CS 202 Lab Assignment (Total Marks= 20)

Design an information system of your choice which will contain 3 classes namely Person, Student and Employee with inheritance in place. Following (or similar) fields should be present:

Person (first name, last name, PAN, address PIN)

Student (Email ID, Roll number)

Employee (Email ID, Employee ID)

Student and Employee are derived classes of the parent class Person.

Write a method validate() to validate all the fields considered above. This validate() method should be called while creating objects of a particular class. Inputs may be entered by the users from keyboard.

Explanation on validation:

i) Email ID of a person should be alphanumeric, must contain @ followed by a domain name (example, gmail.com, iiitg.ac.in). Also, the it must contain a special character (anyone from the set {@, !, #, $, &, *}) in the first part before @.

ii) PIN code of user address must be a 6-digit number

iii) Roll number should start with the prefix "stud" followed by 5 digits.

iv) Employee id should start with prefix "emp" followed by 3 digits.

Questions:

1) If any validation fails, it should throw some exceptions. Hence, you need to create custom exceptions specific to Email ID, PIN code, Roll number and Employee id. On encountering a particular exception, the console should print the appropriate error message specific to the exception encountered. (10)

2) Create scenarios where your program will throw the following in-built exceptions: ArrayOutofBoundsExceptions and NullPointer Exceptions (For example, for ArrayOutofBoundsExceptions, create an array objects with size 3 and try to access the fourth element in the array.) (7)

   3 marks for Good programming practice