

PRACTICE Papers
REVISION TOUR QUESTIONS
COMPUTER SSCIENCE (083)
GRADE XII

1) Find the output of the following program:

```
#include<iostream.h>
#include<ctype.h>
void Secret(char Msg[ ], int N);
void main( )
{ char SMS[ ]="rEPorTmE";
Secret(SMS,2);
cout<<SMS<<endl;
}
void Secret(char Msg[ ], int N)
{ for(int C=0;Msg[C]!='\0';C++)
if(C%2==0)
Msg[C]=Msg[C]+N;
else if(isupper(Msg[C]))
Msg[C]=tolower(Msg[C]);
else
Msg[C]=Msg[C]-N;
}
```

Ans: teRmttoe

2) Study the following program and select the possible output from it:

```
#include<iostream.h>
#include<stdlib.h>
const int MAX=3;
void main( )
{ randomize( );
int Number;
Number=50+random(MAX);
for(int P=Number >=50;P--)
cout<<P<<"#";
cout<<endl;
}
```

(i) 53#52#51#50#
(iii) 50#51#

(ii) 50#51#52#
(iv) 51#50#

Ans: (iv) 51#50#

Solution: MAX value is 3 that's why random (MAX) can produce 0 or 1 or 2. (random(N) will produce no. between 1 to n-1) The Number value may be 50 or 51 or 52. The P value starts from Number, upto 50, each time decreases by 1. So Possible outputs are as follows:

52#51#50#
51#50#
50#

**3) Rewrite the following program after removing the syntactical error(s) if any.
Underline each correction.**

```
#include<iostream.h>
void main( )
{ First = 10, Second = 20;
Jumpto(First;Second);
Jumpto(Second);
}
void Jumpto(int N1, int N2 = 20)
{ N1=N1+N2;
count<<<N1>>N2;
}
```

Ans):

```
#include<iostream.h>
void Jumpto(int N1,int N2=20);
//Prototype missing
void main( )
{ int First = 10, Second = 20;
//Data type missing
Jumpto(First,Second);
//Comma to come instead of ;
Jumpto(Second);
}
void Jumpto(int N1, int N2)
{ N1=N1+N2;
cout<<N1<<N2;
//Output operator << required
}
```

4) Find the output of the following program:

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

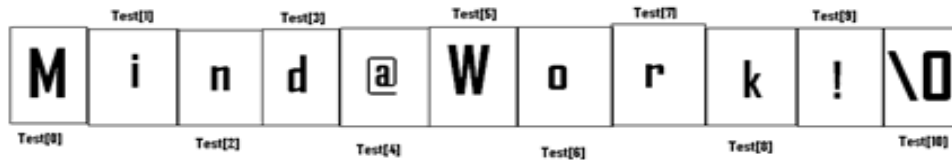
```

void main( )
{ char Text[ ] = "Mind@work!";
for(int I=0; Text[I]!='\0';I++)
{ if(!isalpha(Text[I]))
Text[I]='*';
else if(isupper(Text[I]))
Text[I]=Text[I]+1;
else
Text[I] = Text[I+1];
}
cout<<Text;
}

```

Ans):

Text[] =



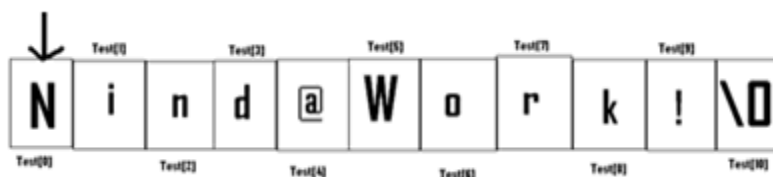
When I=0

Since Text[0] is 'M', Upper Case Letter, (isupper(Text[I]) will becomes true.

So Text[I] =Text[I]+1

So Text[0]=Text[0]+1

Text[0] =77(ASCII Value of M) + 1 = 78 =N(78 is ASCII Value of N) Now the String Text[] =



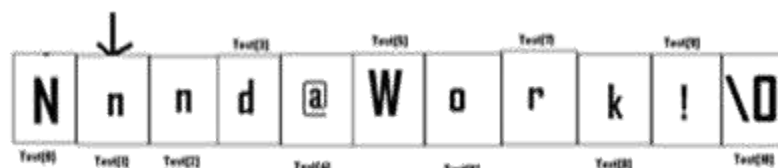
When I=1

Since Text[1] is 'i', Which is a character, but which is not Upper case, else part will be executed.

Ie Text[I]=Text[I+1]

Here Text[1]=Text[1+1] =Text[2]

Ie 'n' will be stored in place of 'i' Now the String Text[] =



When I=2

Since Text[2] is 'n', Which is a character, but which is not Upper case, else part will be executed.

I.e Text[I]=Text[I+1]

Here Text[2]=Text[2+1] =Text[3]

I.e 'd' will be stored in place of 'n'

Now the String Text[] =



When I=3

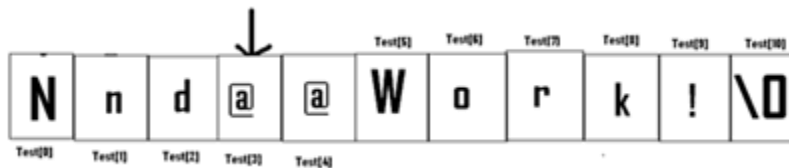
Since Text[3] is 'd', Which is a character, but which is not Upper case, else part will be executed.

I.e Text[I]=Text[I+1]

Here Text[3]=Text[3+1] =Text[4]

I.e '@' will be stored in place of 'd'

Now the String Text[] =



When I=4

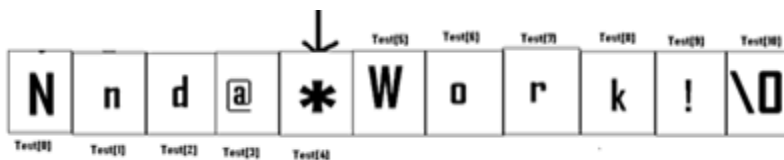
Since Text[4] is '@', Since which is not an alphabet, (!isalpha(Text[I])) will becomes true.

