

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-3 EXAMINATION- DECEMBER, 2018

B. Tech III Semester

COURSE CODE: 10B11CI311  
COURSE NAME: Object-Oriented Programming  
COURSE CREDITS: 4

MAX. MARKS: 35  
MAX. TIME: 2 Hours

*Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

1. Define a class template **OneDimensionalArray** in C++. The class includes methods to enter and display the elements of array. In the **main()** method, test this class for **int**, **float**, and **string** type elements. (CO-3) [5 marks]
2. What are exceptions in Java? Explain all the components used for handling the exceptions in Java. (CO-4) [4 marks]
3. Define a class **Person** in Java under the package **pack1**. The data members of this class are **name**, **age**, and **address**. The class has two methods: **getData()** and **putData()** to enter and display the person's details, respectively. The **getData()** method should throw the user-defined exceptions under the following conditions:
  - i. If the name entered contains any non-alphabet character.
  - ii. If the age entered by the user is less than zero.Now, import the above package and define a class **Employee** that extends the **Person** class. The **Employee** class overrides both the methods of the **Person** class. In the main class define an array of five objects of the **Employee** class and invoke the methods **getData()** and **putData()**. (CO-5) [6 marks]
4. Differentiate between **String** and **StringBuffer** classes in Java. Write a Java program that demonstrates the use of **charAt()**, **equalsIgnoreCase()** and **compareTo()** methods. (CO-4) [4 marks]
5. A manufacturing company has factories and offices in many cities of India. The employees working in the offices are categorized as Managers, Engineers, and Clerks. Employees working in the factories are categorized as Supervisors and Machine Operators. The company wishes to develop a system for managing the details of its employees. Perform the following tasks referring to the above scenario: (CO-6)
  - i. Identify the list of classes
  - ii. Identify the association, aggregation, and generalization between the classes and then draw a class diagram. [6 marks]
6. Differentiate between the following terms in 2-4 statements: (CO-4, 5, 6)
  - i. Association and Aggregation
  - ii. Abstract class and Interface
  - iii. length and length() in Java
  - iv. final and finally keywords in Java
  - v. Throwable and throw keywords in Java [5 × 2 = 10 marks]