NCERT Solutions for Class 12 Computer Science (C++) – C++ Revision Tour

TOPIC-1
Basics of C++

Very Short Answer Type Questions [1 mark each]

Question 1:

Write the related library function name based upon the given information in C++.

1. Get single character using keyboard. This function is available in stdio.h file.
2. To check whether given character is alpha numeric character or not. This function is available in ctype.h file.

Answer:

1. getchar( )
2. isalnum( )

Question 2:

Observe the following program very carefully and write the names of those header file(s), which essentially needed to compile and execute the following program successfully :

```
typedef char TEXT[80];
void main()
{
TEXT Str[] = "Peace is supreme";
int Index = 0;
while(Str[Index]! = '\0')
if(isupper(Str[Index]"
Str[Index ++] = ? '#';
else
str[Index ++] = '*';
```

```
puts(Str);
}
```

Answer:

<ctype.h>, <stdio.h>

Question 3:
Name the header files that shall be needed for ' successful compilation of the following C+ + code :

```
void main()
{
char str[20],str[20];
gets(str);
strcpy(str1,str);
strrev(str);
puts(str);
puts(str1);
}
```

Answer:
#include<stdio.h>
#include<string.h>

Question 4:
Observe the following C++ code and write the name(s) of the header file(s), which will be essentially required to run it in a C + + compiler :

```cpp
void main()
{
char CH, STR[20];
cin>>STR;
CH=toupper(STR[0]);
cout<<STR<<"starts with"<<CH<<endl;
}
```

Answer:

#include<iostream.h>

#include<ctype.h>

Question 5:

Observe the following C++ code and write the name(s) of the header file(s), which will be essentially required to rim it in a C++ compiler :

```cpp
void main()
{
char Text[20],C;
cin>>Text;
C=tolower(Text[0]);
cout<<C<<"is the first char of"<<Text<<endl;
}
```

Answer:

#include<iostream.h>

#include<ctype.h>

Question 6:

Name the header file(s), which are essentially required to run the following program segment :

```
void main()
{
char A='K',B;
if(islower(A))
B=toupper(A);
else
B= '*';
cout<<A<<"turned to"<<B<<endl;
}
```

Answer:

#include<iostream.h>

#include<ctype.h>

Question 7:

Observe the following C+ + code and write the name(s) of header files, which will be essentially required to run it in a C + + compiler

```
void main()
{
float Area, Side;
```

```
cin>>Area;
Side = sqrt(Area);
cout<<"one side of the square<<side<<end1;
}
```

Answer:
Header files required:

1. math.h
2. iostream.h

Question 8:
Write the names of header files used :

```
void main()
{
int number;
cin>>number;
if(abs(number) == number)
cout<<"Positive"<<endl;
}
```

Answer:
iostream.h, math.h

Question 9:

Write the names of header files, which are NOT NECESSARY to run the following program :

```
#include<iostream.h>
#include<stdio.h>
#include<string.h>
#include<math.h>
void main()
{
char STR[80];
gets(STR);
puts(strrev(STR));
}
```

Answer:

Header files not required are :

iostream.h,math.h.

Question 10:

Which C++ header file(s) are essentially required to be included to run/execute the following
C++ source code ?

```
void main()
{
char TEXT[] = "Something";
cout<<"Remaining SMS Chars :"<<160-
```

```
strlen(TEXT)<<endl;
}
```

Answer:

1. <string.h>
2. <iostream.h>

Question 11:

Which C++ header file(s) are essentially required to be included to run/execute the following
C++ source code (Note : Do not include any header file, which is/are not required) ?

```
void main()
{
char STRING[] = "SomeThing";
cout<<"Balance Characters:"<<160-
strlen(STRING)<<endl;
}
```

Answer:
<iostream.h>,<string.h>

Question 12:

Ahmed has started learning C++ and has typed the following program. When he compiled the
following code written by him, he discovered that he needs to include some header files to

successfully compile and execute it. Write the names of those header files, which are required to be included in the code.

```
void main()
{
float Radians,Value;
cin>>Radians;
Value=sin(radians);
cout<<Value<<endl;
}
```

Answer:
iostream.h
string.h

Question 13:
Which C++ header file(s) are essentially required to be included to run/execute the following C++ code:

```
void main()
{
char*word1="Hello".word2="Friends";
strcat(word1,word2);
cout<<word1;
}
```

Answer:

iostream.h

string.h

Question 1:

Define Macro with suitable example.

Answer:

Macro are preprocessor directive created using # define that serve as symbolic constants.

They are created to simplify and reduce the amount of repetitive coding.

For instance,

#define max (a, b) a > b ? a : b

Define the macro max, taking two arguments a and b. This macro may be called like any

C function with similar syntax. Therefore, after preprocessing.

