Thapar Institute of Engineering and Technology, Patiala
Computer Science and Engineering

BE (II Semester) Auxiliary Examination
24 August 2024

UTA018: Object Oriented Programming
Time: 3 Hours; **MM: 100**

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NOTE: Questions attempted with pencil will not be checked. Write the page number of the question attempted on the front. Partially cut questions will not be given partial credit. Assume any missing data.

Q.1	
(a)	What is a friend function? Write a program in C++ to define a friend function that increments the values of data variables of two different classes by 5. **(10 marks)**
(b)	Write a program in C++ to overload pre-increment operator and post-increment operator. **(10 marks)**
Q.2	
(a)	Write a program in C++ to **(14 marks)** i. Define a class that has an integer variable and character array in private scope. ii. Write a member function to input the values. iii. Write a member function to write the input values to a binary file. This write function will call the input function. iv. Write a member function to read the all data stored in a binary file. v. Write a member function to display the data that is read from the binary file. vi. Write a member function to update/modify a particular record on the basis of integer data variable. vii. Write the main function appropriately to call these functions to input 3 records (values) and write to a binary file, read the records of binary file, modify a record of binary file and display the records on the console.
(b)	Explain in brief the purpose of each of the following modes. **(6 marks)** i. ios::out ii. ios::in iii. ios::app
Q3	
(a)	Write the syntax for different types of inheritance. Also draw the diagrams for the depiction of the type of inheritance. **(10 marks)**

P.T.O

(b)

Fill in the blanks in the code of template given below. Do not re-write the entire code just provide the answers to the blanks 1-7. **(7 marks)**

```
template ___1___
class exam2
{
H a;
X b;
public:
void getdata(___2___ m, ___3___ n){
                a=m;
                b=n;}
void show();
};
template ___4___
void ___5____show(){cout<<a<<endl<<b;}
```

```
int main()
{
   exam2 __6___e1;
   e1.getdata(10, 20.4);
   exam2 __7___e2;
   e2.getdata("hello", 20);
}
```

Q4 Write short notes on the following with examples **(5*5=25marks)**

a) Encapsulation
b) Static member functions
c) Types of Constructors
d) Function overloading
e) STL

Q5

(a) Write a program in C++ to demonstrate exception handing using try, catch and throw. **(10 marks)**

(b) Differentiate between compile time polymorphism and run time polymorphism with the help of examples. **(8 marks)**