I.e if(!isalpha(Text[I]))

Text[I]='*';

I.e Text[4]='*'

I.e '*' will be stored in place of '@' Now the String Text[] =



When I=5

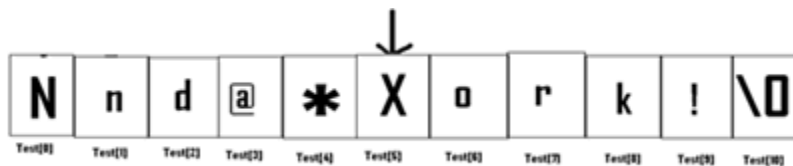
Since Text[5] is 'W', Upper Case Letter, (isupper(Text[I])) will becomes true.

So Text[I] =Text[I]+1

So Text[5]=Text[5]+1

Text[5] =87(ASCII Value of W) + 1 = 88 =X(88 is ASCII Value of X)

Now the String Text[] =



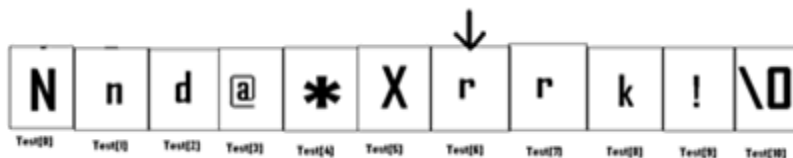
When I=6

Since Text[6] is 'o', Which is a character, but which is not Upper case, else part will be executed.

Ie Text[I]=Text[I+1]

Here Text[6]=Text[6+1] =Text[7]

I.e. 'r' will be stored in place of 'o' Now the String Text[] =



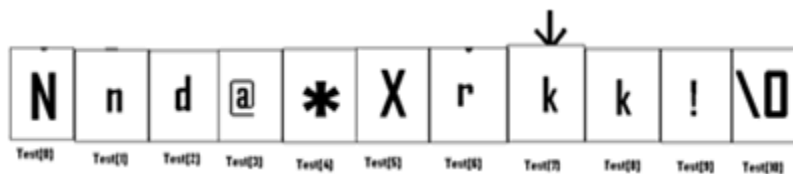
When I=7

Since Text[7] is 'r', Which is a character, but which is not Upper case, else part will be executed.

Ie Text[I]=Text[I+1]

Here Text[7]=Text[7+1]=Text[8]

Ie 'k' will be stored in place of 'r' Now the String Text[] =



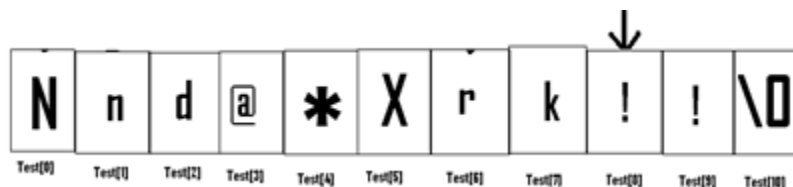
When I=8

Since Text[8] is 'k', Which is a character, but which is not Upper case, else part will be executed.

Ie Text[I]=Text[I+1]

Here Text[8]=Text[8+1] =Text[9]

Ie '!' will be stored in place of 'k' Now the String Text[] =



When I=9

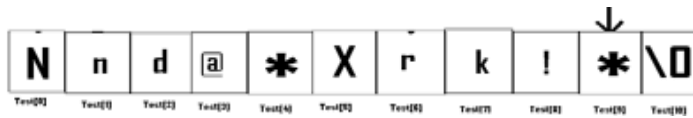
Since Text[9] is '!', Since which is not an alphabet, (!isalpha(Text[I])) will becomes true.

Ie if(!isalpha(Text[I]))

Text[I]='*';

Ie Text[9]='*'

Ie '*' will be stored in place of '!'
 Now the String Text[] =



Output: Nnd@*Xrk!*

5) Find the output of the following program:

```
#include<iostream.h>
void main( )
{ int U=10,V=20;
for(int I=1;I<=2;I++)
{ cout<<"[1]"<<U++<<"&"<<V - 5 <<endl;
cout<<"[2]"<<++V<<"&"<<U + 2 <<endl;
}
}
```

Ans:

Output:

- a) 10&15
 - b) 21&13
 - c) 11&16
 - d) 22&14
-

6) In the following program, find the correct possible output(s) from the options:

```
#include<stdlib.h>
#include<iostream.h>
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]<<" ";}
}
```

Outputs: (i) DEL : CHN : KOL: (ii) CHN: KOL : CHN:

(iii) KOL : BOM : BNG: (iv) KOL : CHN : KOL:

Ans): Since random (2) gives either 0 or 1,

Fly value will be either 1 or 2.(random(n) gives you any number between 0 to n-1)City[1] is “CHN”. City[2] is “KOL”. Since I value from 0 to 2 (ie<3), 3 iterations will takes place. So the possible output consists 3 strings separated by :, each of them may be either “CHN” or “KOL”.

So the possible output will be

(ii) CHN : KOL : CHN:

(iv) KOL :CHN : KOL:

2008 Outside Delhi:

6) Name the header files that shall be needed for the following code:

```
void main( )
{ char word[]="Exam";
cout<<setw(20)<<word;
}
```

Ans: iostream.h, iomanip.h

7) Rewrite the following program after removing the syntax error(s) if any. Underline each correction.

```
#include<iostream.h>
void main( )
{ One=10,Two=20;
Callme(One;Two);
Callme(Two);
}
void Callme(int Arg1,int Arg2)
{ Arg1=Arg1+Arg2;
Count<<Arg1>>Arg2; }
```

Ans:

```
void Callme(int Arg1,int Arg2=20);
#include<iostream.h>
void main( )
{ int One=10,Two=20;
Callme(One, Two); //Given ; instead of , Callme(Two);
}
void Callme(int Arg1,int Arg2)
{ Arg1=Arg1+Arg2;cout<<Arg1<<Arg2;
}
```

8) Find the output of the following program:

```
#include<iostream.h>
#include<ctype.h>
void main( )
{ char Mystring[ ] = "what@OUTPUT!";
for(int I=0; Mystring[I]!='\0';I++)
{ if(!isalpha(Mystring[I]))
Mystring[I]='*';
else if(isupper(Mystring[I]))
Mystring[I]=Mystring[I]+1;
else
Mystring[I] =Mystring[I+1];
}
cout<<Mystring;}
```

