

II B.Tech I Semester Regular Examinations, November 2006
OOP THROUGH JAVA

(Common to Mechanical Engineering, Mechatronics, Metallurgy &
Material Technology, Production Engineering and Automobile Engineering)
Time: 3 hours Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Write a program that will compute the following series:
 - (a) $1/1 + 1/2 + 1/3 + \dots + 1/n$
 - (b) $1/1 + 1/2 + 1/2^2 + \dots + 1/2^n$. [8+8]
2.
 - (a) When do we declare a method or class final?
 - (b) When do we declare a method or class abstract?
 - (c) Describe different levels of access protections available in java. [4+4+8]
3. What is Inheritance? Discuss the differences in inheritances in C++ and java. [16]
4. Write a program to create a class containing an inner class that itself contains an inner class. Repeat this using static inner classes. Note the names of the .class files produced by the compiler. [16]
5.
 - (a) What is multithreading? What are its advantages?
 - (b) compare process based and thread based multitasking. [6+10]
6. Explain in detail about the following event classes:
 - (a) ComponentEvent
 - (b) ContainerEvent
 - (c) FocusEvent. [6+5+5]
7. What is the use of JFrame? Create a JFrame containing a JDesktoppane, which has a single JInternalFrame. [16]
8. Write short notes on:
 - (a) Currency class
 - (b) Proxy servers
 - (c) DNS. [5+5+6]

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1. (a) How is java more secured than other languages?
(b) What is multithreading? How does it improve the performance of java?
(c) Write a program to find factorial of a given number. [4+4+8]
2. (a) What is an array? Why arrays are easier to use compared to a bunch of related variables?
(b) Write a program for transposition of a matrix using arraycopy command. [6+10]
3. (a) How can you prevent a method from overriding?
(b) When will you use the keyword super?
(c) How can you prevent a class from instantiation.? [5+5+6]
4. What is Multiple Inheritance? Explain how it can be implemented in Java with the help of an example. [16]
5. (a) Define multithreading. Give an example of an application that needs multithreading.
(b) How multithreading in single processor system is different from multithreading in multiprocessor system. Explain. [6+10]
6. (a) How event driven programming is different from Procedure oriented programming.
(b) Give overview of Java's event handling mechanism. [6+10]
7. What is meant by AWT? How will you create User Interfaces for applets? [6+10]
8. Write short notes on:
 - (a) "whois" port
 - (b) URL connection class
 - (c) Datagram packet. [5+5+6]

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1. Write a program that will read the value of x and evaluate the following function
$$y = \begin{cases} 1 & \text{for } x > 0 \\ 0 & \text{for } x = 0 \\ -1 & \text{for } x < 0 \end{cases}$$
 Using
 - (a) nested if statements
 - (b) else if statements, and
 - (c) Conditional operator? [16]
2.
 - (a) What is the difference between equality of objects and equality of objects and equality of references that refer to them?
 - (b) What is the difference between a public member and a private member of a class?
 - (c) write an application that computes the value of ex by using the formula:
$$e^x = 1 + x/1! + x^2/2! + x^3/3! + \dots$$
 [4+4+8]
3. Create an inheritance hierarchy of Rodent: Mouse, Gerbil, Hamster, etc. In the baseclass, provide methods that are common to all Rodents, and override these in the derived classes to perform different behaviors depending on the specific type of Rodent. Create an array of Rodent, fill it with different specific types of Rodents, and call your base-class methods. Explain what happens. [16]
4. Write an interface called shape with necessary methods. Derive classes circle, rectangle, triangle, cone, sphere and cube with appropriate constructors and methods for area, volume also setting & displaying. [16]
5.
 - (a) How multithreading is achieved using Runnable interface.
 - (b) Write an example program for multithreading using Runnable interface. [8+8]
6.
 - (a) What is Delegation Event model? Explain it. What are its benefits?
 - (b) Define Event. Give examples of events. Define event handler. How it handles events. [8+8]
7. Explain the functionality of JComponent with example. Differentiate JComponent and JPanel. [8+8]
8.
 - (a) Explain the steps involved in establishing an URL connection.

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(b) Write an applet to display the home page of an html file using URL class.

[8+8]

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$$e^x = 1 + x/1! + x^2/2! + x^3/3! + \dots$$
 [4+4+8]
3. What is inheritance? Explain the member access mechanism in inheritance with an example. [16]
4. Write a program to create an interface containing a static inner class. Implement this interface and create an instance of the inner class. [16]
5. (a) Give the list of different checked exceptions in java and their meaning.
(b) Explain in detail any three checked exceptions. [7+9]
6. (a) How event driven programming is different from Procedure oriented programming.
(b) Give overview of Java's event handling mechanism. [6+10]
7. (a) What is the use of JPasswordField? Explain with an aid of an application program.
(b) What are the differences between JPopupMenu and JMenu? [8+8]
8. Briefly explain the constructors and methods of StringTokenizer class. [16]
