyNum);
   }
   void main()
   {
           intYourNum = 20;
           Control(YourNum);
           Withdef();
           cout<< "Number = " <<YourNum<<endl;
   }
6. void ChangeIt(char Text[], char C)
   {
```

```
       for (int K = 0; Text[K] != '\0'; K++)
       {
               if (Text[K] >= 'F' && Text[K] <= 'L')
               Text[K] = tolower(Text[K]);
               else if (Text[K] == 'E' || Text[K] == 'e')
               Text[K] = C;
               else if (K % 2 == 0)
               Text[K] = toupper(Text[K]);
               else
               Text[K] = Text[K - 1];
       }
   }
   void main()
   {
           charoldText[] = "pOwERALone";
           ChangeIt(oldText, '%');
           cout<< "New TEXT:" <<oldText<<endl;
   }

7. void Convert(char Str[], int Len)
   {
           for (int Count = 0; Count < Len; Count++)
           {   if (isupper(Str[Count]))
                   Str[Count] = tolower(Str[Count]);
               else if (islower(Str[Count]))
                   Str[Count] = toupper(Str[Count]);
               else if (isdigit(Str[Count]))
                   Str[Count] = Str[Count] + 1;
               else
               Str[Count] = '*';
           }
   }

   void main()
   {
           char Text[] = "CBSE Exam 2015";
           int Size = strlen(Text);
```

```
        Convert(Text, Size);
        cout<< Text <<endl;
        for (int C = 0, R = Size - 1; C < Size / 2; C++, R--)
        {    char Temp = Text[C];
                Text[C] = Text[R];
                Text[R] = Temp;
        }
        cout<< Text <<endl;
   }
```

8. int a=3;
```
   void demo(intx,inty,int&z)
   {
       a+= x+y ;
       z= a+y;
       y+=x;
       cout<<x<<y<<z<<endl;
   }
   void main()
   {
       int a=2, b=5;
       demo(::a,a,b);
       cout<<::a<<a<<b<<endl;
       demo(::a,a,b);
   }
```

9. void Changethecontent(intArr[], int Count)
```
   {
            for (int C=1;C<Count;C++)
                Arr[C-1]+=Arr[C];
   }
    void main()
    {
            int A[]={3,4,5},B[]={10,20,30,40},C[]={900,1200};
            Changethecontent(A,3);
            Changethecontent(B,4);
            Changethecontent(C,2);
```

```
            for (int L=0;L<3;L++)        cout<<A[L]<<'#';
            cout<<endl;
            for (L=0;L<4;L++)          cout<<B[L] <<'#';
            cout<<endl;
            for (L=0;L<2;L++)          cout<<C[L] <<'#';
   }
```

10. struct land
```
   {
            int length;
            int breadth;
            float area;
   };
   voidcalarea(land &p1, int y=5)
   {
            p1.area=p1.length*p1.breadth;
            p1.area / =y;
            p1.length++;
            p1.breadth++;
   }
   void main( )
   {
            land first = { 10, 12}, second = {5, 10};
            calarea(first);
            cout<<first.area<<"#"<<first.length<<"#"<<first.breadth<<endl;
            calarea(second,2);
            cout<<second.area<<"#"<<second.length<<"#"<<second.breadt
            h<<endl;
   }
```

Output Questions based on random()
Note : Justify your answer in each case

11. **Observe the following program, find the correct possible output(s) from the options, and justify your option(s).**
```
   void main( )
```

```
{    randomize( );
     int x=10;
     for(int y = 1; y <= 4 ;y++)
             cout<<random(x - -)+y<<":";
}
```
 (i) 10 : 12 : 11 : 10 :   (ii) 12 : 10 : 11 : 12 :
 (iii) 9 : 9 : 9 : 9 :   (iv) 11 : 12 : 9 : 8 :

12. In the following program, find the correct possible output(s) from the options:
```
void main ()
{
     char serial[ ] = {'A', 'B', 'C', 'D'};
     int number[ ] = { 2, 6, 7, 3};
     randomize();
     cout<< " The winner is : ";
     cout<< serial [random(3)];
     for (inti = 0; i< 4; i++)
             cout<< number[sizeof(int) + random(2) - 1 ];
}
```
(i) The winner is : A2776   (ii) The winner is : D6766
(iii) The winner is : B6767   (iv) The winner is : C3672

13. In the following C++ program what is the expected value of MyMarks from Options (i) to (iv) given below. Justify answer.
```
void main()
{
     randomize();
     int Marks[] = { 99, 92, 94, 96, 93, 95 }, MyMarks;
     MyMarks = Marks[1 + random(2)];
     cout<<MyMarks<<endl;
}
```
(i) 99   (ii) 94   (iii) 96 (iv) None of the above

14. Go through the C++ code shown below, and find out the possible output or output from the suggested output options (i) to(iv). Also, write the least value and highest value, which can be assigned to the variable guess.
```
void main()
{
     randomize();
     int Guess, High = 4;
     Guess = random(High) + 50;
     for (int C = Guess; C <= 55; C++)
     cout<< C << "#";
}
```
(i) 50 # 51 # 52 # 53 # 54 # 55 #   (ii) 52 # 53 # 54 # 55 #
(iii) 53 # 54 #   (iv) 51 # 52 # 53 # 54 #
55

15. Find the output of the following program.
```
void main()
{
     randomize();
     int NUM;
     NUM = random(3) + 2;
     char TEXT[] = "ABCDEFGHIJK";
     for (int I = 1; I <= NUM; I++)
     {
             for (int J = NUM; J <= 7; J++)
                     cout<< TEXT[J];
             cout<< end1;
     }
}
```
a) FGHI   b) BCDEFGH   c) EFGH   d) CDEFGH
    FGHI   BCDEFGH   EFGH   CDEFGH
    FGHI   EFGH
    FGHI   EFGH
                                           EFGH

16. Find the correct possible output(s) of the following program from the options given below.
```
void main()
{    randomize();
```

