

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-3 EXAMINATION- May-2018

B. Tech (ECE) VI Semester

COURSE CODE: 10B11CI614

MAX. MARKS: 35

COURSE NAME: Object-Oriented Systems and Programming

COURSE CREDITS: 4

MAX. TIME: Two Hours

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

1. What are the advantages of templates in C++ programming? What is difference between function template and class template? Define a class template Queue in C++. The class should have methods to insert, delete, and display the queue elements. Test this class for int and float type elements in the main() method. **[6 marks]**
2. Define a class Complex in Java with data members as: real and imaginary. The class includes methods to enter and display the complex numbers. The class should be doubleton, i.e., the class cannot be instantiated more than two times (maximum of two objects can be defined). **[5 marks]**
3. Define a class Student in Java with data members as: roll number, name, and age. The class has methods to enter and display the student's details. The enter() method should throw user-defined exceptions under the following conditions:
 - (a) if the name entered contains any non-alphabet character
 - (b) if the age is less than 18 or greater than 25**[5 marks]**
4. Difference between String and StringBuffer classes in Java? Write a Java program that demonstrates String methods equals(), equalsIgnoreCase(), and compareTo(). **[4 marks]**
5. Demonstrate the difference between an interface and an abstract class with suitable example(s). **[3 marks]**
6. Write a vector based program to:
 - (a) Create a vector with initial capacity of 5 elements.
 - (b) Insert six String type objects into this vector.
 - (c) Copy the elements of Vector into an array of String objects
 - (d) Delete the last element from the vector**[4 marks]**
7. Explain the exception handling keywords: try, catch, throw, throws, and finally. **[5 marks]**
8. Differentiate between the following terms in Java in one or two statements.
 - (a) final method and abstract method
 - (b) final class and abstract class
 - (c) Source code and byte code**[3 marks]**