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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

T3 EXAMINATION- MAY 2019

B. Tech (ECE) Semester VI

COURSE CODE: 10B11CI614

MAX. MARKS: 35

COURSE NAME: Object-Oriented Systems and Programming

COURSE CREDITS: 4

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 *Directory* with members: *name* and *phone number*. Use the class object to store multiple objects of the class *Directory* into a text file "*phone.txt*". Now, read the file and perform the following operations: (CO-6)
 - i. Display the telephone number of the specified person (search by name).
 - ii. Determine the name if a telephone number is known (search by telephone number).

[6 marks]
2. What is an interface in Java? What is its role in inheritance? Explain the difference between abstract class and interface. (CO-4)

[3 marks]
3. Define a class *Student* under the package *pack1*. The data members of the class are *roll number*, *name*, and *age*. The class includes a methods *enterData()* and *displayData()* to enter and display the details of the student, respectively. Define two user defined exceptions that are thrown when
 - i. The name entered has numeric character(s).
 - ii. The age of the student is less than 20.Now, import the package *pack1* and define the main class to invoke the methods *enterData()* and *displayData()*. (CO-5)

[7 marks]
4. 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. Identify the classes in the system and draw a class diagram.(CO-3) [5 marks]
5. A clinic is having various departments such as orthopedics, Cardiology, X-Ray etc. Whenever, a patient visits a clinic, the visit is recorded in a register and a token number is issued to the patient. Also the fee for the consultation is taken and a receipt is issued. Draw a Use-Case diagram for the above. (CO-3)

[6 marks]
6. Explain the following terms in Java with suitable example(s).
 - i. Byte code
 - ii. Packages
 - iii. Exceptions
 - iv. Multi-threading

(CO-4, 5) [4×2 = 8 marks]