A = max (x, y);

BecomesA = x>y ?x:y;

Question 2:

Write the output of the following C+ + program code :

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

```cpp
class Calc
{
char Grade;
int Bonus;
```

```cpp
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
 }
};
void main()
{
Calc c;
C.Down(2);
C.Show();
C.Up(7);
C.Show();
C.Down(2);
C.Show();
}
```

Answer:

C#0

J#1

H#1

Question 3:

Rewrite the following program after removing any syntactical errors. Underline each correction made.

```
#include <isotream.h>
void main()
int A[10];
A = [3, 2, 5, 4, 7, 9, 10];
for(p = 0; p <= 6; p++)
{
if(A[p]%2=0)
int S = S + A[p]];
}
cout<<S;
}
```

Answer:

```
#include<iostream.h>
void main()
{
int A[10] = {3, 2, 5, 4, 7, 9, 10};
```

```
int S = 0, p;
for(p = 0; p <= 6; p++)
{
if(A[p]%2 == 0)
S = S + A[p];
}
cout<<S;
}
```

Question 4:

Observe following C++ code very carefully and rewrite it after removing any/all syntactical errors with each correction underlined.

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

```
#Define float Max = 70.0;
Void main)
{
int Speed
char Stop = 'N';
cin >> Speed;
if Speed > Max
Stop = 'Y' ;
cout <<stop<<end;
}
```

Answer:

```
#define float Max 70.0 //Error 1,2,3
void main()        //Error 4
{
int Speed;            //Error 5
char Stop = 'N';
cin>>Speed;
if(Speed>Max)        //Error 6
Stop = 'Y';
cout<<Stop<<endl;   //Error 7
}
```

Question 5:

Write the output of the following C+ + program − code :

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

```
void Position(int & C1, int C2 = 3)
{
C1+ = 2;
C2+ = Y;
void main()
int P1 = 20, P2 = 4;
position(P1);
cout<<P1<<","<<P2<<endl;
position(P2, P1);
cout<<P1<<","<<P2<<endl;
}
```

Answer:

22,4

22,6

Question 6:

Study the following program and select the posssible output(s) from the options (i) to (iv) following it.

Also, write the maximum and the minimum. values that can be assigned to the variable NUM.

Note :

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

— random(n) function generates an integer between 0 and n -1.

```
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<<endl;
}
}
(i)FGHI
FGHI
```

```
FGHI
FGHI
(ii)BCDEFGH
BCDEFGH
(iii)EFGH
EFGH
EFGH
EFGH
(iv)CDEFGH
```

Answer:

(iii) and (iv)

Minimum value of NUM = 2

Maximum value of NUM = 4

Question 7:

Rewrite the following C++ program after removing all the syntactical errors (if any),
underlining each correction :

```
includeciostream.h>
#define PI=3.14
void main()
{
float r,a;
cout<<'enter any radius';
cin>>r;
```

```
a=PI*pow(r,2);
cout<<"Area="<<a;
}
```

Answer:

```
#include<iostream.h> // Error 1: Declaration Sytax error
#include<math.h>
#define PI=3.14       // Error 2: Macro declaration does not allow assignment
void main()
{
float r,a;      // Error 3:Undefined Symbol a
cout<<"enter any radius";      //Error 4 : Character Constant

must be one or two characters long
cin>>r;
a=PI*pow(r,2)    //Error 5 : Expression Syntax
cout<<"Area="<<a;
}
```

Question 8:
Rewrite the following C++ code after removing all the syntax error(s), if presents in the code. Make sure that you underline each correction done by you in the code.
Important Note:

- Assume that all the required header files are already included, which are essential to run this code.
- The corrections made by you do not change the logic of the program.

```
typedef char STR[80];
void main()
{
STR Txt;
cin (Txt);
cout<<Txt<<endline;
}
```

Answer:

```
typedef char STR[80];
void main()
{
STR Txt;
gets(Txt);
cout<<Txt<<endl;
}
```

Question 9:

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.

Important Note :

- Assume that all the required header files are already included, which are essential to run this code.
- The corrections made by you do not change the logic of the program.l

```
typedef char STRING[50];
void main()
{
City STRING;
cin (City);
cout<<City<<endline ;
}
```

Answer:

```
typedef char STRING[50];
void main()
{
STRING City;
gets(City);
cout<<City<<endl;
}
```

Question 10:

Out of the following, find those identifiers, which cannot be used for naming Variable,

Constants or Functions in a C + + program : Total*Tax, double, case, My Name, New switch, Column31, _Amount

Answer:

Total * Tax, double, case, My name, New switch

Question 11:

Ronica Jose has started learning C++ and has typed the following program. When she compiled the

following code written by her, she discovered that she needs to include some header files to successfully compile and execute it. Write the names of those header files, which are required to be included in the code.

```
void main()
{
double X,Times,Result;
cin>>X>>Times;
Result=pow(X,Times)
cout<<Result<<endl;
}
```

Answer:

<iostream.h>for cout and cin
<math.h>for pow()

Question 12:

Rewrite the following C+ + code after removing any/all syntactical error with each correction underlined.
Note : Assume all required header files are already being included in the program.

```
#define Formula(a,b)= 2*a+b
void main()
{
float x=3.2; Y=4.1;
Z=Formula(X,Y);
```

```
cout<<'Result='<<Z<<endl;
}
```

Answer:

```
# define Formula(a.b)2*a+b
void main()
{
float X=3.2, y=4.1;
float Z = Formula(X,Y);
cout<<"Result="<<Z<<endl;
}
```

Question 13:

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 TexT[80];
void JumbleUp(TexT T)
{
int L=strlen(T);
for(int C=0;C<L-1;C+=2)
{
char CT=T[C];
T[C] = T[C+l];
T[C+l]=CT;
```

