

ASSIGNMENT FOR CLASS – XII:

COMPUTER SCIENCE(083)

1. (a) 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, Number12, do

(b) 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>>Number;
Outcome=pow(A,Number);
cout<<Outcome<<endl;
}
```

(c) Rewrite the following C++ code after removing any/all syntactical errors 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);
cout<<'Output='<<C<<endl;
}
```

(d) 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 l=0;l<Size-1;l+=2)
{
char WS=S[l];
S[l]=S[l+1];
S[l+1]=WS;
}
for(l=1;l<Size;l+=2)
if(S[l]>='M' && S[l]<='U')
```

```

S[l]='@';
}
void main()
{
STRING Word="CRACKAJACK";
MIXITNOW(Word);
cout<<Word<<endl;
}

```

(e) 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=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();
}

```

(f) 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. 2

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 CHANGER;
CHANGER=random(3);
char CITY[][25]={"DELHI","MUMBAI","KOLKATA","CHENNAI"};
for(int l=0;l<=CHANGER;l++)
{
for(int J=0;J<=l;J++)
cout<<CITY[J];
cout<<endl;
}
}
```

(i)

DELHI

DELHIMUMBAI

DELHIMUMBAIKOLKATA

(ii)

DELHI

DELHIMUMBAI

DELHIMUMBAIKOLKATA

DELHIMUMBAIKOLKATACHENNAI

(iii)

MUMBAI

MUMBAIKOLKATA

MUMBAIKOLKATACHENNAI

(iv)

KOLKATA

KOLKATACHENNAI

2. (a) Differentiate between Constructor and Destructor functions giving suitable example using a class in C++. When does each of them execute ?

(b) Observe the following C++ code and answer the questions (i) and (ii). Assume all necessary files are included :

```
class FICTION
{
long FCode;
```

```

char FTitle[20];
float FPrice;
Public:
FICTION() //Member Function 1
{
cout<<"Bought"<<endl;
FCode=100;strcpy(FTitle,"Noname");FPrice=50;
}
FICTION(int C,char T[],float P) // Member Function 2
{
FCode=C;
strcpy(FTitle,T);
FPrice=P;
}
void Increase(float P) // Member Function 3
{
FPrice+=P;
}
void Show() // Member Function 4
{
cout<<FCode<<":"<<FTitle<<":"<<FPrice<<endl;
}
~FICTION() // Member Function 5
{
cout<<"Fiction removed!" <<endl;
}
};
void main() //Line 1
{ //Line 2
FICTION F1,F2(101,"Dare",75); //Line 3
for (int l=0;l<4;l++) //Line 4
{ //Line 5
F1.Increase(20);F2.Increase(15); //Line 6
F1.Show();F2.Show(); //Line 7
} //Line 8
} //Line 9

```

(i) Which specific concept of object oriented programming out of the following is illustrated by Member Function 1 and Member Function 2 combined together ?

- Data Encapsulation
- Data Hiding
- Polymorphism
- Inheritance

(ii) How many times the message "Fiction removed!" will be displayed after executing the above C++ code ? Out of Line 1 to Line 9, which line is

responsible to display the message “Fiction removed!” ?

(c) Write the definition of a class METROPOLIS in C++ with following description : 4

Private Members

- MCode //Data member for Code (an integer)
- MName //Data member for Name (a string)
- MPop //Data member for Population (a long int)
- Area //Data member for Area Coverage (a float)
- PopDens //Data member for Population Density (a float)
- CalDen() //A member function to calculate -----

//Density as PopDens/Area

Public Members

- Enter() //A function to allow user to enter values of
//Mcode,MName,MPop,Area and call CalDen()
//function
- ViewALL() //A function to display all the data members
//also display a message “Highly Populated Area”
//if the Density is more than 12000

(d) Answer the questions (i) to (iv) based on the following : 4

class PRODUCT

```
{  
int Code;  
char Item[20];  
protected:  
float Qty;  
public:  
PRODUCT();  
void GetIn(); void Show();  
};
```

class WHOLESALER

```
{  
int WCode;  
protected:  
char Manager[20];  
public:  
WHOLESALER();  
void Enter();  
void Display();  
};
```

class SHOWROOM : public PRODUCT, private WHOLESALER

```
{  
char Name[20],City[20];  
public:  
SHOWROOM();  
void Input();  
void View();
```

};

(i) Which type of Inheritance out of the following is illustrated in the above example ?

- Single Level Inheritance
- Multi Level Inheritance
- Multiple Inheritance

(ii) Write the names of all the data members, which are directly accessible from the member functions of class SHOWROOM.

(iii) Write the names of all the member functions, which are directly accessible by an object of class SHOWROOM.

(iv) What will be the order of execution of the constructors, when an object of class SHOWROOM is declared ?

3. (a) Write the definition of a function FixPay(float Pay[], int N) in C++, which should modify each element of the array Pay having N elements, as per the following rules :

Existing Value of Pay Pay to be changed to

If less than 100000 Add 25% in the existing value

If ≥ 100000 and < 200000 Add 20% in the existing value

If ≥ 200000 Add 15% in the existing value

(b) Write definition for a function SHOWMID(int P[][5], int R, int C) in C++ to display the elements of middle row and middle column from a two dimensional array P having R number of rows and C number of columns.

For example, if the content of array is as follows :

115 112 116 101 125

103 101 121 102 101

185 109 109 160 172

The function should display the following as output :

103 101 121 102 101

116 121 109

4. (a) Write function definition for WORD4CHAR() in C++ to read the content of a text file FUN.TXT, and display all those words, which has four characters in it.

Example :

If the content of the file fun.TXT is as follows :

When I was a small child, I used to play in the garden with my grand mom. Those days were amazingly funful and I remember all the moments of that time

The function WORD4CHAR() should display the following :

When used play with days were that time

(b) 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:
void Takeonstock()
{
cin>>ID;gets(Gift);gets(Remarks);cin>>Price;
}
void See()
{
cout<<ID<<": "<<Gift<<": "<<Price<<": "<<Remarks<<endl;
}
char *GetRemarks() {return Remarks;}
};
```

(c) Find the output of the following C++ code considering that the binary file MEM.DAT exists on the hard disk with a data of 1000 members :

```
class MEMBER
{
int Mcode;char MName[20];
public:
void Register();void Display();
};
void main()
{
fstream MFile;
MFile.open("MEM.DAT", ios::binary|ios::in);
MEMBER M;
MFile.read((char*)&M, sizeof(M));
cout<<"Rec:"<<MFile.tellg()/sizeof(M)<<endl;
MFile.read((char*)&M, sizeof(M));
MFile.read((char*)&M, sizeof(M));
cout<<"Rec:"<<MFile.tellg()/sizeof(M)<<endl;
MFile.close();
}
```

Qno 5 Write a function to sort the list of numbers using bubble sort.

Qno 6 Write a function to sort the list of numbers using Selection sort.

Qno 7 Write a function to sort the list of numbers using insertion sort.

Qno 5 Write a merge sort function.