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Question Paper Code: ACS003

INSTITUTE OF AERONAUTICAL ENGINEERING
(Autonomous)

B.Tech IV Semester End Examinations (Regular) - May, 2018
Regulation: IARE – R16
Object Oriented Programming through JAVA

Time: 3 Hours   (IT)   Max Marks: 70

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

UNIT – I

1. (a) Explain Object Oriented Programming principles with suitable examples. **[7M]**

   (b) What is a class? Explain how, its members can be created with an example. **[7M]**

2. (a) What is a variable? Explain various types that can define a variable with examples. **[7M]**

   (b) Write a program that creates a class student containing attributes name, rollno and percentage and also creates n number of student objects to print the details of students who got distinction i.e. >=75%. **[7M]**

UNIT – II

3. (a) List the usage of super keyword and write example code snippet for the same. **[7M]**

   (b) Create a class point with members double x and double y. Include method increaseValues(double a) which will increase both x and y by a. Also include a method displayPoint() to display its members values. **[7M]**
      i. Create a subclass Point3D with additional members double z. Override method increase Values() which makes call to super class's overriden method.
      ii. Write a demo program to create object of Point3D class and assign it to reference of Point class. Then invoke the methods and write the output.

4. (a) Explain Interface with an example. **[7M]**

   (b) Create an abstract class BankAccount with members balance, interest rate and number of times the interest is compounded per year. Include abstract method getInterest(TimePeriod). **[7M]**
      i. Creates a subclass AlphaBankAccount, which calculates interest as simple interest. I= principal * rate of Interest * time period.
      ii. Creates a subclass BetaBankAccount , which calculates interest as compound interest. I= Principal (1 + rate of interest/n) (n * time period). Hint use API Math.pow(double a, double b).
      iii. Write a demo program to create an array of Bank Account class and assign references in each array element with object of subclasses . Then invoke the methods on objects using the array of references.

UNIT – III

5. (a) Write a program to demonstrate the usage of throw and throws keyword in exception handling.
   [7M]

   (b) Consider a banking application where the programs must throw exception if withdrawal amount exceeds balance. **[7M]**
      i. Create a user defined exception class LowBalance with parameterized constructor. Override toString() method.
      ii. Write a demo program to demonstrate the usage of LowBalance.

6. (a) Demonstrate creation of thread by implementing Runnable interface with a program. **[7M]**

   (b) Write a program to create two threads. First thread shall read an array and generate another array where all the elements are incremented by two. Second thread shall read an array generate another by multiplying 2 to every element. **[7M]**

UNIT – IV

7. (a) What are InputStream and OutputStream classes? List any four methods of these classes. **[7M]**

   (b) What is class File? List any four methods from this class. **[7M]**

8. (a) What are the various steps involved while implementing a JDBC program? Explain with proper code segments. **[7M]**

   (b) Write a program that inserts some records of students into Student table containing the details RollNumber (varchar), Name (varchar), MobileNumber (number) and Percentage (number (4, 2)) using prepared statement. Also display the student records who got first rank in the class.
   [7M]

UNIT – V

9. (a) What is an Applet? Create a sample applet program that displays a message. **[7M]**

   (b) Discuss AWT hierarchy and Explain any five Abstract Window Toolkit (AWT) components.**[7M]**

10. (a) Explain Border and GridLayout Managers with proper syntax. **[7M]**

    (b) What is JPanel? Explain the significance of multiple panels while designing a user interaction window. **[7M]**

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