

## JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-3 EXAMINATION- DEC 2017

B. Tech III Semester

COURSE CODE: 10B11CI311

MAX. MARKS: 35

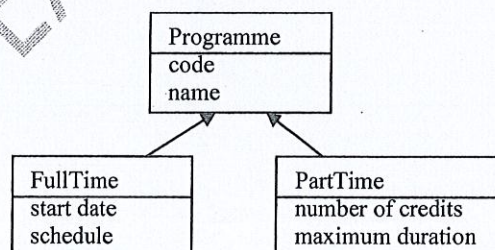
COURSE NAME: OBJECT-ORIENTED PROGRAMMING

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.*

- Define a template class *LinkedList* in C++. The class should include the following methods:
  - Insert data at the beginning of the list
  - Insert data the end of the list
  - Display data in the list
  - Delete data at the end of the list
 In the *main()* method test this class template for integer and float data types. [6 marks]
- Define a class *Queue* in Java with methods to insert and delete the data (*int* type) from the queue. The queue must be implemented using array. [4 marks]
- Write a program for generating two threads using *Runnable* interface. One thread is used for printing numbers (1 to 26) and the other for printing alphabets (A to Z). Which of the two threads will be executed first (assuming that both of the threads are set to the same priority)? [5 marks]
- Design and implement the following class hierarchy using Java. You may include additional data members in the classes. The class *Programme* is defined inside the package *pack1.pack2*, whereas classes *FullTime* and *ParTime* are defined inside the package *pack1*. You should include at least one construction in each class. All the classes should have two methods as *getProgrammeInfo()* and *printProgrammeInfo()* to enter and display all the information of that object, respectively. The programme code must be exactly of 10 digits; otherwise a user-defined exception "InvalidCode" should be thrown. [7 marks]



- Justify that Java is secure and architectural neutral language. [3 marks]
- Explain the life cycle of an applet with a suitable example. [4 marks]
- A library in a University is having provision to issue books to students and staff. It collects different penalties from both categories in case of late return of books. The library also manages different registers which hold information about members, books, magazines, newspapers, and penalties collected. The library needs a system to maintain the registers as well as for performing transactions such as issue and return of books. Identify classes for the system and draw the class diagram. [6 marks]