```
charcolor[10][10]={"RED","BLUE","PINK","BLACK"};
int p;
for(inti=1; i<=3; i++)
{
        p=random(2) +1;
        cout<<color*p+<<":";
}
}
```
(i) BLUE:PINK:BLUE   (ii) RED:BLUE:PINK

(iii) BLUE:PINK:BLACK   (iv) BLUE:PINK:PINK

17. In the following program, find the correct possible output(s)from the options:
```
void main( )
{
    randomize( );
    char City[ ][10]={"DEL", "CHN", "KOL", "BOM", "BNG"};
    int Fly;
    for(int I=0; I<3;I++)
    {
        Fly=random(2) + 1;
        cout<<City[Fly]<< ":";
    }
}
```
(i)   DEL : CHN : KOL: (iii)   KOL : BOM : BNG:

(ii)   CHN: KOL : CHN: (iv)   KOL : CHN : KOL:

18. Based on the following C++ code find out the expected correct output(s) from the option (i) to(iv). Also, find out the minimum and the maximum value that can be assigned to the variable Guess used in the code at the time when value of Turn is 3.
```
void main()
{
    char Result[][10]={"GOLD","SILVER","BRONZE"};
    intGetit=9,Guess;
    for(int Turn=1;Turn<4;Turn++)
    {
```

```
        Guess=random(Turn);
        cout<<Getit-Guess<<Result[Guess]<<"*";
    }
}
```
(i) 9GOLD*9GOLD*8SILVER*   (ii)
9GOLD*7BRONZE*8GOLD*

(iii) 9GOLD*8SILVER*9GOLD*   (iv)
9GOLD*8SILVER*8GOLD*

19. Based on the following C++ code, find out the expected correct output(s) from the options (i) to (iv). Also, find out the minimum and the maximum value that can be assigned to the variable Trick used in the code at the time when value of Count is: 3. Assume all required header files are already being included in the program.
```
void main()
{
char Status[][10] = {"EXCEL", "GOOD", "OK"};
int Turn = 10, Trick;
for(int Count = 1; Count < 4; Count++)
    {
        Trick = random(Count);
cout<< Turn – Trick << Status[Trick] << "#";
    }
}
```
(i) 10EXCEL#10EXCEL#8OK#   (ii) 10EXCEL#8OK#9GOOD#

(iii) 10EXCEL#9GOOD#10EXCEL#   (iv) 10EXCEL#10GOOD#8OK#

20. Observe the following program and find out, which output(s) out of (i) to (iv) will be expected from the program? What will be the minimum and the maximum value assigned to the variable Alter?
```
void main( )
{
    randomize();
    intAr[]={10,7}, N;
    int Alter=random(2) + 10 ;
    for (int C=0;C<2;C++)
    {
```

```
        N=random(2) ;
        cout<<Ar[N] +Alter<<"#";
    }
}
```
(i) 21#20#   (ii) 20#18#
(iii) 20#17#   (iv) 21#17#

21. **Look at the following C++ code and find the possible output(s) from the options (i) to (iv) following it. Also, write the maximum values that can be assigned to each of the variables N and M.**
```
void main()
{   randomize();
    int N=random(3),M=random(4);
    int DOCK[3][3] = {{1,2,3},{2,3,4},{3,4,5}};
    for(int R=0; R<N; R++)
    {
        for(int C=0; C<M; C++)
            cout<<DOCK[R][C]<<" ";
        cout<<endl;
    }
}
```

(i)	(ii)
1 2 3 2 3 4 3 4 5	1 2 3 2 3 4
(iii)	**(iv)**
1 2 2 3	1 2 2 3 3 4|

22. Rewrite the following C++ code after removing all the syntax error(s), if present in the code. Make sure that you underline each correction done by you in the code.
```
#Define float pi = 3.14
typedefinition char[80] string;
```

```
void main { }
{
    stringstr ;
    gets(str);
    cout<<str<<\n;
} ;
```

23. The following C++ code on compilation produces errors. Write the names of the correct header files, which must be included to compile the code successfully.
```
void main( )
{
    float Last =26.5698;
    cout<<setw(5)<<setprecision(2)<<Last;
}
```

CLASS XII ASSIGNMENT
TOPIC :REVISION TOUR (Theory Based Questions)

1. Differentiate between :
   a) actual & formal parameters
   b) call by value and call by reference
   c) #define and const
   d) entry and exit controlled loops
   e) break and continue
   f) if-else and switch case
   g) implicit and explicit type conversion
   h) arrays and structures
   i) 8 , '8' , "8"
   j) = and = =
   k) local and global variable
   l) constant and variable
   m) Syntax error and run time error

2. What is the significance of main() in a program?
3. Can modulus operator(%) work with float data types ?
4. Define a reference variable. Explain the concept with the help of an example.
5. What do you mean by typedef? Illustrate its usage with the help of an example.
6. What is the significance of '\0' in strings?
7. keywords
8. What do you mean by #? What are the various uses of # in C++ programming?
9. What do you mean by ternary operator? Name the ternary operator present in C++ and illustrate its syntax and use with the help of an example.
10. What do you mean by function prototype? What is the significance of function prototype in a program?
11. Can we skip function prototype in a program? Explain with the help of an example.
12. What is the purpose of return statement?
13. Can a function return more than 1 value at a time?
14. Can a function have more than one return statements?
15. Name the header files for the following functions :

clrscr()	setw()	gets()	toupper()
sqrt()	strcmp()	setprecision()	exit()
strlen()	isalpha()	puts()	islower()
cos()	exp()	getch()	pow()
fabs()	random()	strupr()	strrev()

CLASS XII ASSIGNMENT
TOPIC :OBJECT ORIENTED PROGRAMMING CONCEPTS

1. What is the difference between private and public members of the class. Illustrate with the help of an example.
2. Define the following terms and illustrate each one of these with the help of an example.
   a) Data encapsulation
   b) Data hiding
   c) Data Abstraction
   d) Polymorphism
   e) Inheritance

ASSIGNEMNT - 2
TOPIC : FUNCTION OVERLOADING

1. Define function overloading.
2. Illustrate how function overloading can be implemented using default arguments with the help of an example.
3. If two functions have same parameter list and different return types, are they said to be overloaded?
4. **Write the output of the following C++ code:**

```cpp
      class Overload
      {
public:
            void PRINT()
            {
                  for(int k = 1;k<=20;k+=2)
                        cout<<k<<" – ";
            }
            void PRINT(int N)
            {
                  for(int k = N;k>=1;k-=2)
                        cout<<k<<" – ";
            }
            void PRINT(int N, int Q)
            {
                  for(int k = N;k<=Q;k++)
                        cout<<k++<<" – ";
            }
            void PRINT(int N, char C)
            {
                  for(int k = 1;k<=N ; k++)
                        cout<< (char)(C++ )<< " ";
            }
            void PRINT (char S[], int x = 5)
            {
                  for(int k = 1;k<=x ; k++)
                  {
                        for(int m = 1; m<=k; m++)
                              cout<< S[m] << " ";
                        cout<<endl;
                  }
            }
      };
      void main()
      {
            Overload obj;
            obj.PRINT(20);
            cout<<endl;
            obj.PRINT(5, 'A');
            cout<<endl;
            obj.PRINT(20,30);
            cout<<endl;
            obj.PRINT("HOLIDAY");
            cout<<endl;
            obj.PRINT();
            cout<<endl;
            obj.PRINT("OVER",3);
            cout<<endl;
      }
```

5. Out of the following functions given, identify all the possible groups of functions which can be overloaded in a program. Also state the reason for not including particular function(s) in the groups.

