SUBJECT: COMPUTER SCIENCE   ASSIGNMENT No: I
Allotment Date: 25/04/18   Submission Date : 15/06/18

Q.no.	Questions	Marks
Very Short Answer Questions:		
1	Differentiate between ordinary function and member functions in C++.	1
2	Differentiate between a **struct** and a **class.**	1
3	Define the pre-requisite conditions for a member function to work as a constructor.	1
Short answer questions:		
4	Write a program to demonstrate Polymorphism.	2
5	Define data hiding and data abstraction .	2
6	Why was concept of inheritance introduced in OOP ? Give one example program	2
7	Go through the C++ code shown below, and find out the possible output or outputs from the suggested output options (i) to (iv). Also write the minimum and maximum value, which can be assigned to the variable YourNum. `#include<iostream.h>` `#include<stdlib.h> void main( )` `{ randomize( );` `int YourNum, Max = 5; YourNum = 20 + random (Max );` `for (int N = YourNum ; N < 25 ; N++ )` `cout<< N << "*"; }` (i) 20 * 21 * 22 * 23 * 24 * 25 (ii) 22 * 23 * 24 * 25 * (iii) 23 * 24 (iv) 21 * 22 * 23 * 24 * 25	2
Long answer questions:		
8	Answer the question (i) and (ii) 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 "<<endl;` `} };` (i) In Object Oriented Programming, what is Function 4 referred as when does it get invoked/called? (ii) In Object Oriented Programming, which concept is illustrated by Function 1 and Function 3 together? Write an example illustrating the calls for these functions.	3
9	Answer the questions (i) and (ii) after going through the following class : `class Exam {` `int Rollno;` `char Cname[25];` `float Marks ; public :` `Exam( ) //Function 1` `{` `Rollno = 0 ;` `Cname="";` `Marks=0.0; }` `Exam(int Rno, char candname) //Function 2` `{ Rollno = Rno ;`	3

```
strcpy(Cname,candname); }
~Exam( ) //Function 3
{
cout << "Result will be intimated shortly" << endl ;
}
void Display( ) //Function 4
{
cout << "Roll no :"<<Rollno;
cout<<"Name :" <<Cname;
cout <<" Marks:"<<Marks;
} } ;
```
(i)Which OOP concept does Function 1 and Function 2 implement? Explain?
(ii)What is Function 3 called? When will it be invoked?

10	Give the following class definition answer the question that is follow:	5

```
class University
{
char name [20];
protected :
char vc[20];
public :
void estd();
void inputdata();
void outputdata();
}
class College : protected University
{ int regno;
protected
char principal()
public :
int no_of_students;
void readdata();
void dispdata ( );
};
class Department : public College
char name[20];
char HOD[20];
public :
void fetchdata(int);
void displaydata( ); }
```
i). Name the base class and derived class of college.
ii) Name the data member(s) that can be accessed from function displaydata().
iii)What type of inheritance is depicted in the above class definition?
iv) What will be the size of an object (in bytes) of class Department?

11	Define a class Ticket in C++ with following description:	5

Private members

- Tno of type integer (Ticket number)
- Name of type string(Passenger name)
- Distance of type integer (distance to be travelled in kms)
- Berth of type string("SL" , "2AC" , "3AC")
- Psngr of type integer(no of passengers)
- Fare of type float(Ticket fare)
- A member function calcFare() to calculate the fare as per the following :

Berth Rate per km
SL 10
3AC 25
2AC 35
Service charge of Rs.200/- for 2AC and 3AC.

	Public members - A member function Book() to enter Tno,Name, Distance, berth , Psngr - A member function Print() to display Tno, Name, Distance, berth, Psngr and call calcFare()to calculate the journey fare		

12	Consider the following and answer the following questions:
	class ADDRESS
	{
	char Hno[10];
	char City[15];
	protected:
	long Pincode;
	public:
	char phone[11];
	ADDRESS();
	void get();
	void show(); };
	class OFFICE
	{
	char Name[15];
	char Manager[20];
	char code[10];
	public:
	int totalEmp;
	OFFICE();
	void Input();
	void Output();
	};
	class EMPLOYEE: private ADDRESS, public OFFICE
	{
	int Icode;
	char Ename[25];
	float Salary;
	public:
	char Dept[15];
	EMPLOYEE();
	void getEmp();
	void showEmp(); };
	(i) Name the type of inheritance is shown in above example.
	(ii) Write the names of all the member functions which are accessible from objects of class EMPLOYEE.
	(iii) Write the names of all the members which are accessible from member functions of class EMPLOYEE.
	(iv) How many bytes will be allocated to an object belonging to class EMPLOYEE?
		5	