ST. XAVIER'S SENIOR SECONDARY SCHOOL, DELHI – 110 054

Std. 12 Time : 1½ hr.

12-12-2014 Second Unit Test in COMPUTER SCIENCE M. Marks: 35

1. Assuming the class DRINK: [3]

```
class DRINK
{
int quantity;
char name[10];
public:
void getdata( )
{
cin>>quantity;
gets(name);
}
void showdata( )
{
cout<<quantity<<" "<< name<<endl;
}
};
```

Write the functions to perform the following.

i) Write the objects of DRINK to a binary file.

ii) Read the objects of DRINK from binary file and display them on screen.

2. Write a function in C++ to count and display the number of lines not starting write alphabet 'A' present in a text file "STORY.TXT"; [2]

Example:- if the file "STORY.TXT" contains the following lines

The rose is real.

A girl is playing there.

There is a playground.

An aeroplane is in the sky.

Numbers are not allowed in the password

The function should display the output as 3.

3. Observe the program segment given below carefully, and answer the question that follows: [1]

```
class PracFile
{    int Pracno;
char PracName[20];
int TimeTaken;
int Marks;
public:
    void EnterPrac ( );              // function to enter PracFile details
    void ShowPrac ( );               // function to display PracFile details
int RTime() { return TimeTaken;  }                  // function to return TimeTaken
void Assignmarks (int M) {  Marks = M;  }       // function to assign Marks
};
void AllocateMarks( )
{   fstream File;
File.open ("MARKS.DAT", ios:: binary | ios ::in | ios::out);
PracFile P;
int Record = 0;
while(File.read(( char*) &P, sizeof(P)))
{    if (P.Rtime ( ) >50)
            P.Assignmarks(0));
     else
```

```
            P.Assignmarks(10);
          ------------------------// statement 1
          ------------------------// statement 2
          Record ++;
    }
    File.close( );
    }
```

If the function AllocateMarks( ) is supposed to Allocate Marks for the records in the file MARKS.DAT based on their value of the member TimeTaken. Write C++ statements for the statement 1 and statement 2, where, statement 1 is required to position the file write pointer/put pointer to an appropriate place in the file and statement 2 is to perform the write operation with modified record.

4. Answer the questions (i) to (iv) based on the following code: [5]

```
class Toys
{ char TCode[5];
protected:
float Price;
void Assign(float);
public:
Toys( );
void TEntry( );
void TDisplay( );
};
class SoftToys:public Toys
{ char STName[20];
float weight;
public:
SoftToys( );
void STEntry( );
void STDisplay( );
};
class ElectronicToys: public Toys
{ char ETName[20];
int No_of_Batteries;
public;
ElectronicToys( );
void ETEntry( );
void ETDisplay( );
};
```

I. Which type of Inheritance is shown in the above example?
II. Write name of data members accessible by the function ETDisplay( ).
III. Write name of all the data members accessible from member functions of the class SoftToys.
IV. Write name of all member functions accessible by an object of the class ElectronicToys.

5. What is the different between the members in a private visibilty mode and the members in public visibilty mode inside a class. Also, give a suitable C++ code to illustrate both. [2]

6. i) Find the output of the following programs [3]

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

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

ii) [2]

```
#include<iostream.h>
struct Game
{
char Magic[20]; int score;
};
void main( )
{
Game M={"Tiger", 500};
char*choice;
Choice=M.Magic;
Choice[4]='P';
Choice [2]='L';
M.Score+=50;
cout<<M.Magic<<M.Score<<endl;
Game N=M;
N.Magic[0]='A'; N.Magic[3]='J';
N.Score - =120;
cout <<N.Magic<<N.Score<<endl;
}
```

7. Write any two differences between: [2]
   Linear search and Binary Search.

8. Evaluate the following postfix notaions. Show status of stack after every step of evaluation. [4]
   (i.e. after each operation)
   i) 32, 4, /, 2, *, 12, 3, -, +
   ii) True, False, AND, True, True, Not, OR, AND.

9. Convert the following infix expressions to its equivalent postfix expressions showing stack contents for the conversion. [4]
   i) A + B * (C - D) /E
   ii) X-Y/(Z+U) *V

10. Write a function in C++ which accepts an integer array and its size as arguments. Perform bubble sorting on the array. [3]

11. Write two seprate functions in C++ to perform Insert operation and Delete operation on a dynamically alloted Queue containing passenger details as given in the following definition of Node. [4]

```
sturct Node
{
long PNO; // passenger Number
char Pname[20]; //passenger Name
Node * link;
};
```

-x-x-x-x-x-x-