```cpp
      void DEMO(int a , char b);      //Function 1
      void DEMO(int x =100);          //Function 2
      void DEMO(int&y);               //Function 3
      void DEMO(int z);               //Function 4
      int DEMO(char x , int y );      //Function 5
      void DEMO(char y , int x);      //Function 6
```

ASSIGNEMNT - 3
Topic : Classes &Objects

1. Define a class ITEM in C++ with following description:
  Private members:
- Icode of type integer (Item Code)
- Item of type string (Item Name)
- Price of type Float (Price of each item)
- Qty of type integer (Quantity in stock)
- Discount of type float (Discount percentage on the item)
- A find function finddisc( ) to calculate discount as per the following rule:

If Qty<=50	discount is 0%
If 50 <Qty<=100	discount is 5%
If Qty>100	discount is 10%

  Public members :
- A function Buy( ) to allow user to enter values for Icode, Item, Price, Qty and call function Finddisc() to calculate the discount.
- A function showall ( ) to allow user to view the content of all the data members.

2. Define a class employee with the following specifications :
  Private members :
- empno   : integer
- ename   : 20 characters
- basic, hra, da : float
- netpay   : float
- calculate() A function to calculate basic + hra + da with float return type

  Public members :
- havedata() function to accept values for empno, sname, basic, hra, da and invoke calculate() to calculate netpay.
- dispdata() function to display all the data members on the screen.

3. Define a class **RESORT** with the following specification :
  Private members:
- rno to store room no between 101 and 909

- name to store customer name
- charges to store per day charges
- days to store number of days of stay
- compute( ) a function to calculate and return amount as days*charges and if the value of days*charges is more than 11000 then as 1.02*days*charges

Public members
- get_info( ) a function to accept values for rno, name, charges, days.
- disp_info( ) a function to display rno, name, charges, days and amount(amount to be displayed by calling function compute( )

4. Define a class **FLIGHT** in C++ with following description:
  Private Members
- A data member Flight number of type integer
- A data member Destination of type string
- A data member Distance of type float
- A data member Fuel of type float
- A member function CALFUEL() to calculate the value of Fuel as per the following criteria

Distance	Fuel
<=1000	500
more than 1000 and <=2000	1100
more than 2000	2200

  Public Members
- A function FEEDINFO() to allow user to enter values for Flight Number, Destination, Distance & call function CALFUEL() to calculate the quantity of Fuel
- A function SHOWINFO() to allow user to view the content of all the data members

5. Define a class report with the following specification :
  Private members :
  ☐adno : 4 digit admission number
  ☐ name : 20 characters
  ☐marks : an array of 5 floating point values
  ☐ average : average marks
  ☐getavg() to compute the average obtained in five subjects

Public members :
- readinfo() function to accept values for adno, name, marks, and invoke the function getavg().
- displayinfo() function to display all data members on the screen

6. Define a class **Student** with the following specifications:
Private Members:
- Roll_No   integer
- Name   20 characters
- Marks   array of 5 integers
- Stream   20 characters
- FindStream()   A function to assign Stream on the basis of table given below :
-

Marks	Stream
96% and more	Computer Science
91% to 95.9%	Electronics
86% to 90.9%	Mechanical
81% to 85.9%	Electrical
76% to 80.9%	Chemical
71 to 75.9%	Civil

Public Members:
- GetData() A function to read Roll_No, Name, Marks and to invoke function FindStream() to assign Stream.
- PutData() A function to display all the student details.

Write the main() to test the above program.

7. Define a class **Garments** in C++ with the following descriptions:
Private Members:
- GCode   String
- GType   String
- GSize   Integer
- GFabric   String
- GPrice   Float
- Assign() A function which calculates and assigns the value of GPrice as follows:

For the value of GFabric as "Cotton", assign the value of Gprice as

below:

GType	GPrice
Trouser	1300
Shirt	1100

For the value of GFabric other than "Cotton", the above mentioned price gets reduced by 10%.

Public Members:
- A constructor to assign initial values of GCode, GType and Gfabric with the word "NOT ALLOTED" and GPrice and GSize as 0.
- A Parameterized constructor to assign the values of all data members as passed by the user.
- A function Input() to input the values of data members GCode, GType, GSize and GFabric and invoke the function Assign().
- A function Display() to print all the data members.

8. A class Clock has following members:
Data members:
- hour of type integer
- minute of type integer.

Member functions:
- readtime(int h, int m);   //to initialize data members
- showtime();   //to display data members
- addtime(time t1, time t2);   // to add two object of type clock

Write a complete program in C++ to input two different objects FT, ST. Print their sum (assuming 24 hours clock time).

9. Define a class **STRING** in C++ with following description:
PRIVATE MEMBERS: str1,str2,str3 (string)
PUBLIC MEMBERS: A function INPUT( ) to accept two words for str1 and str2.
- A function COMPARE( ) to compare two words str1 and str2 and return 1 if they are identical or 0
- A function CONCATE( ) to concatenate to words str1,str2 and assign to str3.
- A function REVERSE () to reverse str1.

- A function SHOW() to display the values of str1, str2 and str3.

10. Define a class **competition**in C++ with the following specifications :
   Private memberss
- event_no integer
- description 25 character
- score integer
- qualified char

Public members
- A constructor function to initialize event_no as 1001, description as "state level", score as 50 and qualified as 'n'
- input( ) function to take the input for event_no, description and score
- award(int) to award qualified as 'y' , if score is more than cutoffscore(passed as argument) else 'n'
- show( ) function to display all the data members on the screen

11. Define a class **power** with the following specifications :
   private members
- mno(meter no) long
- cname(cunsumer's name) 20 character
- units(unit consumed) float
- charges(charges to be paid) float
- calccharges() to calculate charges according to the following conditions

units	charges
below 100	Rs2.00 per unit
100 – 200	Rs3.00 per unit
more than 200	Rs5.00 per unit

public members
- enterdata( ) function to accept values for mno, cname, units and call the function calccharges() to calculate the charges.
- showdata( ) function to display all the data members on the screen
   Write the main function to manage the power for 5 consumers.

12. Define a class **Customer** with the following specifications.
Private Members :

Customer_no integer
Customer_name char (20)
Qty integer
   Price, TotalPrice, Discount, Netprice float
Public members:
- Input( ) – to read data members(Customer_no, Customer_name, Quantity and Price) call Caldiscount().
- Caldiscount ( ) – To calculate Discount according to TotalPrice and NetPrice

TotalPrice = Price*Qty

TotalPrice>=50000	Discount 25% of TotalPrice
TotalPrice>=25000 but <50000	Discount 15% of TotalPrice
TotalPrice<250000	Discount 10% of TotalPrice

Netprice= TotalPrice-Discount
- Show( )   to display Customer details.

13. Define a class BUS with the following specifications:
   Private members:
- busno   integer to store bus number
- from   string to store starting place
- to   string to store ending place
- type   to store BUS type 'O' for ordinary
- Distance   integer to store distance in kilometre
- fare   integer to store bus fare

   Public members:
- A function calcfare() to calculate fare as per the following criteria:

Type	fare per kilometre
'O'	Rs 15/
'E'	Rs 20/
'L'	Rs 24/

- A function allocate() to allow user to enter values for bus number, from, to, type and distance. Also this function should invoke calcfare() to calculate fare.
- A function show() to display the content of all the data members on screen.

14. Define a class **DanceAcademy** in C++ with following description:
Private Members
- Enrollno of type int

- Name of type string
- Style of type string
- Fee of type float
- A member function chkfee( ) to assign the value of fee variable according to the style entered by the user. According to the criteria as given below:

Style	Fee
Classical	10000
Western	8000
Freestyle	11000

Public Members
- A function enrollment() to allow users to enter values for Enrollno,Name, Style and call function chkfee() to assign value of fee variable according to the Style entered by the user.
- A function display() to allow users to view the details of all the data members.

15. Define a class **RESTRA** in C++ with the following descriptions :
Private members:
- fcode   of type integer (food code)
- ftype   of type string (food type)
- fname   of type string (food name)
- sticker   of type string
- A function getsticker() which assigns the following values for sticker as per the given food type

Ftype	sticker
Vegetarian	green
Contains egg	yellow
Non_vegeterian	red

Public members:
- A function Enter () to input the values for food code, food name, food type and call function getsticker() to assign sticker.
- A function Show () which displays the content of all the data members.

16. Define a class BOOK with following specifications
Private members:
- book_no   integer,
- book_title   string,

- price   float (price per copy)
- Total_cost()   to calculate and returns total cost of N copies where N is passed to function as argument

public members:
- input()   to read book_no, book_title, price
- purchase()   to ask the user to input no. of copies to be purchased. It invokes total_cost() and prints the total cost to be paid by the user.

17. Rewrite after removing syntax errors
```
include<iostream.h>
class FLIGHT
{    longFlightCode;
char Description[25];
public
voidAddinfo()
    {   cin>>FlightCode;  gets(Description);       }
voidShowinfo()
    {     cout<<FlightCode<<":"<<Description<<endl;       }
 };
void main()
{   FLIGHT F;
Addinfo.F();
Showinfo.F();
}
```

18. Rewrite after removing syntax error
```
#include [iostream.h]
#include [stdio.h]
class employee
{
intempid=901;
charename[20];
public
void joining()   { cin>>empid;        gets(ename); }
void list()     { cout<<empid<<" :"<<ename<<endl; }
```

