INDIAN INSTITUITE OF INFORMATION TECHNOLOGY KOTA

B. Tech (4th Semester) ECE Department End Term Examination

CST202 Object Oriented System Design Time: 2 Hr. Marks: 40

1. a) What are the main underlying concepts of object oriented(in brief). [4]
b) What is significance of data type? Is it mandatory to associate a type with any data in Java?

2. a) What is use of interface ? What is the difference of class and interface? [4]
b) What is the use of this and super keyword? Illustrate through suitable examples?

3. a) Why typecasting performed in java? Illustrate usage of type casting with suitable example? Can a byte object be type cast to a double value? Can a double value be cast to a byte object?
b) What is significance of final keywords used as a modifier before variable? How does it is used for a method or a class? [5]

4. a) What happens if an exception is not caught? Can an exception be re-thrown? Justify.
b) Implement and Create a class Employee with data fields name, ID, basicPay and salary are of type string,string, float and float respectively. Include a readData() operation that display appropriate message and accepts the data items of the employee object. It throws an exception if basicPay is less than Rs. 5000 and greater than Rs. 80000. Include another method computeSal() that computes salary of employee on the basis of a formula you choose yourself. Another showData() operation may also be included that display the data of an employee object. Write above functionality in java program to demonstrate exception handling. [7]

5. Consider the following elements for a hockey league matches. A hockey league is made up of at least four hockey teams. Each hockey team is composed of six to twelve players, and one player captains the team. A team has a name and a record. Players have a number and a position. Hockey teams play games against each other. Each game has a score and a location. Teams are sometimes lead by a coach. A coach has a level of accreditation and a number of years of experience, and can coach multiple teams. Coaches and players are people, and people have names and addresses. Draw a UML class diagram with few **assumed** suitable operations for this information, and label all associations with appropriate multiplicities [6]

6. Write a java program that takes one lower triangular matrix and one upper triangular matrix as input and generates a resultant matrix in which the principal diagonal elements are the product of corresponding principal diagonal elements of the two input matrices, while other elements are the copy of the respective positions of two matrices with non-zero values, as shown in the following example:

Input :	**matrix I**	**Matrix II**	**Output Matrix**
	1 0 0	2 3 4	2 3 4
	2 3 0	0 5 6	2 15 6
	4 5 6	0 0 1	4 5 6

Define appropriate class attributes and few methods for above program specify suitable access modifier so that data can't accessible to outside the class. Define for the class of your program Constructor, Accessor and Mutator methods (to Gets and sets the element at a particular row and column position). [8]

7. Give a brief understanding about any two of the following: [4]
i) Primitive data types in Java ii) Abstract class Vs. Abstract methods iii) Nested class Vs. Local class