```
}
for(C=l;C<L;C+=2)
if(T[C]>='M'&& T[C]<='U')
T[C] = '@';
void main()
{
TEXT Str = "HARMONIOUS";
JumbleUp(Str);
cout<<Str<<endl;
}
```

Answer:

AHM@N@OIS@

Question 14:

Look at the following C++ code and find the possible output(s) from the options (i) to (iv) following it.

Also, write the maximum and the minimum values that can be assigned to the variable PICKER.

Note :

- Assume all the required header files are already being included in the code.
- The function random(n) generates an integer between 0 and n -1

```
void main()
{
randomize();
int PICKER;
```

```
PICKER=random(3);
char COLOUR[][5]={"BLUE","PINK","GREEN","RED"};
for(int 1=0;I<=PICKER;I++)
{
for(int J=0;J<=I;J++)
cout<<COLOR[J];
cout<<endl;
}
}
```

(i)	(ii)	(iii)	(iv)
PINK	BLUE	GREEN	BLUE
PINKGREEN	BLUEPINK	GREENRED	BLUEPINK
PINKGREENRED	BLUEPINKGREEN		BLUEPINKGREEN
	BLUEPINKGREENRED		

Answer:

Maximum value : 3

Min value : 1

Question 15:

Out of the following, find those identifiers, which cannot be used for naming Variable, Constants or Functions in a C + + program :

_Cost, Price*Qty, float, Switch, Address one, Delete, Numberl2, do

Answer:

Price* Qty, float, Address one, do

Question 16:

Jayapriya has started learning C+ + and has typed the following program. When she compiled the following code written by her, she discovered that she needs to include some header files to successfully compile and execute it. Write the names of those header files, which are required to be included in the code.

```
void main()
{
float A, Number, Outcome;
cin>>A>>Numbers;
Outcome = pow(A, Number);
cout<<outcome<<endl;
}
```

Answer:

<iostream. h> for cout and cin

<math. h> for Pow()

Question 17:

Rewrite the following C+ + code after removing any/all syntactical error with each correction underlined.

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

```
#define Equation(p,q)=p+2*q
void main()
{
float A=3.2;B=4.1;
C=Equation (A,B);
```

```cpp
cout<<'Output='<<C<<endl;
}
```

Answer:

```cpp
#define Equation(p,q)g+2*q
void main()
{
float A=3.2,B=4.1;
float C=Equation(A,B);
Cout<<"Output"<<C<<endl;
}
```

Question 18:

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

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

```cpp
typedef char STRING[80];
void MIXITNOW(STRING S)
{
int Size=strlen(S);
for(int 1=0;I<Size-l;I+=2)
{
char WS=S[I];
S[I]=S[I+1];
S[1+1]=WS;
```

```
}
for(1=1;I<Size;I+=2)
If(S[I]>='M1&&S[I]<='U')
S[I]=;
void main()
{
STRING Word = "CRACKAJACK";
MIXITNOW(Word);
cout<<Word<<endl;
}
```

Answer:
RCCAAKAJKC.

Question 19:
Find and write the output of the following C+ + program code :
Note : Assume all required header files are already being included in the program.

```
class stock
{
long int ID;
float Rate;
int Date;
public:
Stock()
{ID=1001;Rate=200;Date=l;}
```

```cpp
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();
}
```

Answer:

Date:1

1024 # 150

Date : 29

2015 # 400

Date : 20

1001 # 180

Question 20:

Look at the following C+ + code and find the possible output(s) from the options (i) to (iv) following it. Also, write the maximum and the minimum values that can be assigned to the variable CHANGER.

Note :

- Assume all the required header files are already being included in the code.
- The function random(n) generates an integer between 0 and n -1

```cpp
void main()
{
randomize();
int CHANGER;
CHANGER=random(3);
char CITY[][25]={"DELHI","MUMBAI","KOLKATA","CHENNAI"};
for(int 1=0;I<=CHANGER;I++)
{
for (int J=0;J<=I;J++)
cout<<CITY[J];
```

```
cout<<endl;
}
}
```

(i)	(ii)
DELHI DELHIMUMBAI DELHIMUMBAIKOLKATA	DELHI DELHIMUMBAI DELHIMUMBAIKOLKATA DELHIMUMBAIKOLKATACHENNAI

(iii)	(iv)
MUMBAI MUMBAIKOLKATA MUMBAIKOLKATACHENNAI	KOLKATA KOLKATACHENNAI

Answer:

DELHI

DELHIMUMBAI

DELHIMUMBAIKOLKATA

Minimum Value of CHANGER = 0

Maximum Value of CHANGER = 2

Question 21:

Out of the following, find those identifiers, which can not be used for naming Variable,

Constants or Functions in a C + + program :

Days*Rent, For, A+Price, Grand Total

double, 2Members, . Participantl, MyCity

Answer:

Days * Rent

For

Grand Total

double

Question 22:

Rewrite the following C+ + code after removing any/all syntactical errors with each correction underlined.

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

Days*Rent, For, A+Price, Grand Total

double, 2Members, Participantl, MyCity

Answer:

```
#define formula (a,b,c)a+2*b+3*c
void main()
{
int L=1,M=2,N=3;
int J=formula(L,M,N);
cout<<"Output="<cj<<endl;
}
```

Question 23:

Look at the following C+ + code and find the possible output(s) from the options (i) to (iv) following it.

Also, write the maximum and the minimum values that can be assigned to the variable P_Holder.

Note :

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

- The funciton random (n) generates and integer between 0 and n-1.