```
}
void main()
{
employee E;
joining.E();
E.list()
}
```

```
{  train T, N;
T.init(10);      N.init() ;
N.trip();
T.show();
T.trip(70);    N.trip(40);
N.show();    T.show();
}
```

19. **Find the output of the following program segment**

```
#include<iostream.h>
classrect
{       intx,y;
public:
        voidset_value(int, int);
        int area();
};
voidrect::set_value( int a, int b)
{   x=a;
    y=b;   }
intrect::area()
{     return( x*y); }
void main()
{   rect  A, B;
A.set_value(5,6);
B.set_value(7,6);
cout<<"Area of A "<<A.area();
cout<<Area of B "<<B.area();
}
```

20. **Find Out the output for the program**

```
class train
{       inttno, tripno, personcount;
public:
voidinit( int n=1)
      { tno=n;      tripno=0;         personcount=0;  }
void trip( inttc=100)
{ tripno++;    personcount +=tc;  }
void show()
{ cout<<tno<<":"<<tripno<<":"<<personcount<<endl;  }
};
void main()
```

ASSIGNEMNT - 4
TOPIC : CONSTRUCTORS AND DESTRUCTORS

1. What do you mean by a constructor function? Write any 4 characteristics of a constructor.
2. What do you mean by a destructor function? Write any 4 characteristics of a destructor.
3. What is the role of copy constructor in a class?
4. Can constructors be overloaded?
5. Can destructors be overloaded?
6. Consider the following code fragment and answer the questions that follow:

```
class Test
{
        int Rno;
        char Paper[20];
    public:
        Test( )                  // function1
        {   Rno=0;
            strcpy(Paper , "\0");
        }
        Test (int x, char y [ ])  //function 2
        {   Rno=x;
            strcpy(Paper , y);
        }
        Test( Test &);           //function 3
        ~Test()                  //function 4
        { cout<<"Destructor";   }
};
```

  i.) Name the specific feature of OOPs shown by function 1 and function 2 together.
  ii.) By what name function 1 is referred to?
  iii.) What happens if function 1 is declared in private section?
  iv.) What is function 4 referred to as? When is it invoked?
  v.) What is function 3 referred to as?
  vi.) What are the various cases when function 3 gets invoked?
  vii.) Write complete function definition for function 3.
  viii.) Write statement to invoke function 1 and 2.
  ix.) What is the difference between the following 2 statements :
      Test t = Test ( );
      Test t;
  x.) Give the complete definition function 3.

7. **Answer the questions after going through the following class:**

