

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-2 EXAMINATION- OCTOBER, 2018

B. Tech III Semester

COURSE CODE: 10B11CI311

MAX. MARKS: 25

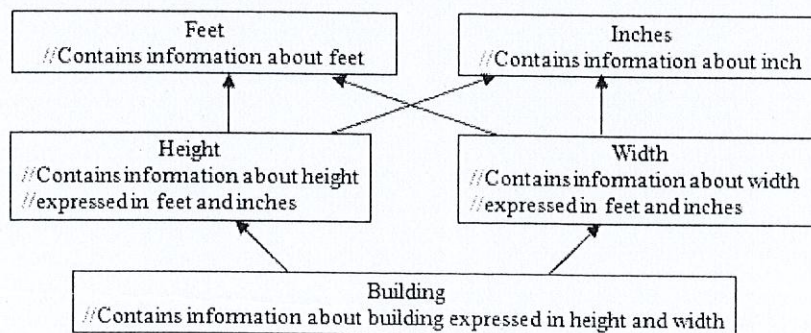
COURSE NAME: Object-Oriented Programming

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) What are the advantages of using templates in C++? What is the difference between a function template and a template function? Define a class template called *Queue* in C++ (using linked list). The class must have methods to insert the element, delete the element, and display all the elements of the queue. In the main() method, test this class for *int* and *float* type. (CO-3) [1+1+4 = 6 marks]
- 2) Define a class *Employee* with its data members as: identification number, name, age, and salary. The class also overloads the extraction operator (>>) and the insertion operator (<<) to enter and display the record of the employee, respectively. Write multiple objects of this class into a file "*stud.txt*". Now, read the employee's record from the file based on his/her identification number (i.e., search by employee's identity) and then display it on the screen.(CO-3) [5 marks]
- 3) What is an interface in Java? What is the role of an interface in inheritance? Differentiate between an abstract class and an interface. (CO-4) [4 marks]
- 4) The following hierarchy structure consists of classes and interfaces. Implement this hierarchy using Java. Define or declare appropriate data members and methods for each of the classes or interfaces. (CO-4) [5 marks]



- 5) Do the following (in at most four statements). [CO-2, CO-3]
 - a. Write a statement in Java to convert a *String* object into the variable of *int* type.
 - b. Write a statement in Java that throws a *NullPointerException*.
 - c. What is difference between throw and throws keywords in java?
 - d. Is it possible for an interface to inherit a class in Java? Explain with reason.
 - e. What is difference between an abstract class and a final class? [5×1= 5 marks]