```
void main()
{
randomize();
int P_Holder;
P_Holder=random(3);
char place [][25]={"JAIPUR","PUNA","KOCHI","GOA" };
for(int P=0;P<=P_Holder;P++)
{
for (int C=0;C<P;C++)
cout<<Place[C];
cout<<endl;
}
}
```

(i)	(ii)	(iii)	(iv)
KOCHI KOCHIGOA	JAIPUR JAIPURPUNA JAIPURPUNAKOCHI JAIPURPUNAKOCHIGOA	PUNA PUNAKOCHI PUNAKOCHIGOA	JAIPUR JAIPURPUNA JAIPURPUNAKOCHI

Answer:

JAIPUR

JAIPUR PUNA

JAIPUR PUNA KOCHI

MINIMUM VALUE of P_Holder = 0

Maximum Value of P_Holder = 2

Question 24:

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

```cpp
#include<conio.h>
#include<iostream.h>
#include<string.h>
#include<stdio.h>
Class product
{
int product_code,qty,price;
char name[20];
public:product()
{
product_code=0;qty=0;price=0;
name=NULL;
}
void entry()
{
cout<<"\n Enter code,qty(price";
cin>>product_code>>qty>>price;
gets(name);
}
void tot_price(){return qty*price;}
}
void main()
{
```

```
p product;
p.entry();
cot<<tot_price();
}
```

Answer:

```
#include<conio.h>
#include<string.h>
#include<stdio.h>
class product
{
int product_code,qty,price;
char name[20];
public;
product()
{
product_code=0;qty=0;price=0;
strcpy(name.NULL);
}
void entry()
{
cout<<"\n Enter code, qty, price";
cin>>product_code>>qty>>price;
gets(name);
}
```

```
int tot_price(){return qty*price;}
};
void main()
{
product p;
p.entry();
cot<<p.tot_price();
}
```

Question 25:

Explain conditional operator with suitable example ?

Answer:

Conditional operator is also known as ternary operator because it requires three operands and can be used to replace simple if- else code. It is used to check the condition and exucute first expression if condition is true: else execute other. .

Syntax :

Conditional expression ?

Expression 1 : Expression 2 :

Explanation : If the conditional expression is true then expression I executes otherwise expression 2 executes.

Example :

int y = 10, x;

x = y>10? 1:0;

cout<<X;

Output : 0

Short Answer Type Question-II [3 marks]

Question 1:

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

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

```
class Share
{
long int Code;
float Rate;
int DD;
public :
Share()
{Code=1001;Rate=100;DD=1;}
void GetCode(long int C, float R)
{
Code=C;
Rate=R;
}
void Update(int Change, int D)
{
 Rate+=Change;
 DD=D ;
}
void Status()
{
cout<<"Date:"<<DD<<endl;
cout<<Code<<"#"<<Rate<<endl;
```

```
}
void main()
{
Share S,T,U;
S.GetCode(1324,350);
T.GetCode(1435,250);
S.Update(50,28);
U.Change(-25,26);
S.Status();
T.Status();
U.Status();
}
```

Answer:
Date ; 28
1324 # 400
Date : 1
1435 #250
Date : 26
1000 # 75

TOPIC-2
Flow Control

Short Answer Type Questions-1 [2 marks each]

Question 1:

Find syntax error(s), if any, in the following program : (Assuming all desired header file(s) are already included)

```cpp
typedef char String[80];
void main
{
String S; int L;
for(L=0;L<26;C++)
S [L]=L+65;
cout<<S<<endl
}
```

Answer:

The given code has following errors:

1. Parenthesis () are missing after void main.
2. In for statement, the update expression should be L+ + but it is written as C + + .

Question 2:

Read the following C++ code carefully and find out, which out of the given options
(i) to (iv) are the expected correct outputs) of it. Also,
write the maximum and minimum value that can be assigned to the variable Taker used in the code:

```cpp
void main()
{
int GuessMe[4]= {100,50,200,20};
```

```
int Taker = random(2)+2;
for(int Chance=0;Chance<=Taker;Chance++)
cout<<GuessMe[Chance]<<"#";
}
```
(i)100#

(ii)50#200#

(iii)100#50#200#

(iv)100#50

Answer:

(iii) 100#50#200#

Max value : 350

Min value : 170

Question 3:

Read the following C++ code carefully and find out, which out of the given options

(i) to (iv) are the expected correct output(s) of it. Also,

write the maximum and minimum value that can be assigned to the variable Start used in the code :

```
void main()
{
int
Guess [4]={200,150,20,250};
int Start=random(2)+2;
for (int C=Start;C<4;C++)
cout<<Guess[C]<<"#";
```

```
}
```
(i) 200#150#

(ii) 150#20#

(iii) 150#20#250#

(iv) 20#250#

Answer:

(iv) 20#250#

Max value : 470

Min value : 420

Question 4:

Which C++ header file (s) will be include to run/execute the following C+ + code ?