```
class Seminar
{
    int Time;
    public:
        Seminar()                       //Function 1
        {   Time=30;
            cout<<"Seminar starts now"<<endl;
        }
        void Lecture()                  //Function 2
        {
            cout<<"Lectures in the seminar on"<<endl;
        }
        Seminar(int Duration)           //Function 3
        {   Time=Duration;
            cout<<"Seminar starts now"<<endl;
        }
        ~Seminar()                      //Function 4
        {
            cout<<"Vote of thanks"<<end1;
        }
        Seminar (Seminar &obj) ;        //Function 5
};
```

i)   In OOP, what is Function 4 referred as and when does it get invoked?
ii) What is function 1 called and when is it invoked?
iii) Which property of OOP is demonstrated by function 1 and 3 together?
iv) Write down the statements to invoke Function 1 and 3.
v)   What is Function 5 called?
vi) What is the purpose of function 5?
vii) Write statements to invoke Function 5.
viii) Write down the complete function definition of Function 5.
ix) Explain the difference between the following 2 statements:
                Seminar obj(100);
                Seminar obj = Seminar(100);

8. What will be the output of the following code.

```cpp
class A
{
   public:
        A( )
         { cout<<"Constructor A"<<endl; }
        ~A( )
         { cout<<"Destructor A"<<endl; }
};
class B
{
   public:
        B( )
         { cout<<"Constructor B"<<endl; }
        ~B( )
         { cout<<"Destructor B"<<endl; }
};
class C
{
        A oa1;
```

```cpp
        B ob1;
   public:
        C( )
                { cout<<"Constructor C"<<endl; }
        ~C( )
                { cout<<"Destructor C"<<endl; }
};
void main( )
{
        C oc1;
        B ob2;
        A oa2, oa3;
}
```

9. What will be the output of the following program code.

```cpp
class date
{
        int mo, da, yr;
        public:
        date( )
                { mo = 0; da = 0; yr = 0; }
        date(int m, int d, int y)
                { mo = m; da = d; yr = y;}
        ~date( );
        void display( )
                { cout<<"\n"<<mo<<"/"<<da<<"/"<<yr; }
};
date :: ~date( )
        { cout<<"\n Date Destructor " ;}
void main( )
{
        date d[2];
        date temp(6, 4, 10);
        d[0] = temp;
```

```
            d[0].display();
            d[1].display();
      }
```

10. Give the output of the following program.
```
      class myclass
      {
            int a;
            public:
            myclass( )
            {
                  cout<<"In Constructor\n";
                  a = 5;
            }
            ~myclass( ) { cout<<"Destructor Out \n"; }
            void show( ) { cout<<a<<"\n" ; }
      };
      void main()
      {
            myclass ob;
            ob.show( )
      }
```

11. Give the output of the following program.
```
   class stock
   {
      long int id;
      float rate;
      int date;
      public :
            stock()
            {
                  id=1001;
                  rate=200;
                  date=1;
            }
            void regcode(long int i , float r)
            {
                  id=i;
                  rate=r;
            }
            void change(int New , int dt)
            {
                  rate+=New;
                  date=dt;
            }
            void show()
            {
                  cout<<"Date:"<<date<<endl;
                  cout<<id<<"#"<<rate<<endl;
            }
   };

   void main()
   {
      stock a,b,c;
      a.regcode(1024,150);
      b.regcode(2015,300);
      b.change(100,29);
      c.change(20,20);
      a.show();
      b.show();
      c.show();
   }
```

12. Give the output of the following program.
```
   class Eval
   {
```

```cpp
        char Level;
        int Point;
    public:
            Eval(){Level='E';Point=0;}
            void Sink(int L)
            {
                    Level-=L;
            }
            void Float(int L)
             {
                    Level+=L;
                     Point++;
            }
            void Show()
             {
                    cout<<Level<<"#"<<Point<<endl;
            }
    };
    void main()
    {
        Eval E;
        E.Sink(3);
        E.Show();
        E.Float(7);
        E.Show();
        E.Sink(2);
        E.Show();
}
```

13. Give the output of the following program.

```cpp
    class Aroundus
    {
            int Place, Humidity, Temp;
        public:
            Aroundus(int P = 2)
            {
                Place = P;
                Humidity = 60;
                Temp = 20;
            }
            void Hot (int T)
            {
                Temp += T;
            }
            void Humid(int H)
            {
                Humidity += H;
            }
            void JustSee()
            {
                cout << Place << ":" << Temp << "&" << Humidity <<
            "%" << endl;
            }
    };
    int main()
    {
        Aroundus A, B(5);
        A.Hot(10);
        A.JustSee();
        B.Humid(15);
        B.Hot(2);
        B.JustSee();
        A.Humid(5);
        A.JustSee();
}
```

ASSIGNEMNT - 5
TOPIC : INHERITANCE

1. Define the term inheritance in context to object oriented programming.
2. What are the three modes of inheritance?
3. What is the difference between private and protected members of a class? Explain with the help of a relevant example.
4. What are the various types of inheritance available in C++?
5. Can the private members be inherited in the child class?
6. **Answer the questions based on the following:**

```
class Shape
{
    public:
            void setWidth(int w)
                    { width = w; }
            void setHeight(int h)
                    { height = h; }
    protected:
            int width;
            int height;
};
class Rectangle: public Shape
{
    public:
            int getArea()
                    { return (width * height); }
};
```

a) Which type of inheritance is illustrated in the above example?
b) What is the mode of inheritance?
c) What will be the order of call of constructors and destructors when an object of class Rectangle is created?
d) Write data members, which are accessible from objects belonging to class Rectangle.
e) Write the names of all the member functions which are accessible from objects belonging to class Shape.
f) Write the names of all the members which are accessible from member functions of class Rectangle.
g) How many bytes will be required by an object of class Rectangle and Shape?

7. **Answer the questions based on the following:**

```
class PUBLISHER
{
```

```
        char Pub[12];
        double Turnover;
    protected:
        void Register();
    public:
        PUBLISHER();
        void Enter();
        void Display();
};
class BRANCH
{
    char CITY[20];
    protected:
        float Employees;
    public:
        BRANCH();
        void Haveit();
        void Giveit();
};
class AUTHOR : public BRANCH , PUBLISHER
{   int Acode;
        char Aname[20];
        float Amount;
    public:
        AUTHOR();
        void Start();
        void Show();
};
```

a) Which type of inheritance is illustrated in the above example?
b) What is the mode of inheritance for parent PUBLISHER?
c) What is the default mode of inheritance?
d) What will be the order of call of constructors and destructors when an object of class AUTHOR is created?
e) Write the data members, which are accessible from objects belonging to class AUTHOR.
f) Write the names of all the member functions which are accessible from objects belonging to class BRANCH.
g) Write the names of all the members which are accessible from member functions of class AUTHOR.
h) How many bytes will be required by an object belonging to class AUTHOR, BRANCH and PUBLISHER?

8. **Consider the following and answer the questions that follow :**
class School

