Third Semester MCA Degree Examination, Dec.2014/Jan.2015
Programming Using Java

Time: 3 hrs. Max. Marks:100

Note: *Answer any FIVE full questions.*

1 a. Explain the key features of Java programming language. (10 Marks)
   b. What is Java development kit and java runtime environment? (04 Marks)
   c. Explain the use of following utilities available in JDK: i) Javadoc ii) Javap (06 Marks)

2 a. What are classes and objects java? Also, demonstrate the concept of garbage collection through a suitable example program. (10 Marks)
   b. What is "this" keyword in Java? Demonstrate "this" using a suitable example program. (05 Marks)
   c. What are instance variables and static variables? Explain with a suitable example program. (05 Marks)

3 a. What are arrays? Write the array declaration syntax for multidimensional arrays. Write a simple Java program to create an array of objects. (10 Marks)
   b. What are strings in Java? Demonstrate the immutability of strings with a suitable example program. (05 Marks)
   c. What is a StringBuffer class in java? Demonstrate the mutability of StringBuffer class with a suitable example program. (05 Marks)

4 a. What is method overloading and constructor overloading? Can final methods be over-ridden in subclasses? Justify your answer with an example program. (10 Marks)
   b. What is method overriding in Java? Write a program to demonstrate method overriding in subclasses. (10 Marks)

5 a. How is multiple inheritance achieved in java? Write a simple example program to demonstrate interfaces in java. (08 Marks)
   b. What are packages in java? Why is it required to package java programs? (04 Marks)
   c. Write the following java program to create package and import it in other program:
      i)   Create a package called shape.
      ii) Write a class called Triangle.java in shape package. Triangle.java should calculate the area of a triangle.
      iii) Compile and import shape. Tringle in another class TestPackage.java.
           (TestPackage.java class should be in another package called test) (08 Marks)

6 a. What is an Exception in Java? What are compile time and runtime exceptions. (04 Marks)
   b. Write a java program to demonstrate runtime exception called NullPointerException. (08 Marks)
   c. Write a Java program to demonstrate compile time exception called IOException using try-catch blocks. (08 Marks)

7 a. What is an applet? Write an applet program that scrolls, a message from right to left across the applet window. (08 Marks)
   b. What are generics? Write a simple generic program. (04 Marks)
   c. Explain the following: i) Enumeration ii) Type wrapper. (08 Marks)

8 a. What is TCP/IP client sockets? Explain the two constructors used to create client sockets. (08 Marks)
   b. Explain the event-delegation model used in graphics programming. Write a Java program to demonstrate KeyListener interface. (08 Marks)
   c. Write a Java program which demonstrates utilities of LinkedList class. (04 Marks)

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