```
void main()
{
int Last=26.5698742658;
cout<<setw(5)<<setprecision(9)<<Last;
}
```

Answer:

iostream.h

iomanip.h

Question 5:

Find the correct identifiers of the following, which can be used for naming, variable,

constants or functions in a C++ program :

For, while, INT, New, delete, IstName, Add + Subtract, namel

Answer:

For, INT, New, namel

Question 6:

Find correct identifiers out of the following, which can be used for naming variable,

constants or function in a C++ program :

For, While, Float, new, 2ndName, A%B, Amount 2, Counter.

Answer:

While, float Amount 2, _Counter.

Question 7:

Find out the expected correct output(s) from the options (i) to (iv) for the following C++ code.

Also, find out the minimum and the maximum value that can be assigned to the variable

Stop used in the code :

```
void main()
{
int Begin=3,Stop;
for(int Run=l;Run<4;Run++)
{
Stop=random(Begin)+6;
cout<<Begin++<<Stop<<"*";
}
}
```

```
(i) 36*46*57*
(ii) 37*46*56*
(iii) 37*48*57*
(iv) 35*45*57*
```

Answer:
The correct output will be:
(i) 36*46*57*
Maximum Value of Stop=8
Minimum Value of Stop=6

Question 8:
Find the output:
int A [2] [3] = {{1,2,3}, {5,6,7}};
for (int i = 1; i<2; i+ +)
for (int j = 0; j<3; j + +)
cout << A [i] [j] <<endl;
Answer:
5
6
7

Question 9:
Rewrite the following program after removing the syntactical errors (if any). Underline each correction.

```
#include<iostream.h>
typedef char Text(80);
void main()
{
Text T = "Indian";
int Count = strlen(T);
cout<<T<<'has'<<Count<<'characters'
<<endl;
}
```

Answer:

```
#include<iostream.h>
#include<string.h>
typedef char Text[80];
void main()
{
Text T = "Indian";
int Count=strlen(T);
cout<<T<<"has"<<Count<<"characters"<<endl;
}
```

Question 10:

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

```
#include<iostream.h>
typedef char[80] String;
void main()
{
String S = "Peace";
int L=strlen(S);
cout<<S<<'has'<<L<<'characters'<<endl;
}
```

Answer:

```
#include<string.h>
#include<<iostream.h>
typedef char String[80];
void main()
{
String S="Peace";
int L=strlen(S);
cout<<S<<"has"<<L<<"characters"<<endl;
}
```

Question 11:

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 :

```
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#EXCEL#80K#

(ii) 10EXCEL#80K#9GOOD#

(in) 10EXCEL#9GOOD#10EXCEL#

(iv) 10EXCEL#10GOOD#80K#

Answer:

None of the given output is correct.

The correct output is

10EXCEL#10EXCEL#9GOOD#

Minimum value = 0

Maximum Value = 3

TOPIC-3
Arrays and Functions

Very Short Answer Type Question

Question 1:

Observe the following program very carefully and write the names of those header file(s). which are essentially needed to compile and execute the following program successfully :

```
typedef char STRING[80];
void main()
{
STRING Txt[]="We love peace";
int count=0;
while(Txt[count]! = '\0 ')
if(isalpha(Txt Count)
Txt[count++] = 1@';
else
Txt[count++] = '#';
puts(Txt);
}
```

Answer:

<ctype.h>, <stdio.h>

Short Answer Type Questions-I

Question 1:

Explain in brief the purpose of function prototype with the help of a suitable example.

Answer:

The Function prototype serves the following purposes :

1. It tells the return type of the data that the function will return.

2. It tells the number of arguments passed to the function.

3. It tells the data types of each of the passed arguments.

4. Also it tells the order in which the arguments are passed to the function.

```cpp
#include<iostream.h>
int timesTwo(int num);    // function
prototype int main()
{
int number,response;
cout<<"Please enter a number:";
cin>>number;
response = timesTwo(number);    //
function call
cout<<"The answer is"<<response;
return 0;
}
//timesTwo function
int timesTwo (int num)
{
int answer;    //local variable
answer = 2*num;
return(answer);
}
```

Question 2:

What is the difference between call by reference and call by value with respect to memory allocation ? Give a suitable example to illustrate using C+ + code.

Answer:

Call By Value : In call by value method, the called function creates its own copies of original values sent to it. Any changes that are made, occur on the function's copy of values are not reflected back to the calling function.

Call By Reference : In call by reference method, the called function accesses and works with the original values using their references. Any changes that occur, takes place on the original values and are reflected back to the calling code.

Example:

```
//using call by reference
#include<iostream.h>
void swap(int &, int &);
int main()
{
int a=10,b=20;
swap(a,b);
cout<<a<<" "<<b;
return 0;
}
void swap(int &c, int &d)
{
```

```
//using call by value
#include<iostream.h>
void swap(int, int);
int main()
{
int a=10,b=20;
swap(a,b):
cout<<a<<" "<<b;
return 0;
}
void swap(int c, int d)
{
```

```
    int t;                          int t;

    t=c;                            t=C;

    c=d;                            C=d;

    d=t;                            d=t;

    }                               }

    output :                        output:

    20 10                           10 20
```

Question 3:

What is the difference between Actual Parameter & Formal Parameter ? Give a suitable example to illustrate both in a C++ code.

