Q1.

1. What do you mean by static variable? Explain with help of example. (2)
2. Write the header files to which the following functions belong: (1)

(i) getc ( ) (ii) isalnum ( ) (iii) scanf ( ) (iv) getxy ( )

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

correction. (2)

#include<iostream.h>

int main()

{ structure student

{

int. rno, mark;

}stu;

student stuA= (1001,49);

student stuB= stuA;

if (stuA!= stuB)

stuA.mark= 55;

else

stuB.mark= 25;

cout<<stuA.mark<<stub.mark;

}

(d) Find the output of the following program: (2)

#include<iostream.h>

void main()

{

int list[5];

\*list=5;

for(int i=1; i<5;i++)

\*(list+i)= \*(list+i-1)\*i;

cout<<”\n”;

for(i=0;i<5;i++)

cout<<””<<\*(list+i);

}

(e) What will be the output of the following program: (3)

#include <iostream.h>

void Secret(char Str[ ])

{ for (int L=0;Str[L]!='\0';L++);

for (int C=0;C<L/2;C++)

if (Str[C]=='A' || Str[C]=='E')

Str[C]=Str[L-C-1];

else

{ char Temp=Str[C];

Str[C]=Str[L-C-1];

Str[L-C-1]=Temp;

}

}

void main()

{ char Message[ ]="PreboardExam";

Secret(Message);

cout<<Message<<endl;

}

1. Find the output of the following program: (2)

# include <iostream.h>

# include <conio.h>

# include <stdlib.h>

void main ()

{

char serial[] = {'A', 'B', 'C', 'D'};

int number[] = { 2, 6, 7, 3};

clrscr();

randomize();

cout << " The winner is : ";

cout << serial [random(3)];

for (int i = 0; i < 4; i++)

cout << number[sizeof(int) + random(2) - 1 ];

getch();

}

Outputs:

(i) The winner is : A2776

(ii) The winner is : D6766

(iii) The winner is : B6767

(iv) The winner is : C3672

Q2.

1. How member functions and non member functions differ? (2)
2. Answer the questions (i) and (ii) after going through the following class. (2)

class Maths

{

char Chapter [20];

int Marks;

public:

Maths (int x, char ch[ ]) //Function 1

{

----------------

}

Math (Math & A1) //Member Function 2

{

-----------------

}

};

1. Complete the definitions of Member Function 1 and Member Function 2 in the above example.
2. How would Member Function 1 and Member Function 2 get executed?
3. Define a class Taxpayer, whose class description is given below:- (4)

**Private Members:-**

int pan - to store the personal account no.

char name[20] - to store the name

float taxableinc - to store the total annual taxable income.

float tax - to store the tax that is calculated.

computetax ( )- A function to compute tax from the following rule:-

**Total Annual Taxable Income Rate of Taxation**

Up to 60000 0%

Greater than 60000, less than = 150000 5%

Above 150000, upto 500000 10%

Above 500000 15%

**Public Members :-**

inputdata ( ) - A function to enter the data and call the compute tax( ) function.

display( ) - To display the data.

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

class cloth

{

char category [5];

char description [25];

protected :

float price;

public :

void entercloth ( );

void displaycloth ( );

};

class design : protected cloth

{

char design [21];

protected :

float cost;

public:

int design;

design ( ) { }

void enterdesign ( );

void dispdesign ( );

};

class costing : public cloth

{

float desingfee;

float stiching;

float cal\_cp ( );

protected:

float costprice;

float sellprice;

public:

void entercost ( );

void dispcost ( );

costing ( );

};

(i) Write the names of data members which are accessible from objects belonging to class cloth.

(ii) Write the names of all members which are accessible from objects belonging to class design.

(iii) Write the names of all the data members which are accessible from member functions of class costing.

(iv) How many bytes will be required by an object belonging to class design?

Q3.

1. Write a function in C++ which accepts an integer array and its size as arguments / parameters and arrange all the odd numbers in the first row and even numbers in the second row of a two dimensional array as follows. The unused cells of two dimensional array must be filled with 0. (3)

If the array is 1, 2, 3, 4, 5, 6

The resultant 2-D array is given below

1 3 5 0 0 0

0 0 0 6 4 2

1. A 2-d array defined as A[4..7, -1..3] requires 2 words of storage space for each element stored in row major order. Calculate the address of A[7,0] and base address if the location of A[6,2] as 126. (3)
2. c) Write a function in C++ which accepts a 2-D array of integers and its size as arguments and prints no of even numbers and odd numbers in each column. (2)

If the array is

11 12 31 41

52 62 71 82

9 10 11 12

The output will be

Column 1: Even numbers : 1 Odd numbers : 2

Column 2: Even numbers : 3 Odd numbers : 0

Column 3: Even numbers : 0 Odd numbers : 3

Column 4: Even numbers : 2 Odd numbers : 1