JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-2 EXAMINATION- APRIL 2019

B. Tech (ECE) Semester VI

COURSE CODE: 10B11CI614   MAX. MARKS: 25
COURSE NAME: Object-Oriented Systems and Programming
COURSE CREDITS: 4   MAX. TIME: 1 Hour 30 minutes

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

1. Name the operators in C++ that cannot be overload. Define a class *Queue* that contains the elements of integer type. Define two operator functions in the class Queue to overload '+' and '−' operators: The operator functions '+' and '−' are to be used to insert into and delete the element from the queue, respectively. (CO-3)   **[1+4 = 5 marks]**

2. What are the two methods to convert class1 into class2 and vice versa? (CO-3) **[2 marks]**

3. Define a class *Distance* with data members as *kmeter* and *meter*. Define conversion function to convert the *Distance* object into distance in *miles* (float type). Also make use of constructor to convert a float type variable miles into the object of *Distance* class (1 mile = 1.61 kilometers). (CO-3)   **[5 marks]**

4. Explain the difference between virtual function and pure virtual function? (CO-4)
                                                                              [2 marks]

5. Define a class *Shape* with two pure virtual functions as *enterData()* and *displayArea()*. Now, define a class *Rectangle* that inherits the *Shape* class. The *Rectangle* class overrides and defines both of the pure virtual functions. In the *main()* method, illustrate the concept of dynamic binding. (CO-4)   **[4 marks]**

6. What are the advantages of using a template in C++? What is difference between function template and template function? (CO-4)   **[3 marks]**

7. Define a class template *Array* that includes methods to enter, sort, and display the elements of an array. In the *main()* method test this class for *int* type and *float* type. (CO-4)   **[4 marks]**