Answer:

Formal Parameters	Actual Parameters
1. These parameters appear in function definition. 2. Example: void set(int a, int b) {	1. These parameters appear in function call statement. 2. Example: void main() {

int c=a-b;
 	
cout<<c;
 	
}
 	
Here, a and b are formal
 	
parameters.
	inta=10,b=20;
	
	swap(a,b);
	
	}
	
	Here, a and b are
	
	actual parameters.

Question 4:

Deepa has just started working as a programmer in STAR SOFTWARE company. In the company she has got her first assignment to be done using a C++ function to find the smallest number out of a given set of «numbers stored in a one-dimensional array. But she has committed some logical mistakes while writing the code and is not getting the desired result. Rewrite the correct code underlining the corrections done. Do not add any additional statements in the corrected code.

```
int find(int a[],int n)
{
int s=a[0] ;
for(int x=l;x<n,-x++)
if(a[x]>s)
a[x]=s;
return(s);
}
```

Answer:

```
int find(int a[],int n)
{
int s=a[0];
for(int x=l;x<n;x++)
{
if(a[x]<=s)
s=a[x];
}
return(s);
```

Question 5:

What is the benefit of using default parameter/ argument in a function ? Give a suitable example to illustrate it using C++ code.

Answer:

The benefit of using default arguments is that whenever there is no value supplied to the parameter within the program, its default value can be used.

Example :

```
#include<iostream.h>
#include<conio.h>
int main()
{
int a,b=20,c;
a=change(c,b);
return a ;
}
```

```
int change(int a=10,b)
{
int temp;
temp=a;
a=b;
return temp;
}
In the above example, change () assigns a value 10 to a because it is defined by default.
```

Question 6:

What is the benefit of using function prototype for a function? Give a suitable example to illustrate it using

C++ code. Answer:

The benefit of using a function prototype is to have a clear representation of the type of value

that the function would return and type of argument the function needs.

Example :

int function (int a, int b);

The above is a prototype for a function named 'function' that has two integer arguments a & b which returns as integer value.

Question 7:

Write a prototype of a function named percent, which takes an integer as value parameter & return a float type value. The parameter

should have default value of 10.

Answer:

float percent(int a=10) ;

Question 8:

Observe the following C++ code carefully and write the same after removing syntax errors.

```cpp
#define change(A,B)2*A+B;
void main()
{
float X,Y,F;
cin>>X>>Y;
F=Change(X,Y);
cout<<"result:<<F<<endline;
}
```

Answer:
The corrected code is :

```cpp
#define change(A,B)2*A B;
void main()
{
float X,Y,F;
cin>>X>>Y;
F=change(X,Y);
cout<<"result:<<F<<endl;
}
```

Question 9:
Write a function in C++ to accept two integers as parameters and returns the greater of these numbers.
Answer:

```cpp
int max (int a, int b)
{
if(a>b)return a;
else
return b;
}
```

Question 10:
Write the output from the following C++ program code :

```cpp
#include<iostream.h>
includecctype.h>
void strcon(char s[])
{
for(int  i=0,l= 0;s[i]! = '\0' ;i++,l++) ;
 for(int j=0;j<l;j++)
{
 if (isupper(s[j]))
 s[j]=tolower(s[j])+2;
 else if(islower(s[j]))
 s[j]=toupper(s[j])-2;
 else
 s[j]='@';
 }
}
void main()
```

```
{
char *c="Romeo Joliet";
strcon(c);
cout<<"Text= "<<c<<endl;
c=c+3;
cout<<"New Text= "<<c<<endl;
c=c+5-2;
cout<<"last Text= "<<c
}
```

Answer:

Text = @tMKCM@lMJGCR
New Text = <KCM@1MJGCR
Last Text = @1MJGCR

Question 11:
Study the following C++ program and select the possible output(s) from it : Find the maximum and minimum value of L.

```
#include<stdlib.h>
#include<iostream.h>
#include<string.h>
void main()
{
randomize();
```

```
char P[]="C++PROGRAM";
long L;
for(int 1=0;P[I]!='R';I++)
{
L=random(sizeof(L))+5;
cout<<P[L]<<";
}
}
```

(i) R-P-O-R

(ii) P-0-R-+-

(iii) O-R-A-G

(iv) A-G-R-M-

Answer:

C	+	+	P	R	O	G	R	A	M
0	1	2	3	4	5	6	7	8	9

Possible Values:

Possible Output is (iii) O-R-A-G

Minimum value of L = 5

Maximum Value of L = 8

Question 12:

Write a user defined function DIVTQ which takes an integer as parameter and returns whether it is divisible by 13 or not. The function should return 1 if it is divisible by 13, otherwise it should return 0.

```
int DIVT(int x)
{
int f;
if(x%13 == 0)
f=1;
else f=0;
Return f;
}
```

Question 13:

Find output of the following program segment :

```
#include<iostream.h>
#include<ctype.h>
void Mycode(char Msg[],char CH)
{
for(int cnt=0;Msg[cnt]!='\0';cnt++)
{
if(Msg[cnt]>='B'&& Msg [cnt]<='G')
Msg[cnt] =tolower(Msg[cnt]);
else
if(Msg[cnt]=='N'?Msg[cnt]=='n'?Msg[c nt]==' ')
```

```
Msg[cnt]=CH;
else
if(cnt%2==0)
Msg[cnt]=toupper(Msg[cnt]);
else
Msg[cnt]=Msg[cnt-1];
}
}
void main()
{
char MyText[]="Input Raw";
Mycode(MyText,'@');
cout<<"NEW TEXT:"<<MyText<<endl;
}
```

Answer:
I@PPT@RRW

Question 14:

Observe the following program and find out, which output(s) out of (i) to (iv) will not expected from the program ? What will be the minimum and the maximum value assigned to the variable chance ?