Ans: Output:

hat@*PVUQVU*

9) Find the output of the following program:

```
#include<iostream.h>
void main( )
{ int A=5,B=10;
for(int I=1;I<=2;I++)
{ cout<<"Line1"<<A++<<"&"<<B-2 <<endl;
cout<<"Line2"<<++B<<"&"<<A +3 <<endl;
}}
```

Ans: Output:

Line15&8
Line211&9
Line16&9
Line212&10

10) In the following program, find the correct possible output(s) from the options:

```
#include<stdlib.h>
#include<iostream.h>
void main( )
{ randomize( );
char Area[ ][10]={"NORTH","SOUTH","EAST","WEST"};
int ToGo;
for(int I=0; I<3;I++)
{ ToGo=random(2) + 1;
```



```
cout<<Area[ToGo]<<" ";
}}
```

Ans: Outputs:

- (i) SOUTH : EAST : SOUTH :
- (ii) NORTH : SOUTH : EAST :
- (iii) SOUTH : EAST : WEST :
- (iv) SOUTH : EAST : EAST :

Ans) Since random(2) gives either 0 or 1,

ToGo value will be either 1 or 2.(random(n) gives you any number between 0 to n-1) Area[1] is "SOUTH". Area[2] is "EAST".Since I value from 0 to 2 (ie<3), 3 iterations will takes place. So the possible output consists 3 strings separated by :, each of them may be either "SOUTH" or "EAST".

So the possible output will be

- (i) **SOUTH : EAST : SOUTH :**
- (iv) **SOUTH : EAST : EAST :**

11) Find the output of the following program.

```
#include<iostream.h>
void Withdef(int HisNum=30){ for(int I=20;I<=HisNum;I+=5)
cout<<I<<" ";
cout<<endl;
}
void Control(int &MyNum)
{ MyNum+=10;
Withdef(MyNum);
}
void main()
{ int YourNum=20;
Control(YourNum);
Withdef();
cout<<"Number="<<YourNum<<endl;
}
```

Ans: Output:

20,25,30,
20,25,30,
Number=30

12) In the following C++program what is the expected value of MyMarks from options (i) to(iv)given below. Justify answer.

```

#include<stdlib.h>
#include<iostream.h>
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.

Ans: Output: (ii) 94

2007 Outside Delhi:

13) Differentiate between a Logical Error and Syntax Error. Also give suitable examples of each in C++.

Ans:

Logical Error: A logical error is that error which causes a program to produce incorrect or undesired output. An incorrectly implemented algorithm or use of a variable before its initialization, or unmarked end for a loop, or wrong parameters passed are causes logical errors. These must be handled carefully. For instance, if we are trying to print the table of a number 5 and if we say

```

counter=1;
while(counter>8)
{ cout<<n*counter;
counter=counter+1;
}

```

Here the loop would not be executed even once as the condition (counter>8) is not fulfilled at all. Therefore, no output will be produced. Such an error is logical error.

Syntax Error: Syntax errors occur when rules of a programming languages (syntax) is misused. i.e when a grammatical rule of C++ is violated.

Eg: (i) $c=a+b$ In this statement, since there is no semicolon at the end of the statement, there will occurs a syntax error.**(ii)** `cin<<a;` In this statement, since stream insertion operator (<<) has given instead of stream extraction operation (>>), there will occurs a syntax error.

14) Rewrite the following program after removing the syntactical error(s), if any. Underline each correction.

```

#include<iostream.h>
const int Size 5;
void main( )
{ int Array[Size];
Array={50,40,30,20,10};
}

```

```
for(Ctr=0;Ctr<Size;Ctr++)
cout<<Array[Ctr];}
```

Ans)

```
#include<iostream.h>
const int Size=5;
void main( )
{ int Array[Size];
Array={50,40,30,20,10};
for(Ctr=0;Ctr<Size;Ctr++)
cout<<Array[Ctr];
}
```

15) Find the output of the following program.

```
#include<iostream.h>
void Indirect(int Temp=20)
{ for(int I=10;I<=Temp;I+=5)
cout<<I<<" ";
cout<<endl;
}
void Direct(int &Num)
{ Num+=10;
Indirect(Num);
}
void main( )
{ int Number=20;
Direct(Number);
Indirect( );
cout<<"Number ="<<Number<<endl;
}
```

Ans: Output:

10, 15,20,25,30, 10, 15, 20, **Number =30**

16) In the following C++ program what is the expected value of Mysore from options (i) to(iv) given below. Justify your answer.

```
#include<stdlib.h>
#include<iostream.h>
void main( )
{ randomize( );
int Score[ ] = {25,20,34,56,72,63},Myscore;
cout<<Myscore<<endl; } Ii) 25 (ii) 34 (iii) 20 (iv) None of the above.
```

Ans: Expected Output:

(i) None of the above.

17) Find the output of the following program.

```
#include<iostream.h>
#include<string.h>
#include<ctype.h>
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 2005";
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;
}
```

Ans: Output: cbse*eXAM*3116

18) Observe the following program SCORE.CPP carefully, if the value of Num entered by the user is 5, choose the correct possible output(s) from the options from (i) to (iv), and justify your option.

```
//Program: SCORE.CPP
#include<stdlib.h>
#include<iostream.h>
void main( )
{ randomize( );
int Num,Rndnum;
cin>>Num;
```

```
Rndnum = random(Num) + 5;
for(int N = 1;N<=Rndnum;N++)
cout<<N<<" "; }
```

Output Options:

- (i) 1 2 3 4
- (ii) 1 2
- (iii) 1 2 3 4 5 6 7 8 9
- (iv) 1 2 3

Ans: Expected Output:

- (iii) 1 2 3 4 5 6 7 8 9

2005 Outside Delhi :

19) Name the header files to which the following belong:(i) puts() (ii) isalnum()

Ans) (i) puts() - stdio.h (isalnum() - ctype.h

20) Rewrite the following program after removing the syntactical error(s), if any.
Underline each correction.

```
#include<iostream.h>
const int divisor 5;
void main( )
{ Number = 15;
for(int Count=1;Count<=5;Count++,Number -= 3)
if(Number % divisor == 0)
cout<<Number / Dividor;
cout<<endl;
else
cout<<Number + Dividor <<endl;
```

Ans:

```
#include<iostream.h>
const int divisor= 5;
void main( )
{ int Number = 15;
for(int Count=1;Count<=5;Count++,Number -= 3)
if(Number % divisor == 0)
{ cout<<Number / Dividor;
cout<<endl;
}
else
```

```
cout<<Number + Dividor <<endl;
}
```

21) Find the output of the following program.