```
{    int A;
     protected :
         int B,
         int C;
     public :
         void INPUT ( int t);
         void OUTPUT ( );
};
class Dept : protected School
{    int X,Y;
      protected :
         void IN(int, int);
      public :
         void OUT ( );
};
class Teacher : public Dept
{    int P;
         void DISPLAY( );
       public :
         void ENTER( );
};
```

a) Name the type of inheritance illustrated in the above example.
b) Name the Base class and Derived class of class Dept.
c) Name the data members that can be accessed from function OUT( ).
d) Name the private member function(s) of class Teacher.
e) Is the member function OUT( ) accessible by the objects of Dept ?
f) How many bytes will be required by an object of class School and Teacher?
g) What will be the order of call of constructors and destructors when an object of class Teacher is created?

9. Consider the following and answer the questions that follow :
```
class person
{    char name[20],
         address[20];
     protected:
         int x;
     public:
         void enter_person();
         void disp_person();
};
```

```
class client : private person
{
         int resource;
     public:
         int get_resource();
         void free_resource();
};
class doctor : public person
{
     char speciality[20];
     public:
         void input();
         void disp();
};
```

a) What type of inheritance is depicted by the above example?
b) Write the member functions, which can be called by the object of class client.
c) Write the members which can be accessed by the functions of class doctor.
d) What is the size in bytes of the object of class doctor and client respectively?
e) Write the data members, which can be used by the member functions of theclass doctor.
f) What will be the order of call of constructors and destructors when an object of class client is created?
g) What will be the order of call of constructors and destructors when an object of class doctor is created?

10. Consider the following and answer the questions given below.
```
class Goods
{    int id;
         protected :
             char name[20];
             long qty;
             void Incr(int n);
         public :
             Goods();
             ~Goods();
             void get();
};
class Food_products : public Goods
{    char exp_dt[10];
```

```
        protected :
                int id;
                int qty;
        public :
                void getd();
                void showd();
    };
class Cosmetics : private Goods
{   int qty;
        char exp_date[10];
        protected :
                int id;
        public :
                ~Cosmetics();
                Cosmetics();
                void show();
};
```

a) How many bytes will be required by an object of class Food_products.
b) Name the member functions accessible through the object of class Food_products.
c) From the following, Identify the member function(s) that cannot be called directly from the object of class Cosmetics show(), getd(), get()
d) If the class cosmetics inherits the properties of food_products class also, then name the type of inheritance.

11. Consider the following and answer the questions given below.

```
class Mydata
{   protected:
                int data;
        public:
                void Get_mydata(int);
                void Manip_mydata(int);
                void Show_mydata(int);
                Mydata( );
                ~Mydata( );
};
class Personal_data
{   protected:
                int data1;
        public:
```

```
                void Get_personaldata(int);
                void Show_personaldata(int);
                Personal_data1( );
                ~Personal_data1( );
};
class Person: public Mydata, protected Personal_data
{
        public:
                void Show_person(void);
                Person( );
                ~Person( );
};
```

a) How many bytes will be required by an object belonging to class Person?
b) Which type of inheritance is depicted in the above example?
c) List the data members that can be accessed by the member function Show_person( ).
d) What is the order of constructor execution at the time of creating an object of class Person?

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

```
class ONE
{           int one_no;
                char one_name[20];
        protected:
                void register();
        public:
                ONE();
                void status();
};

class TWO
{           int two_no;
                char two_name[20];
        protected:
                float salary;
        public:
                TWO();
                void enter();
                void show();
};
class THREE :private ONE, public TWO
```

```
{
            char three_no[10];
            char Three_date[8];
        public:
            THREE();
            void sales_entry();
            void sales_detail();
};
```
a) Write the data members which are accessible from objects belonging to class ONE.
b) Write all the members which are accessible from objects belonging to TWO
c) Write all the members which are accessible from member functions of class THREE
d) How many bytes will be required by an object to class TWO.

13. **Consider the following class declarations and answer the questions.**
```
class bank
{   protected :
            int capital;
        public :
            void get_data( );
            void display( );
    };
class loans : public bank
{   protected :
            float house_L;
            float car_L;
        public :
            float calc( );
            void show( );
};
class funds: protected loans
{   protected :
            float value;
        public :
            float interest(int);
};
```
a) List the names of data and functions inherited by class funds.
b) Declare an array of objects with 30 elements of class loans.

c) Is the function get_data( ) of class bank accessible to objects of class loans?
d) Is data member value of funds accessible to objects of class funds ?

14. Answer the questions (i) to (iv) based on the following code:
```
class chairperson
{           long cid;
            char cname[20];
        protected:
            char description[40];
            void allocate();
        public:
            chairperson();
            void assign();
            void show();
};
class director
{           int did;
            char dname[20];
        protected:
            char profile[30];
        public:
            director();
            void input();
            void output();
};
class company : private chairperson , public director
{           long id;
            char city[10],country[15];
        public:
            company();
            void enter();
            void display();
};
```
a) Which data members are accessible from objects belonging to class company?
b) Write the name of all the members which are accessible from member functions of class company.
c) Which type of inheritance is illustrated in the above C++ code.
d) How many bytes will be required by an object belonging to class director?

ASSIGNEMNT - 6
TEXT FILES

1. Write a function to send multiple names in a file.

2. Write a function to count the number of upper case alphabets present in a text file "BOOK.txt"

3. Write a function in C++ to count the number of alphabets present in a text file "BOOK.txt"

4. Write a function in C++ to count the number of white spaces present in a text file "BOOK.txt"

5. Write a function in   C++ to count the number of vowels present in a text file "BOOK.txt"

6. Assume a text file "Test.txt" is already created. Using this file, write a function to create three files "LOWER.TXT" which contains all the lowercase vowels and "UPPER.TXT" which contains all the uppercase vowels and "DIGIT.TXT" which contains all digits.

7. Create a function Show() in c++ which take filename (text files) as a argument and display its all data into lowercase.

8. Write a function in C++ to count the number of words in a text file "BOOK.txt"

9. WAP to count all the words in a file starting with the alphabet T.

10. WAP to count all the words in the file whose length is 3.

11. Write a function in C++ to count the average word size in a text file "BOOK.txt"

12. Write a function in C++ to print the count of the word "the" as an independent word in a text file STORY.TXT.

    For example, if the content of the file STORY.TXT is

    There was a monkey in the zoo. The monkey was very naughty.

    Then the output of the program should be 2.

13. Write a function in C++ to count the number of times the word "me" and "mine" appear in a text file "DEMO.txt"

14. Write a function definition ARTICLE() in C++ to count all the articles "the", "a" and "an" present in a text file "BOOK.TXT".

Note : Ensure that "the", "a" and "an" are counted as independent words and not as a part

of any other word.(Ignore cases)

    Example : If the following is content of the file **BOOK.TXT :**

    We should choose a low fat diet. The chef is really good in the hotel. An article

    came in the newspaper about him.

    The function **ARTICLE( )** should display the following output :

5

15. Write a function in C++ to count the number of lines present in a textfile "Story.txt".

16. WAP to count all the lines in the file ending with e.

17. Assume a text file "report.txt" is already created. Using this file create a C++ function to count the number of lines having first character capital and last letter as g.

Example:

  Do less Thinking and pay more attention to your heart

  Do Less Acquiring

  Pay more Attention to what you already have

  do Less Complaining and pay more Attention to giving

  Do Less criticizing and pay more Attention to Complementing

  Output will be: Total lines - 2

18. Write a user defined function COUNT() in C++ to count the number of lines that end with the alphabet 'a' present in the text file named "RECORDS.TXT". Assume that the lines in the text file "RECORDS.TXT" are separated by the delimiter '%'.

19. WAP to replace every space in the file with a # symbol.

20. Write a function RevText() to read a text file " records.txt " and print only words starting with 'I' in reverse order . (ignore cases)

 Example: If value in text file is   :   INDIA IS MY COUNTRY

 Output will be :   AIDNI SI MY COUNTRY

BINARY FILES

1. Assuming the class EMPLOYEE given below, write functions in C++ to perform following:

(i) Write the objects of EMPLOYEE to a binary file.

(ii) Read the objects of EMPLOYEE from binary file and display them on screen.