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

```
randomize()
int Game[]=(10,16),P;
int Turns=random(2)+5;
for(int T=0;T<=2;T++)
{
P=random(2);
Cout<<Game[P]+Turn<<"*";
 }
 }
(i) 15*22*
(ii) 22*16*
(iii) 16*21*
(iv) 21*22*
```

Answer:

Option 1:

None of the outputs are correct Variable named chance does not exist in the program, hence no minimum and maximum values for it.

OR

Option 2 :

Error in question OR

Option 3: Assuming

Cout<<Game[P]+Turn<<"#"; in place of cout << Game[P] + Turn <<"*";

If random(2) in int Turn=random(2)+5; generates 0 then Turn = 5	If random(2) in int Turn = random(2)+5; generates 1 then Turn = 6

If	If	If	If
P=random (2); Generates 0 cout<<Game [P] + Turn<<"#" ; will give the output as 15#	P=random(2); Generates 1 cout<<Game [P] + Turn<<"#"; will give the output as 21#	P=random(2); Generates 0 cout<<Game [P] + Turn<<"#"; will give the output as 16#	P=random(2); Generates 1 cout<<Game [P] + Turn<<"#" ; will give the output as 22#

Thus for Turn = 5 the output can be 15#15# OR 21#21# OR 15#21# OR 21#15#	Thus for Turn = 6 the output can be 16#16# OR 22#22# OR 16#22# OR 22#16#

Since out of the above possible outputs only option (ii) is correct, hence The outputs not ! expected from the program are (i) (iii) and (iv)

Question 15:

Observe the following program and find out which output (s) out if (i) to (iv) will not be f expected from the program ? What will be the minimum and the maximum value assigned to the variable Chance ?

```cpp
#include<iostream.h>
#include<stdlib.h>
void main()
{
randomize() ;
int Arr[]={9, 6},N;
int Chance = random(2)+10;
```

```
for(int C=0;C<2;C++)
{
N=random(2);
cout<<Arr[N]+Chance<"#";
}
}
```
(i) 9#6#

(ii) 19#17#

(iii) 19#16#

(iv) 20#16#

Answer:

The outputs not expected from the program are (i), (ii) and (iv)

Minimum Value of Chance = 10

Maximum Value of Chance = 11

Question 16:

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

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

```
typedef char WORD(80];
void CODEWORD(WORD W)
{
int LEN=strlen (W);
 for(int 1=0;I<LEN-1;I+=2)
{
```

```
char SW=W[I];
W[I]=W[I+1];
W[1+1]=SW;
 }
for(1=1;I<LEN;I+=2)
if(W[I]>=1M1&&W[I]<='U')
W[I)='#';
}
void main()
{
WORD Wrd="EDITORIALS";
codeword(Wrd);
cout<<Wrd<<endl;
}
```

Answer:
DETIROAISL

Question 17:
Correct the following code and rewrite

```
#define convert(P,Q)P+2*Q;
void main()
{
float A,B,Result;
cin>>A>>B;
```

```
result=Convert[A,B];
cout<<"output"<<Result<<;
endline;
}
```

Answer:

```
#define convert(P,Q)P+2*Q
void main()
{
float A,B,Result;
cin>>A>>B;
Result=convert(A,B);
cout<<"Output"<<Result<<endl;
}
```

<center>Short Answer Type Questions-ll</center>

Question 1:

Observe the following C++ code very carefully and rewrite it after removing any/all syntactical errors with each correction underline.

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

```
#Define float MaxSpeed =60.5;
void main()
}
int MySpeed char Alert = 'N';
```

```
cin>>MySpeed;
if MySpeed>MaxSpeed
Alert = 'Y';
cout<<Alert<<endiline;
}
```

Answer:

```
#define float MaxSpeed_60.5; //Error 1, 2, 3
void main()
{
int MySpeed;    //Error 4
char Alert='N';
cin>>MySpeed;
if(MySpeed>MaxSpeed)    //Error 5
Alert='Y';
cout<<Alert<<endl;    //Error 6
```

Question 2:

Write the ouputs of the following C+ + program code :

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

```
void Location(int &X, int Y=4)
{
Y+=2;
X+=Y;
```

```cpp
}
void main()
{
int PX=10, PY=2;
Location(PY):
cout<<PX<<","<<PY<<endl;
Location (PX,PY);
cout<<PX<<","<<PY<<end;
}
```