```
#include<iostream.h>
#include<string.h>
#include<ctype.h>
void Change(char Msg[],int Len)
{ for(int Count=0;Count<Len; Count++)
{ if(islower(Msg[Count]))
Msg[Count] = toupper(Msg[Count]);
else if(isupper(Msg[Count]))
Msg[Count] = tolower(Msg[Count]);
else if (isdigit(Msg[Count]))
Msg[Count]=Msg[Count]+1;
else Msg[Count] = '*';
}void main( )
{ char Message[ ]="2005 Tests ahead";
int Size=strlen(Message);
Change(Message, Size);
cout<<Message<<endl;
for(int C=0,R=Size - 1; C<=Size/2;C++,R--)
{ char Temp=Message[C];
Message[C]=Message[R];
Message[R]=Temp;
}
cout<<Message<<endl;
}
```

**Ans: Output: 3116*tESTS*AHEAD
DAEHA*SSTEt*6113**

22) Observe the following program GAME.CPP carefully, if the value of Num by the user is 14, choose the correct possible output(s) from the options from (i) to (iv), and justify your option.

```
//Program: GAME.CPP
#include<stdlib.h>
#include<iostream.h>
void main( )
{ randomize( );
int Num,Rndnum;
cin>>Num;
Rndnum=random(Num)+7;
for(int N=1;N<=Rndnum;N++)
cout<<N<<" ";
}}
```

Output Options:

(i) 1 2 3

(ii) 1 2 3 4 5 6 7 8 9 10 11

(iii) 1 2 3 4 5

(iv) 1 2 3 4

Ans: Expected Output: (ii) 1 2 3 4 5 6 7 8 9 10 11

2004 Annual Paper:

23) Write the names of the header files to which the following belong:(i) gets() (ii) strcmp() (iii)abs() (iv)isalnum().

Ans (i) gets() - stdio.h

(ii) strcmp() - string.h

(iii) abs() - math.h, stdlib.h, complex.h

(iv) isalnum() - ctype.h

24) What will be the output of the following program?

```
#include<iostream.h>
void main( )
{ int var1=5,var2=10;
for(int i=1,i<=2;i++)
{ cout<<var1++<<'t'<< - - var2<<endl;
cout<<var2- --<<'t'<<+ + var1<<endl;
}
}
```

Ans: Output:

5 9

9 7

7 7

7 9

25) Write definition for a function Sum Sequence() in C++ with two arguments/parameters – double X and int n. The function should return a value of type double and it should perform sum of the following series. $1/x - 3!/x^2 + 5!/x^3 - 7!/x^4 + 9!/x^5 - \dots$ upto n terms.

Note: The symbol! represents Factorial of a number ie $5! = 1 \times 2 \times 3 \times 4 \times 5$.

```
#include<iostream.h>
#include<math.h>
#include<conio.h>
double SumSequence (int x1,int n1);
```

```

void main()
{ int x;
int n; clrscr();
cout<<"Enter the value of X and N";
cin>>x>>n;
cout<<"\n The sum of the series = "<<SumSequence(x,n);
getch();
}
double SumSequence(int x1,int n1)
{ double sum=0;
int c=0;
for(int i=1;i<=(2*n1);i=i+2)
{ int f=1;
for(int j=1;j<=i;j++)
{ f=f*j;
}
c=c+1;
if(c%2==1)
{ sum=sum+ f /(pow (x1,c));
}
else
{ sum=sum-f / (pow(x1,c));
}
}
return sum;
}

```

2003 Annual Paper:

26) What is the difference between global variables and local variables? Give an example to illustrate the same.

Ans: The local variables are the variables defined within any function (or block) and are hence accessible only within the block in which they are declared. In contrast to local variables, variables declared outside of all the functions in a program are called global variables. These variables are defined outside of any function, so they are accessible to all functions. These functions perform various operations on the data. They are also known as External Variables.

Eg:

```

#include<iostream.h>
int a,b;
void main()
{ float f;
---;
---;
}

```


In the above program segment, a and b are global variables, we can access a and b from any function. f is local variable to function main(), we can access f from main() only.

27) Write the output of the following program:

```
#include<iostream.h>
int Execute(int M)
{ if(M%3==0)
return M*3;
else
return M+10;
}
void Output(int B=2)
{ for(int T=0;T<B;T++)
cout<<Execute(T)<<"*";
cout<<endl;
}
void main( )
{ Output(4);
Output( );
Output(3);
}
```

Output:

0 *11 * 12* 9*

0* 1 1*

0* 11* 12*

28) Write the output of the following program.

```
#include<iostream.h>
void X(int &A, int &B)
{ A=A+B;
  B=A-B;
  A=A-B;
}
void main( )
{   int a=4,b=18;
    X(a ,b);
    cout<<a<<" ,"<<b;
}
```

Ans: Output: 18, 4

29) Give the output of the following programs:

```

#include<iostream.h>
#include<conio.h>
int g=20;
void func(int &x,int y)
{ x=x-y;
y=x*10;
cout<<x<<','<<y<<'\n';
}
void main( )
{ int g=7;
func(g,::g);
cout<<g<<','<<::g<<'\n';
func(::g,g);
cout<<g<<','<<::g<<'\n';
}

```

Ans: Output:

```

-13,-130
-13, 20
33,330
-13,33

```

30) Give the output of the following program segment (Assuming all required header files are included in the program):

```

char *NAME="a ProFiLe";
for(int x=0;x<strlen(NAME);x++)
if(islower(NAME[x]))
NAME[x]=toupper(NAME[x]);else if(isupper(NAME[x]))
if(x%2!=0)
NAME[x]=tolower(NAME[x-1]);
else
NAME[x]--;
cout<<NAME<<endl;

```

Ans: Output: AOROoIiE

31) Write the output of the following program.

