

MCA (Revised)

Term-End Examination

December, 2013

**MCS-024 : OBJECT ORIENTED
TECHNOLOGIES AND JAVA
PROGRAMMING***Time : 3 hours**Maximum Marks : 100*

Note : Question No. 1 is compulsory. Attempt any three questions from the rest. Attempt all parts of questions together.

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| 1. | (a) | Bring out the difference between the statement and prepared statement classes in Java. | 5 |
| | (b) | What is the JVM ? How does it helps to make Java machine independent ? | 5 |
| | (c) | What is Java bean ? List its main features. | 5 |
| | (d) | Draw a chart to show in a class, for each access specifier, which member (class, package, subclass or all) may NOT reference data or methods of that class ? | 4 |
| | (e) | Explain when the transient and volatile modifiers are used ? | 6 |
| | (f) | Describe the concept of method overriding, with an example. | 5 |
| | (g) | Write a Java program to count the number of words and lines in a test file using the string Tokenizer class. | 10 |

2. (a) Write an applet that draws a coloured line from the last point on which the mouse was clicked to the location of the current mouse click. The colour of the line should be a parameter passed to the applet when invoking it. **10**
- (b) Write a Java program to show that when more than one thread is waiting for an object's monitor, and the monitor wakes up all threads waiting on it, the highest priority thread that has been waiting is run first. **10**
3. (a) There are two files called file 1 and file 2 each containing some lines of text (such as names of people) in sorted order. Write a program to print total number of words in both the files. Print which file has larger number of words. **10**
- (b) Arrange the following operators in descending order of precedence ?, &&, ~, instance of, + +, |, ||, % **4**
- (c) (i) How can you prevent a class from being inherited ? **1**
- (ii) Can an abstract class have a method that is not abstract ? **1**
- (iii) Can a class reference the members of its superclass ? **1**

- (iv) Is multiple inheritance allowed in Java ? Is multi-level inheritance allowed ? 2
- (v) Can you have a try block without a catch clause ? 1
4. (a) In a two dimensional Java array, can each row have a different number of columns ? Write a Java program to initialize the contents of a 3 dimensional array of size $9 \times 6 \times 11$ such that each element is the sum of the cubes of its subscripts. For example, $a[5][4][8] = 125 + 64 + 512 = 701$ 10
- (b) Write a Java program to receive a UDP datagram on port 9701 and place the data received into a file. 10
5. (a) Write a Java class that takes as input an integer array of numbers and prints out the sum of all the elements if there are 16 or less. If there are more elements it throws an exception which gives a message showing how many extra elements (more than 16) there are in the array. 10
- (b) What is an interface ? How is it declared and used ? How does it differ from an abstract class ? What is meant by implementing an interface ? 10