```
class EMPLOYEE
{   int ENO;
    char ENAME[10];
    public :
    void GETIT()
    {       cin>> ENO; gets (ENAME);        }
    void SHOWIT()
    {       cout<<ENO << ENAME <<endl;   }
};
```

2. Assuming the class Computer as follows :

```
class computer
{   charchiptype[10];
    int speed;
    public:
            voidgetdetails()
            {       gets(chiptype);
                    cin>>speed;
            }
            voidshowdetails()
            {       cout<<"Chip"<<chiptype<<" Speed= "<<speed;        }
};
```

Write a function readfile( ) to read all the records present in an already existing binary file
SHIP.DAT and display them on the screen, also count the number of records present in the file.

3. Given a binary file STUDENT.DAT, containing records of the following class
Student type

```
class Student
{   charS_Admno[IO];   //Admission number of student
    charS_Name[30];    //Name of student
    int Percentage;                //Marks Percentage of student
    public:
            voidEnterData()
            {       gets(S_Admno);
                    gets(S_Name);
                    cin>>Percentage;
            }
            voidDisplayData()
            {       cout<<setw(12)<<S_Admno;
                    cout<<setw(32)<<S_Name;
                    cout<<setw(3)<<Percentage<<endl;
            }
            intReturnPercentage()
            {return Percentage;}
};
```

Write a function in C++, that would read contents of file STUDENT.DAT and display the details of those Students whose Percentage is above 75.

4. Given a binary file "BUS.DAT", containing records of the following class bus type.

```
class bus
{   intbus_no;
    char description[40];
    int distance;                   //in km
    public:
        void read( )
            { cin>>bus_no;    gets(desc) ;    cin>>distance;      }
        void display( )
            { cout<<bus_no;    cout<<desc;      cout<<distance;  }
        intretdist( )
            { return distance;    }
};
```

Write a function in C++ that would delete the records of those buses from the file "buses.dat" whose distance travelled is less than a particular value(enter this value from the user). Also count the number of records deleted.

5. Consider the following class declaration:

```
    class Account_details
{
    intaccno;
    char name[25];
float balance;
public:
void input() {cin>>accno>>balance; gets(name);}
void display()
   {cout<<accno<<" "<<name<<" "<<balance<<endl;}
void deposit(float amt) { balance+=amt;   }
intgetact( ){ return accno; }
};
```

The binary file "bank.dat" stores the details of customers from the bank. Write a function in C++ to update the details of a customer for a given account number who deposited a given amount in his account.

6. Write definition of a function TOTSAL( ) in C++ to find the total salary paid to allthe employees in a company. The employee's detail of this company is stored in a binary file EMPLOYEE.DAT. Assume that the file EMPLOYEE.DAT is created with the help of objects of class EMPLOYEE, which is defined below :

```
classEMPLOYEE
{       int WID;
        char Name[20];
        float Salary;
public:
        void INPUT()
        {       cin>>WID;
                gets(Name);
                cin>>Salary;
        }
        void OUTPUT()
        {       cout<<WID<<":"<<Name<<end1;
                cout<<Salary<<endl;
        }
        floatGetSal() { return Salary;}
};
```

7. Write a definition for function BUMPER() in C++ to read each object of a binary file GIFTS.DAT, find and display details of those gifts, which has remarks as "ÖN DISCOUNT". Assume that the file GIFTS.DAT is created with the help of objects of class GIFTS, which is defined below :

```
class GIFTS
{
                int ID;
                char Gift[20], Remarks[20];
                float Price;
        public:
                voidTakeonstock()
                {
                        cin>>ID;
```

```
                    gets(Gift);

                    gets(Remarks);

                    cin>>Price;

            }

            void See()

            {

                    cout<<ID<<":"<<Gift<<":"<<Price<<"":"<<Remarks<<endl;

            }

            char *GetRemarks()

            {

                    return Remarks;

            }

    };
```

8. Given a binary file "AMOUNT.DAT" containing the records of the given class outstand. Write a function in C++ to modify the outamt of records having memnobetween 200 to 300. (without using second file)