```

#include<iostream.h>
int func(int &x,int y=10)
{ if(x%y==0) return ++x;else return y- -;
}
void main( )
{ int p=20,q=23;
q=func(p,q);

```

```
cout<<p<<q<<endl;
p=func(q);
cout<<p<<q<<endl;
q=func(p);
cout<<p<<q<<endl;
}
```

Ans: Output:

2023
1023
1111

32) Give the output of the following program segment:

```
char NAME="IntRAneT";
for(int x=0;x<strlen(NAME); x++)
if(islower(NAME[x])
NAME[x]=toupper(NAME[x]));
else if(isupper(NAME[x])
if(x%2==0)
NAME[x]=tolower(NAME[x]);
else
NAME[x]=NAME[x-1];
puts(NAME);
```

Ans: Output: INTTaNEE

33) Find the output of the following program.

```
#include <iostream.h>
#include <ctype.h>
void Encrypt(char T[])
{ for (int i=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[]="SaVE EArth";
//The two words in the string Text are separated by single space
Encrypt(Text);
cout<<Text<<endl;}
```

Answer: @ @ e @ e # R T H

34) Find the output of the following program

```
#include <iostream.h>
void Changethecontent(int Arr[], 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] <<'#';
}
```

Answer: I. 7#9#5# **II.**30#50#70#40 # **III.** 2100#1200#

From Old Papers

Name the header files that shall be needed for the following:

2009 Outside Delhi:

- (i) setw() – iomanip.h
- (ii) sqrt() – math.h

2008 Delhi & OD:

Due to cout, include iostream.h
Due to setw(), include iomanip.h

2007 Delhi & OD:

Due to strcat(), include string.h
Due to gets(), include stdio.h

2006 Delhi:

- (i) abs() - math.h, stdlib.h
- (ii) isupper() - ctype.h

- (i) abs() - math.h, stdlib.h
- (ii) random() - stdlib.h

2005 Delhi:

- (i) abs() - stdlib.h, math.h
- (ii) strcmp() - string.h

2005 OD:

- (i) puts() - stdio.h
- (ii) isalnum() - ctype.h

2004 :

- (i) gets() - stdio.h
- (ii) strcmp() - string.h
- (iii) abs() - math.h, stdlib.h
- (iv) isalnum() - ctype.h

2003:

- (i) strcmp() - string.h
- (ii) getc() - stdio.h

2002:

- (i) get() - iostream.h
- (ii) open() - fstream.h
- (iii) abs() - math.h, stdlib.h
- (iv) strcat() - string.h

2001:

- (i) getc() - stdio.h
- (ii) strcat() - string.h

2000:

- (i) isupper() - ctype.h
- (ii) setw() - iomanip.h
- (iii) exp() - math.h
- (iv) strcmp() - string.h

1999:

- (i) strcat() - string.h
- (ii) scanf() - stdio.h
- (iii) getchar() - stdio.h
- (iv) clrscr() - conio.h

1998:

- (i) cos() - math.h
- (ii) setw() - iomanip.h
- (iii) toupper() - ctype.h
- (iv) strcpy() - string.h

Model Paper 1:

- (i) strcmp() – string.h
- (ii) fabs() – math.h

- (i) frexp() – math.h
- (ii) isalnum() – ctype.h

ctype.h (Character functions)

isalnum(), isalpha(), isdigit(), islower(), isupper(), tolower(), toupper()

string.h (Generally starts with str)

strcat(), strcmp(), strcpy(), strlen(), strchr(), stricmp(), strlwr(), strew()

iomanip.h

setw(), setprecision(), endl, flush().

stdlib.h

abs(), labs(), free(), random(), atof(), atoi(), atol(), strtol(), strtod(), calloc(), malloc(), realloc()

iostream.h(cout,cin – these are streams available in iostream.h)

get() getline() read() write() put() open() close() flush() seekg() seekp() tellg() tellp() bad() eof() fail() good() clear()

stdio.h (Many of the functions starting with f)

printf() scanf() fflush() fgetc() fgetchar() fgets() fopen() fprintf() fputc() putchar() fputs()
fread() freopen() fscanf() fseek() fsetpos() fwrite() ftell() fwrite() getc() getchar() gets() getw()
) putc() putchar() puts() putw() remove() rename()

conio.h

clrscr() getch() gotoxy() cprintf()

dos.h

sound() nosound() delay()

process.h

exit(0)

math.h

acos() acosl(), etc, etc div() exp() ceil() ceill() fabs() floor() fmod() log() pow() modf() poly()
) sqrt()

POINTERS OUTPUT BASED QUESTIONS

2007 Delhi:

35) Find the output of the following program:

```
#include<iostream.h>
void main()
{ int Array[]={4,6,10,12};
int *pointer=Array;
for(int I=1;I<=3;I++)
{ cout<<*pointer<<"#";
pointer++;
}
cout<<endl;
for(I=1;I<=4;I++)
{ (*pointer)*=3;
--pointer;
}
for(I=1;I<5;I++)
cout<<Array[I-1]<<"@";
cout<<endl;
}
```

OUTPUT: 4#6#10#
12@18@30@36@

2007 Outside Delhi:

36) Find the output of the following program:

```
#include<iostream.h>
void main( )
{ int Numbers[]={2,4,8,10};
int *ptr=Numbers;
for(int C=1;C<3;C++)
{ cout<<*ptr<<"@";
ptr++;
}
cout<<endl;
for(C=0;C<4;C++)
{ (*ptr)*=2;
--ptr;
}
for(C=0;C<4;C++)
cout<<Numbers[C]<<"#";
cout<<endl; }
```

2006 Delhi:

37) Find the output of the following program:

```
#include<iostream.h>
#include<string.h>
class state
{ char *state_name;
int size;
public:
state( )
{ size=0;
state_name=new char[size+1];
}
state(char *s)
{ size=strlen(s);
state_name=new char[size+1];
strcpy(state_name,s);
}
void display( )
{ cout<<state_name<<endl;
}
void Replace(state &a, state &b)
{ size=a.size+b.size;
delete state_name;
```



```

state_name=new char[size+1];
strcpy(state_name,a.state_name);
strcat(state_name,b.state_name);
}
};
void main( )
{ char *temp="Delhi";
state
state1(temp),state2("Mumbai"),state3("Nagpur"),S1,S2;
S1.Replace(state1,state2);
S2.Replace(S1,state3);
S1.display( );
S2.display( );}

```

OUTPUT:

DelhiMumbai & Delhi Mumbai Nagpur

39) What will be the output of the following program?

