$$\boxed{\textbf{Set No. 1}}$$

II B.Tech II Semester Regular Examinations, Apr/May 2007
OOP THROUGH JAVA
**(Common to Electronics & Communication Engineering, Computer Science
& Engineering, Information Technology, Computer Science & Systems
Engineering, Electronics & Telematics and Electronics & Computer
Engineering)**

Time: 3 hours   **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks
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1. Write a program that will compute the following series:

   (a) $1/1 + \frac{1}{2} + 1/3 + ... + 1/n$

   (b) $1/1 + \frac{1}{2} + \frac{1}{2}^2 + ... + 1/2^n$.   [8+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. Create an abstract class with no methods. Derive a class and add a method. Create a static method that takes a reference to the base class, downcasts it to the derived class, and calls the method. In main( ), demonstrate that it works. Now put the abstract declaration for the method in the base class, thus eliminating the need for the downcast.

            [16]

4. Write a program to create a private inner class that implements a public interface.Write a method that returns a reference to an instance of the private inner class, upcast to the interface. Show that the inner class is completely hidden by trying to downcast to it.   [16]

5. Explain the following exceptions with the help of examples:

   (a) ArithmeticException

   (b) NullPointerException

   (c) NumberFormatException.   6+5+5]

6. (a) Why creating a subclass of Frame is preferred over creating an instance of Frame when creating a window.

   (b) Explain the steps in creating a subclass of frame with the help of examples.
            [4+12]

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]

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$$\boxed{\textbf{Set No. 2}}$$

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Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
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1. (a) What are conventional styles for class names, method names, constants and variables?

   (b) Can a java run on any machine? What is needed to run java on a computer?

   (c) Explain the concept of keywords. List some java keywords. [6+4+6]

2. (a) What is a constructor? What are its special properties?

   (b) How do we invoke a constructor?

   (c) What are objects? How are they created from a class? [6+4+6]

3. Create an abstract class with no methods. Derive a class and add a method. Create a static method that takes a reference to the base class, downcasts it to the derived class, and calls the method. In main( ), demonstrate that it works. Now put the abstract declaration for the method in the base class, thus eliminating the need for the downcast.

   [16]

4. Prove that all the methods in an interface are automatically public. [16]

5. (a) With the help of an example, explain multithreading by extending thread class.

   (b) Implementing Runnable interface and extending thread, which method you prefer for multithreading and why. [10+6]

6. What are the methods supported by the following interfaces. Explain each of them

   (a) ActionListener interface

   (b) MouseMotionListener interface

   (c) TextListener interface. [4+8+4]

7. Differentiate following with suitable examples:

   (a) Frame, JFrame

   (b) Applet, JApplet

   (c) Menu, Jmenu. 5+5+6]

8. Explain connection less client/server interaction with datagrams in detail. Give suitable example. [16]

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$$\boxed{\textbf{Set No. 3}}$$

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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) $1/1 + 1/2 + 1/3 + ... + 1/n$

   (b) $1/1 + 1/2 + 1/2^2 + ... + 1/2^n$. 　　　　　　　　　　　　　[8+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. Is there any alternative solution for Inheritance. If so explain the advantages and disadvantages of it. 　　　　　　　　　　　　　　　　　　　　　[16]

4. Write a program create an interface U with three methods. Create a class A with a method that produces a reference to a U by building an anonymous inner class. Create a second class B that contains an array of U. B should have one method that accepts and stores a reference to a U in the array, a second method that sets a reference in the array (specified by the method argument) to null and a third method that moves through the array and calls the methods in U. In main( ), create a group of A objects and a single B. Fill the B with U references produced by the A objects. Use the B to call back into all the A objects. Remove some of the U references from the B. 　　　　　　　　　　　　　　　　　　[16]

5. (a) What is the role of stack in exception handling?

   (b) Give the classification of exceptions. 　　　　　　　　　　　　　　[8+8]

6. (a) What is the functionality supported by java related to Fonts.

   (b) How using different fonts improves the user interface. 　　　　　　　[10+6]

7. Explain the following:

   (a) Creating an applet

   (b) Passing parameters to applets

   (c) Adding graphics and colors to applets. 　　　　　　　　　　　　　[4+4+8]

8. (a) What is a port? What is the difference between port and socket?

(b) Explain several methods provided by URL? [8+8]

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1. (a) Describe the genesis of java. Also write brief overview of java
   (b) List and explain the control statements used in java. Also describe the syntax of the control statements with suitable illustration.   [8+8]

2. (a) What is class? How does it accomplish data hiding?
   (b) How do classes help us to organize our programs?
   (c) Compare and contrast overloading and overriding methods.   [4+4+8]

3. Explain about Object class in detail.   [16]

4. Create an interface with at least one method, in its own package. Create a class in a separate package. Add a protected inner class that implements the interface. In a third package, inherit from your class and, inside a method, return an object of the protected inner class, upcasting to the interface during the return.   [16]

5. (a) What is the difference between unchecked and checked exceptions in java?
   (b) Give the list of different unchecked exceptions in java and their meaning.
   (c) Explain in detail any two unchecked exceptions.   [4+6+6]

6. What are the methods supported by KeyListener interface and MouseListener interface. Explain each of them with examples.   [8+8]

7. Explain various methods of Applet class with necessary examples.   [16]

8. What is StringTokenizer class? What is its use? Write a program to display the course name, course fee & duration of course using StringTokenizer class.[4+4+8]

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