```
    class outstand

    {

            intmemno;

            intoutamt;

    public :

            voidgetit()

                    {       cin>>memno>>outamt;     }

            voidputit()

                    {       cout<<memno<<outamt;    }

            voidnew_outamt()

                    {       cin>>outamt;                    }

            intret_memno()

                    {       returnmemno;                    }

    };
```

9. Write a function in C++ to search and display details of those trains whose destination is"Delhi" from binary file "TRAIN.DAT". Assuming the binary file is containing the objects of the following class:

```
class TRAIN
{
        intTno;                 // Train Number
        char From[20];          // Train Starting Point
        char To[20];            // Train Destination
public:
        char * StartFrom ( )
                { return From; }
        char * EndTo( )
                { return To; }
        void input()
        {
                cin>>Tno;
                gets(From);
                gets(To);
        }
        void show( )
        {
                cout<<Tno<< ":"<<From << ":" <<To<<endl;
        }
};
```

1 MARKER BASED ON RANDOM ACCESS IN FILES

1. Observe the program segment given below carefully and fill the blanks marked as Statement 1 and Statement 2 using seekg() and tellg() functions for performing the required task.

```
#include <fstream.h>
class Employee
{   intEno;
    charEname[20];
    public:
    //Function to count the total number of records
    intCountrec();
};
```

```cpp
int Item::Countrec()
{   fstream File;
    File.open("EMP.DAT",ios::binary|ios::in);
    _____ //Statement 1
    int Bytes =
    _____ //Statement 2
    int Count = Bytes / sizeof(Item);
    File.close();
    return Count;
}
```

2. Observe the program segment given below carefully and fill the blanks marked as Statement 1 and Statement 2 using seekp() and seekg() functions for performing the required task.

```cpp
#include <fstream.h>
class Item
{   intIno;
    char Item[20];
    public:
    //Function to search and display the content from a particular
    //record number
    void Search(int );
    //Function to modify the content of a particular record number
    void Modify(int);
};
void Item::Search(intRecNo)
{   fstream File;
    File.open("STOCK.DAT",ios::binary|ios::in);
    _____ //Statement 1
    File.read((char*)this,sizeof(Item));
    cout<<Ino<<"==>"<<Item<<endl;
    File.close();
}
void Item::Modify(intRecNo)
{   fstream File;
    File.open("STOCK.DAT",ios::binary|ios::in|ios::out);
```

```
        cout>>lno;
        cin.getline(Item,20);
        _____ //Statement 2
        File.write((char*)this,sizeof(Item));
        File.close();
    }
```

3. A binary file "Bookstore.dat" contains data of 20 books. The data of each book is an object of the following class:

```
class Book
{           intbook_id;
            char Title[10];
            float price;
        public:
            voidEnterData()
            {
                    cin>>book_id;
                    cin.getline(Title,20);
                    cin>>price;
            }
            voidShowData()
            {
                    cout<<book_id<<" - "<<Title<<endl;
                    cout<<price;
            }
};
```

What will be the output of the following code segment, assuming that all the required header files are already included in the program.

```
ifstream File; Book B;
File.open("Bookstore.dat",ios::binary|ios::in);
File.seekg(0, ios::end);
cout<<File.tellg();
```

4. Find the output of the following C++ code considering that the binary file PLAYER.DAT   exists on the hard disk with a list of data of 350 products.

```cpp
class PLAYER
{       intPCode;
        charPName[20];
public:
        void Entry();
        voidDisp();
};
void main()
{       fstream In;
        In.open("PLAYER.DAT",ios::binary|ios::in);
        PLAYER P;
        In.seekg(0,ios::end);
        cout<<"Total Count: "<<In.tellg()/sizeof(P)<<endl;
        In.seekg(70*sizeof(P));
        In.read((char*)&P, sizeof(P));
        In.read((char*)&P, sizeof(P));
        cout<<"At Player:"<<In.tellg()/sizeof(P) + 1;
        In.close();
}
```

5. What is the output if the file content before the execution of the program is the string "ABC" (Note that" " are not part of the file)

```cpp
void main( )
{       char ch='A';
        fstreamfileout(" data.dat", ios::app);
        int p= fileout.tellg( );
fileout<<ch;
cout<<p;
        p= fileout.tellg( );
        cout<<p;
}
```

6. Find the output of the following C++ code considering that the binary file courses.dat exists on the hard disk with the following records of the given class COURSES.

CourseCode	CourseName	Numofstudents
1001	B.TECH	160
1003	M.TECH	100
1002	BBA	140
1006	BCA	120
1005	MBA	120
1004	M.PHIL	60
1010	PHD	20
1008	MCA	100
1011	B.SC	120
1012	B.COM	200

```cpp
class COURSES
{
intCourseCode , Numofstudents;
charCourseName[20];
public :
void enter()
        {
cin>>CourseCode>>Numofstudents>>CourseName;
        }
void Display()
        {
cout<<CourseCode<<" : "<<Numofstudents<<" : " <<CourseName;
        }
};
void main()
{
        fstream FIN;
        FIN.open("courses.dat",ios::binary | ios::in);
        COURSES S;
        FIN.seekg(5*sizeof(S));
        FIN.read((char*)&S, sizeof(S));
```

```
                S.Display();
                cout<<"Record :"<<FIN.tellg()/sizeof(S) + 1<<endl;
                FIN.close();
        }
```

7. Observe the program segment given below carefully and fill in the blanks marked as statement 1
    and 2 .

```
        class Medical
        {
                intRNo;
                char Name[20];
                char Mobile[12];
        public :
                void Input();
                void Show();
                intRRno()
                {
                        returnRNo;
                }
                voidChangeMobile()
                {
                        cout<<"Enter new mobile : ";
                        gets(Mobile);
                }
        };
        voidRepUpdate()
        {
                int x;
                fstream F;
                F.open( "REP.dat" ,  ios::binary | ios::in | ios::out);
                int Change=0;
                intURno;
                cout<<"Enter Rep code whose mobile needs change: ";
                cin>>x;
                Medical M;
```

```
        while (F.read( (char *)&M, sizeof(M)) )
        {
                if(M.RRno() == x)
                {
                        _____   //Statement1
                        _____ //Statement 2
                        F.write((char *)&M, sizeof(M));
                }
        }
        F.close();
}
```

Statement 1 : To call the function to change mobile number.

Statement 2 : To reposition the file pointer to re-write the updated object back to file.