```

#include<iostream.h>
#include<conio.h>
#include<ctype.h>
#include<string.h>
void ChangeString(char Text[],int &Counter)
{ char *Ptr=Text;
int Length=strlen(Text);
for(;Counter<Length- 2;
Counter+=2,Ptr++)
{
*(Ptr + Counter)=toupper(*(Ptr + Counter));
}
}
void main( )
{ clrscr( );
int Position=0;
char Message[]="Pointers Fun";
ChangeString(Message, Position);
cout<<Message<<"@"<<Position;
}

```

Find the output of the following:

```

void Encode ( char info[] , int N)

{
    char Memo [ ] ="Justnow";

```

```

        Encode (Memo, 2);
        cout<<Memo<<endl;
    }
void Encode(char Info [], int N)
{
    for(int i=0 ;Info [ i ] !='\0'; i++)
        if( i% 2==0)
            Info [i] =Info [i] -N;
        else if (islower(Info [i] ))
            Info[i] =toupper(Info(i));
        Else
            Info[i]=Info[i] +N; }

```

Ans: H u q T I O u

Give the **output** of the following program (Assuming that all required header files are included in the program) : **For - 2 Marks**

```

#define i 5
class TEMP
{ static int a;
float b;
public:
TEMP ( )
{ b=10; }
void INTEMP ( )
{ a++;
b=a+10; }
void OUTTEMP ( )
{ cout<<a*i<<"$"<<b-3<<endl; } };
int TEMP::a=2;
void main()
{ TEMP ob[5];
for(int x=1;x<5;x++)
ob[x].INTEMP ( );
for(x=1;x<5;x++)
ob[x].OUTTEMP ( );}

```

Ans. 30\$10
30\$11
30\$12
30\$13

Q . 5. Give the **output** of the following program (Assuming that all required header files are included in the program) : **For - 2 Marks**

```

#include<iostream.h>
#include<stdio.h>
#include<conio.h>
void TRANSFER(char *s1,char *s2)

```

```

{ int n,j=0;
for(int i=0;*(s1+i)!='\0';i++)
{
n=*(s1+i);
if(n%2==0)
*(s2+j++)=*(s1+i);
} }
void main()
{

char *p="ChARlesBabBaGe", q[80];
TRANSFER(p,q);
cout<<q<<endl;}

```

Ans. hRIBbB

Q. 6. Go through the following c++ code, find out the *correct possible output(s)* from the suggested output options i) to iv). Also write the *highest value* which can be assigned to variable G :

For - 2 Marks

```

#include<iostream.h>
#include<stdlib.h>
void main( )
{
randomize( );
int G,H=5;
G=random(H)+30;
for(int i=35;i>G;i--)
cout<<i<<'$';
cout<<i;
}

```

1. 35\$34\$33\$32\$31\$30\$
2. 35\$34\$33\$32\$31
3. 30\$31\$32\$33\$34\$35\$36
4. 35\$34\$33\$32\$31\$30

Ans. **Options ii) & iv)** will be the correct possible outputs. The highest value of variable G would be **34**

Q. 7. What is *constructor overloading*? Support your answer with example.

For - 2 Marks

Ans. CONSTRUCTOR OVERLOADING: When more than one constructor appears inside a single class, it is said to be constructor overloading i.e. if we have two or more constructors inside a class, it is said to be an overloaded constructor. For ex.

```

class ABC
{ private:

```

```

int x;
float y;
public:
ABC()           //default constructor
{ x=5;
y=0.0; }
ABC(int p, float q) //parameterized constructor
{ x=p;
y=q; }
ABC(ABC &t)     //Copy constructor
{ x=t.p;
y=t.q; }
void INABC();
void OUTABC(); };

```

Here in the above written example, we see three constructors one after another. Since all of them share the same class name and are different in their type and number of arguments, therefore supports overloading mechanism of OOP.

Q. 8 . Answer the questions (i) and (ii) after going through the following class :

For - 2 Marks

```

class BUS
{ private:
char Pname[30],TicktNo[20];
float Fare;
public:
BUS()                               //function 1
{ strcpy(Pname,"\0");
strcpy(TicktNo,"\0");
Fare=0; }
void Details( )                     //function 2
{ cout<<Pname<<endl<<TicktNo<<endl<<Fare<<endl; }
BUS(char * name, char *tno, float N); //function 3
BUS(BUS &F);                         // function 4
};

```

1. In OOP, what is function 3 referred to as? Also define this function.
2. Define function 4 and write about its purpose?

Ans. i) *Function 3* is referred to as parameterized constructor. Its definition is as follows:

```

BUS(char * name, char *tno, float N)
{ strcpy(Pname,name);
strcpy(TicktNo,tno);
Fare=N; }

BUS(BUS &F)

```

```
{ strcpy(Pname, F.Pname);  
  strcpy(TicketNo, F.TicketNo);  
  Fare=F.Fare; }
```

COPY CONSTRUCTOR: It is used to initialize an instance/object using the values of another instance/object of same class type. It takes the reference to an object of the same class as an argument.

Q9. Find the output of the following program

```
#include  
#include  
void main()  
{  
    char Text[ ] = "Mind@Work!";  
    for(int i=0 ; Text[i]!='\0' ; i++)  
    {  
        if(!isalpha(Text[i]))  
            Text[i]= '*';  
        else if (isupper(Text[i])) Text[ i]=Text[i]+1;  
        else Text[i]=Text[i+1];  
    }  
    cout<< Text;  
}
```

Q10. Find the output of the below given code.

```
#include<iostream.h>  
  
# include< fstream.h>  
  
#include<conio.h>  
  
void main()  
{  
  
clrscr();  
  
long pos;  
  
ofstream outfile;  
  
outfile. open ( "test.txt", ios::out);  
  
outfile. write ("This is an apple.");
```

```

pos=outfile.tellp();

cout<<pos;

outfile. seekp (pos -7);

pos=outfile. tellp ();

cout<<"\n"<<pos;

outfile. close();

}

```

Output = 16 and 9

Q11. Find the output of the following code.