Answer:
10,8
20,8

Question 3:
Find the output of the following program :

```cpp
#include<iostream.h>
void in(int x, int y, int &z)
{
x+=y;
y--;
z*=(x-y);
}
void out(int z,int y, int &x)
{
```

```cpp
x*=y;
y++;
z/=(x+y);
}
void main()
{
int a=20, b=30, c=10;
out(a,c,b);
cout<<a<<"#"<<b<<"#"<<c<<"#"<<endl;
in(b,c,a);
cout<<a<<"@"<<b<<"@"<<c<<"@"<<endl;
out(a,b,c);
cout<<a<<"$"<<b<<"$"<<c<<"$"<<endl;
}
```

Answer:

20#300#10#

620@300@10@

620$300$3000$

Question 4:

Find the output of the following program segment :

```cpp
int a = 3 ;
void demo(int x, int y, 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):
demo( : : a, a, b);
}
```

Answer:
3 * 5 * 10
8 * 10 * 20

TOPIC-4
Structures

Short Answer Type Questions-II [3 marks each]

Question 1:
Find the output of the following program :

```
#include<iostream.h>
void ChangeArray(int number, int ARR[], int Size)
{
for(int L=0;L<Size;L++)
```

```
if(L<number)
ARR[L]+=L;
else
ARR[L]*=L;
}
void Show (int ARR[], int Size)
{
for(int L=0;L<Size;L++)
(L%2==0)?
cout<<ARR[Ll<<"#": cout<<
ARR[L]<<endl;
}
void main()
{
int Array[]={30,20,40,10,60,50};
ChangeArray(3,Array,6);
Show(Array,6);
}
```

Answer:
Output:
30#21
42# 30
240#250

Question 2:

Find the output of the following program :

```cpp
#include<iostream.h>
void Switchover(int A[], int N, int split)
{
for(int K=0;K<N K++)
if(K<split)
A[K]+=K;
else
A[K]*=K;
}
void Display(int A[], int N)
{
for(int K=0;K<N;K++)
(K%2==0)?cout<<A[K]<<"%" :
cout<< A[K]<<endl;
}
void main()
{
int H[]={30,40,50,20,10,5};
Switchover(H,6,3);
Display(H,6);
}
```

Answer:

Output:

30%41

52%60

40% 25

Question 3:

Find the output of the following program :

```
#include<iostream.h>
struct GAME
{
Int Score, Bonus,
};
void Play(GAME &g, int N=100)
{
g.score ++;
g.Bonus+=N;
}
void main()
{GAME G={110,50};
Play(G,10);
cout<<G.Score<<":"<<G.Bonus<<endl;
Play(G);
cout<<G.Score<<":"<<G.Bonus<<endl,
Play(G,15);
```

```
cout<<G.Score<<":"<<G.Bonus<<endl;
}
```

Answer:

Output:

111 : 60

112:160

113:175

Question 4:

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

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

Answer:

```
#include<iostream.h>
struct Pixels
{int Color, Style};
void ShowPoint(Pixels P)
{
cout<<P.Color<<P.Style<<endl;)    //
In cascading of Cout,<<to be used
void main()
{
Pixels Point1={5,3};    //{} to be used to initialise of members of the object
ShowPoint(Point1);
Pixels Point2=Point1;
Point 1.Color+=2;
ShowPoint(Point2);
}
```

Question 5:
Find the output of the following program :

```
#include<iostream. h>
struct POINT
{int X, Y, Z ;};
void Stepln(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;
}
void main()
{
POINT Pl={15,25,5}, P2={10,30,20} ;
Stepln(P1);
StepOut(P2,4);
cout<<Pl.X<<","<<Pl.Y<<","<<Pl.Z<<endl;
cout<<P2.X<<","<<P2.Y<<","<<P2.Z<<endl;
Stepln(P2,12);
cout<<P2.X<<","<<P2.Y<<","<<P2.Z<<endl;
}
```

Answer:
Output:
16,24,6
6, 34,16
18,22,28

Question 6:

Find the output of the following program :

```cpp
#include<iostream.h>
struct Score
{
int Year;
float Topper;
};
void Change(Score*S, int x=20)
{S -> Topper = (S->Topper+25)-x;
S->Year++;}
void main()
{
Score Arr[]={ {2007, 100}, {2008, 95}};
Score * Point = Arr;
Change(Point,50);
cout<<Arr[0].Year<<'#'<<Arr[0].Topper<<endl;
Change(++Point);
cout<<Point->Year<<'#'<<Point->Topper<<endl;
}
```

Answer:

Output:

2008 # 75

2009 # 100

Question 7:

Find the output of the following program :

```cpp
#include<iostream.h>
struct THREE_D{int X,Y,Z;};
void Moveln(THREE_D & T, int Step=1)
{
T.X+=Step;
T.Y-=Step;
T.Z+=Step;
}
Void MoveOut(THREE_D & T, int Step = 1)
{
T.X-=Step ;
T.Y+=Step ;
T.Z-=Step ;
}
Void main()
{
THREE_D T1={10,20,5},
T2 ={30,10,40};
Moveln(Tl);
MoveOut(T2,5);
Cout<<Tl.X<<11,"<<T1.Y<<","<<T1.Z<<endl;
Cout<<T2.X<<","<<T2.Y<<","<<T2.Z<<endl;
Moveln(T2,10);
```

```
cOUt<<T2.X<<","<<T2.Y<<","<<T2.Z<<endl;
}
```

Answer:
11,19,6
25,15,35
35, 5,45