Thapar Institute of Engineering and Technology, Patiala

BE (II Semester) Auxiliary Examination
31 August 2023

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

Faculty: Raman Kumar Goyal

NOTE: Solve all the questions in order . Questions attempted with pencil will not be checked. New problem, new page. Write the page number of the question attempted on the front. Partially cut questions will not be given partial credit. Plan on the last page before attempting to avoid cutting. Assume any missing data.

Q.1	Write short notes on the following with examples **(5*5=25marks)** a) Static member functions b) Difference between an ordinary data variable and static data variable c) Reference Variables d) Types of Constructors e) Virtual Destructors
Q.2 (a)	Write a program in C++ to swap two private data variables of two different classes (int a is data variable of class X in private scope and int b is data variable of class Y in private scope) **(10 marks)**
(b)	Write a program in C++ having the following characteristics: **(15 marks)** 1. Define a class player having three data variables (name as char array, average as float and runs as int) in private scope. 2. Declare array of objects in main. 3. Define appropriate member functions for input and output. 4. Sort the array of objects in descending order. (Player who scored most runs should be placed first).
Q.3 (a)	Explain different types of inheritance in detail with their syntax and examples **(10 marks)**
(b)	Write a program in C++ to overload operator * for multiplication of two matrices using a friend function **(10 marks)**
(c)	Differentiate between/among the following with examples: **(5*3=15 marks)** 1. Compile Time Polymorphism and Run time Polymorphism 2. Function and Class Templates 3. Text and Binary files

Q.4 (a)	Write short notes on following with examples: (i) seekp() (ii) tellp() (iii) file modes (iv) exception handling	**(2.5*4=10 marks)**
(b)	What is standard template library? What are components of STL and why we need them? **(5 marks)** Write a program in C++ to sort the values using vectors. **(5 marks)**	