```

void change( char Msg[] , int len)
{
    for( int count =0; count <len ;count++)
    {
        if(islower(Msg[count])
        Msg[count] =toupper(Msg[count]);
        else if(isupper”(Msg[count])
        Msg[count] =tolower(Msg[count]);
        Msg[count]=Msg[count+1]);
        Else Msg[count]='*';
    }
}
void main()
{
    Char message []="2005 Tests ahead"
    Int size=strlen(message);
    change(message.size);
    for( int c=0; R=size -1;c<=size/2;c++ ;R--)
    {
        char temp=message[c];
        message[c]=message[R];
        message[R]=temp;
    }
    cout<<"message<<endl;
}

```

**OUTPUT = 3611* tESTS * AHEAD
DAEHA * SStEt * 6113**

Similarly change the text to “CBSE Exam 2006”

Q12. Find the output of the following program. Assume all required header files are already being included in the program.

```
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];
    }
}

int main()
{
    char oldText[] = "pOwERALone";
    ChangeIt(oldText, '%');
    cout << "New TEXT:" << oldText << endl;
}
```

answer.

New TEXT: PPW%RRlIN%

Find the output of the following program. Assume all required header files are already being included in the program.

```
struct POINT
{
    int X, Y, Z;
};

void StepIn(POINT &P, int Step = 1)
{
    P.X += Step;
    P.Y -= Step;
    P.Z += Step;
}

void StepOut(POINT &P, int Step = 1)
{
    P.X -= Step;
    P.Y += Step;
    P.Z -= Step;
}
```

```

int main()
{
    POINT P1 = {15, 25, 5}, P2 = {10, 30, 20};
    StepIn(P1);
    StepOut(P2, 4);
    cout << P1.X << ", " << P1.Y << ", " << P1.Z << endl;
    cout << P2.X << ", " << P2.Y << ", " << P2.Z << endl;
    StepIn(P2, 12);
    cout << P2.X << ", " << P2.Y << ", " << P2.Z << endl;
}

```

answer.16, 24, 6

6, 34, 16

18, 22, 28

Find the output of the following program. Assume all required header files are already being included in the program.

```

struct MyBox
{
    int Length, Breadth, Height;
};

void Dimension(MyBox M)
{
    cout << M.Length << "x" << M.Breadth << "x";
    cout << M.Height << endl;
}

int main()
{
    MyBox B1 = {10, 15, 5}, B2, B3;
    ++B1.Height;
    Dimension(B1);
    B3 = B1;
    ++B3.Length;
    B3.Breadth++;
    Dimension(B3);
    B2 = B3;
    B2.Height += 5;
    B2.Length--;
    Dimension(B2);
}

```

answer.

10x15x6

11x16x6

10x16x11

Observe the following C++ code carefully and obtain the output, which will appear on the screen after execution of it. Assume all required header files are already being included in the program.

```
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();
}
```

Show the answer.

2:30&60%

5:22&75%

2:30&65%

Find the output of the following program. Assume all required header files are already being included in the program.

```

class Calc
{
    char Grade;
    int Bonus;
public:
    Calc()
    {
        Grade = 'E';
        Bonus = 0;
    }
    void Down(int G)
    {
        Grade -= G;
    }
    void Up(int G)
    {
        Grade += G;
        Bonus++;
    }
    void Show()
    {
        cout << Grade << "#" << Bonus << endl;
    }
};

int main()
{
    Calc C;
    C.Down(2);
    C.Show();
    C.Up(7);
    C.Show();
    C.Down(2);
    C.Show();
}

```

Show the answer.

C#0

J#1

H#1

Find the output of the following program. Assume all required header files are already being included in the program.

```

class METRO
{
    int Mno, TripNo, PassengerCount;
}

```

```

public:
    METRO (int Tmno = 1)
    {
        Mno = Tmno;
        TripNo = 0;
        PassengerCount = 0;
    }
    void Trip(int PC = 20)
    {
        TripNo++;
        PassengerCount += PC;
    }
    void StatusShow()
    {
        cout << Mno << ":" << TripNo << ":" << PassengerCount << endl;
    }
};
int main()
{
    METRO M(5), T;
    M.Trip ();
    T.Trip (50);
    M.StatusShow ();
    M.Trip (30);
    T.StatusShow ();
    M.StatusShow();
}

```

Show the answer.

5:1:20

1:1:50

5:2:50

Question 11.

[Year 2009]

Find the output of the following program. Assume all required header files are already being included in the program.

```

int main()
{
    int X[] = { 10, 25, 30, 55, 110 };
    int *p = X;
    while ( *p < 110)
    {
        if ( *p % 3 != 0)
            *p = *p + 1;
    }
}

```

```

else
    *p = *p + 2;
    p++;
}
for (int I = 4; I >= 1; I--)
{
    cout << X[I] << "*";
    if (I % 3 == 0)
        cout << endl;
}
cout << X[0] * 3 << endl;
}

```

Show the answer.

110*56*

32*26*33

Find the output of the following program. Assume all required header files are already being included in the program.

```

int main()
{
    int Array[] = { 4, 6, 10, 12 };
    int *pointer = Array;
    int I;
    for (I = 1; I <= 3; I++)
    {
        cout << *pointer << "#";
        pointer++;
    }
    cout << endl;
    for (I = 1; I <= 4; I++)
    {
        (*pointer) *= 3;
        --pointer;
    }
    for (I = 1; I < 5; I++)
    cout << Array[I - 1] << "@";
    cout << endl;
}

```

Show the answer.

4#6#10#

12@18@30@36@

Find the output of the following program. Assume all required header files are already being included in the program.

```

int main()
{
    char *String = "SHAKTI";
    int *Point, Value[] = {10,15,70,19};
    Point = Value;
    cout << *Point << String << endl;
    String++;
    Point++;
    cout << *Point << String << endl;
}

```

Show the answer.

10SHAKTI

15SHAKTI

Find the output of the following program. Assume all required header files are already being included in the program.

```

int main()
{
    int Track[] = { 10, 20, 30, 40}, *Striker;
    Striker = Track;
    Track[1] += 30;
    cout << "Striker > " << *Striker << endl;
    *Striker -= 10;
    Striker++;
    cout << "Next@" << *Striker << endl;
    Striker += 2;
    cout << "Last@" << *Striker << endl;
    cout << "Reset To " << Track[0] << endl;
}

```

Show the answer.

Striker > 10

Next@50

Last@40

Reset to 0

What will be the output of the following program. Assume all required header files are already being included in the program.

