

**II B.Tech I Semester Supplementary Examinations, February 2008  
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**

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1. (a) List at least ten major differences between C and Java  
(b) Compare in terms of their functions, the following pairs of statements:
  - i. while and do?.while
  - ii. while and for(c) What is an empty statement? Explain its usefulness. [4+4+4+4]
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. What is Inheritance? Discuss the differences in inheritances in C++ and java. [16]
4. What is Multiple Inheritance? Explain how it can be implemented in Java with the help of an example. [16]
5. (a) What is the role of stack in exception handling?  
(b) Give the classification of exceptions. [8+8]
6. (a) How do you scale a drawing object in java? Explain with an example java program.  
(b) What is the functionality supported by java related to colours. [8+8]
7. Explain the steps involved in creating a frame. Create a desktop pane, add it to a frame and display two internal frames in it. Internal frames should have 2 different layers. [8+8]
8. Write short notes on java.io package and java.lang package. [8+8]

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  - i. while and do?.while
  - ii. while and for(c) What is an empty statement? Explain its usefulness. [4+4+4+4]
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 class with a private field and a private method. Create an inner class with a method that modifies the outer class field and calls the outer class method. In a second outer class method, create an object of the inner class and call it's method, then show the effect on the outer class object. [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. Explain in detail about the following event classes:
  - (a) ComponentEvent
  - (b) ContainerEvent
  - (c) FocusEvent. [6+5+5]
7. Explain the steps involved in creating a frame. Create a desktop pane, add it to a frame and display two internal frames in it. Internal frames should have 2 different layers. [8+8]

Code No: R059210301

**Set No. 2**

8. Explain the following methods of StringBuffer class and write a java program illustrating these. Length(), capacity(), SetLength(), EnsureCapacity(). [4+4+4+4]

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1. (a) Describe the genesis of java. Also write brief overview of java.  
(b) Write a program to convert the given temperature in Fahrenheit to Celsius using the following conversion formula  $C = (F - 32)/1.8$  And display the values in a tabular form. [8+8]
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  $e^x$  by using the formula:  
$$e^x = 1 + x/1! + x^2/2! + x^3/3! + \dots$$
 [4+4+8]
3. (a) Explain about final classes,final methods and final variables?  
(b) Explain about the abstract class with example program? [8+8]
4. What is package? Explain the procedure to create a package with the help of example. 16]
5. (a) Give the Class hierarchy in Java related to exception handling. Briefly explain each class.  
(b) What is the necessity of exception handling? Explain exception handling taking “divide-by-zero” as an example. [6+10]
6. Explain in detail about the following event classes:  
(a) ComponentEvent  
(b) ContainerEvent  
(c) FocusEvent. [6+5+5]
7. Create an applet with two toolbars. One toolbar should be created using JButtons and a separator and another toolbar should be created using 3 custom Action classes. Add one to the ”north” and another to the ”south” sides of border layout. When the user clicks one of the buttons in the toolbar, it will print a message to the console stating that which button is being pressed from which toolbar. Add functionalities to the buttons such as New, Open, Close, Save, Cut, Copy, Paste. [16]

Code No: R059210301

**Set No. 3**

8. (a) How different machines in a network can be addressed.
- (b) What are the uses of ServerSocket class? Explain each of them with an example. [8+8]

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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) 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  $e^x$  by using the formula:  
 $e^x = 1 + x/1! + x^2/2! + x^3/3! + \dots$  [4+4+8]
3.
  - (a) Justify the following statement with an example. "A superclass variable can reference a subclass object".
  - (b) Explain the main two uses of super.
  - (c) Explain the procedure to call super class members with example. [6+5+5]
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) Explain throws statement in Java with the help of an example program.
  - (b) What is the difference between throw and throws statement. [8+8]
6.
  - (a) What is the functionality supported by java related to drawing ellipses and circles.
  - (b) What is the functionality supported by java related to drawing arcs. [8+8]
7. What are various JFC containers? List them according to their functionality. Explain each of them with examples. [16]
8.
  - (a) What are accessor methods?
  - (b) How will you create strings and stringbuffers? How will you modify them? [8+8]

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