```

void ChangeString(char Text[], int &Counter)
{
    char *Ptr = Text;
    int Length = strlen(Text);
    for (; Counter < Length - 2; Counter += 2, Ptr++)

```

```

    {
        *(Ptr + Counter) = toupper ( *(Ptr + Counter));
    }
}
int main()
{
    int Position = 0;
    char Message[] = "Pointers Fun";
    ChangeString(Message, Position);
    cout << Message << "@" << Position;
}

```

Show the answer. - PoiNteRs Fun@10

Find the output of the following program. Assume all required header files are already being included in the program.

```

typedef char Str80[80];
int main()
{
    char *Notes;
    Str80 Str = "vR2GooD";
    int L = 6;
    Notes = Str;
    while(L >= 3)
    {
        Str[L] = (isupper(Str[L])? tolower(Str[L]): toupper(Str[L]));
        cout << Notes << endl;
        L--;
        Notes++;
    }
}

```

Show the answer.

**vR2Good
R2GoOd
2GOOd
gOOd**

In the following C++ program what is the expected value of MyMarks from Options (i) to (iv) given below. Justify answer. Assume all required header files are already being included in the program.

```

int 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

Show the answer.

(ii) 94

Reason: random (2) will return 0 or 1.

Therefore, myMarks can store the value of Marks [1] or Marks[2]

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. Assume all required header files are already being included in the program.

```
int 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

Show the answer.

(i) 50 # 51 # 52 # 53 # 54 # 55 #

(ii) 52 # 53 # 54 # 55 #

(iv) 51 # 52 # 53 # 54 # 55

Least value 50

Highest value 53

Observe the following program SCORE.CPP carefully, if the value of Num entered by the user is 5, choose the correct possible output(s) from the options from (i) to (iv), and justify your option. Assume all required header files are already being included in the program.

```
//program : SCORE.CPP  
int main()  
{  
    Randomize ();
```

```

int Num, Rndnum;
cin >> Num;
Rndnum = random (Num) + 5;
for (int N = 1; N <= Rndnum; N++)
cout << N << " ";
}

```

Output Options:

- (i) 1 2 3 4
- (ii) 1 2
- (iii) 1 2 3 4 5 6 7 8 9
- (iv) 1 2 3

Show the answer.

(iii) 1 2 3 4 5 6 7 8 9

**Reason: Least value Rndnum can store : 5
Highest value Rndnum can store: 9**

All possible outputs are :

- 1 2 3 4 5**
- 1 2 3 4 5 6**
- 1 2 3 4 5 6 7**
- 1 2 3 4 5 6 7 8**
- 1 2 3 4 5 6 7 8 9**

Find the output of the following program. Assume all required header files are already being included in the program.

```

int main()
{
    randomize();
    int NUM;
    NUM = random(3) + 2;
    char TEXT[] = "ABCDEFGHGIJK";
    for (int I = 1; I <= NUM; I++)
    {
        for (int J = NUM; J <= 7; J++)
            cout << TEXT[J];
        cout << endl;
    }
}

```

- | | | | |
|-------------|----------------|-------------|---------------|
| i) | ii) | iii) | iv) |
| FGHI | BCDEFGH | EFGH | CDEFGH |
| FGHI | BCDEFGH | EFGH | CDEFGH |
| FGHI | | EFGH | |

FGHI

EFGH

Show the answer.

(iii) and (iv)

Minimum value of NUM = 2

Maximum value of NUM = 4

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.

```
int 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#

Show the answer. (i) and (iii) Maximum Value : 2 Minimum Value : 0

The following code is from a game .which generates a set of 4 random numbers: Yallav is playing this game .help him to identify the correct option(s)out of the four choices given below as the possible set of such numbers generated from the program code so that he wins the game. Justify your answer. Assume all required header files are already being included in the program.

```
const int LOW = 15;
int main()
{
    randomize ();
    int POINT = 5, Number;
    for (int I = 1; I <= 4; I++)
    {
        Number = LOW + random (POINT);
        cout << Number << ": ";
        POINT--;
    }
}
```

- (i) 19:16:15:18:
- (ii) 14:18: 15:16:
- (iii) 19:16:14:18:
- (iv) 19:16:15:16:

Show the answer. (iv)

In 1st Iteration - Maximum Value = 19, Minimum Value = 15

In 2nd Iteration - Maximum Value = 18, Minimum Value = 15

In 3rd Iteration - Maximum Value = 17, Minimum Value = 15

In 4th Iteration - Maximum Value = 16, Minimum Value = 15

Find and write the output of the following C++ program code:

Note: Assume all required header files are already included in the program.

```
typedef char STRING[80];
void MIXITNOW(STRING S)
{
int Size=strlen(S);
for (int I=0;I='M' && S[I]<='U') S[I]='@';
}
void main()
{
STRING Word="CRACKAJACK";
MIXITNOW (Word);
cout<<Word<<endl; }
```

Answer: RCCAAKAJKC

RANDOM QUESTION:

1.

```
#include<iostream.h>
#include<conio.h>
const int LOW=25;
void main()
{
    randomize ();
    int POINT =5 , Number;
    for (int i=1; i<=4,i- -)
    {
        Number =LOW + random (POINT) ;
        cout<< Number<<" : “ ;
        POINT - -;
    }
}
```

i) 29: 26: 25: 28:

ii) 24: 28 :25: 26:

iii) 29: 26: 24: 28:

iv) 29: 26: 25: 26:

ans = iv) 29: 26: 25: 26

Reason being:

[LOW =25, POINT =5, Number = LOW + random (POINT)]

- For 1st Pass Number = 25+random(5) i.e 25+0 -4 = 25 to 29
- For 2nd Pass Number = 25 + random(4) i.e 25 to 28
- For 3rd pass Number = 25 + random(3) i.e 25 to 27
- For 4th Pass Number = 25 +random(2) i.e 25 to 26

2.

```
#include<iostream.h>
#include<conio.h>
const int LOW=4;
void main()
{
    randomize ();
    int POINT ;
    for (int i=POINT; i>=100,i- -)
    {
        POINT =100 + random (LOW) ;
        cout<< i << ”#“ ;
    }
}
```

i) 103#102#101#100#

ii)100#101#102#103#

iii)100#101#102#103#104#

iv) 104#103#102#101#100#

ANS : i) 103#102#101#100#

NAVKIS EDUCATIONAL CENTRE
OUTPUT BASED QUESTIONS
COMPUTER SCIENCE (083)
GRADE – XII
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