A 1113

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2006.

Fifth Semester

Computer Science and Engineering

CS 058 — ADVANCED JAVA PROGRAMMING

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Compare byte code and machine code.

2. List any two events that can occur on a Window.

3. You wish to store a small amount of data and make it available for rapid access. You do not have a need for the data to be sorted, uniqueness is not an issue and the data will remain fairly static. Which data structure might be most suitable for this requirement? Give reasons.

4. What are the methods declared in SortedSet interface?

5. What are the steps in creating a distributed application using RMI?

6. What are Java Beans?

7. What are the steps required to establish a connection between a program and DBMS?

8. What are the components of JDBC?

9. What is internationalization? What are the three kinds of data it uses?

10. What are JAR files? What are its features?

PART B — ($5 \times 16 = 80$ marks)

11. (i) Describe the use of (1) Statement Class (2) Execute Update ( ), execute Query ( ). (9)

(ii) Describe how multimedia databases can be accessed. (7)

12. (a) (i) Compare threads and processes. (4)

(ii) Write a class to model a ball. Add a color property to the balls. Have functions to move the balls randomly. Write a multiball applet where the number of balls is a PARAM that is defined in HTML. You should also allow the size, color, starting positions and directions of each ball to be given in a PARAM. (12)

Or

(b) Write a JAVA program to illustrate communication between client and server. Describe the classes used and the support provided by them. (16)

13. (a) Write a Java program to illustrate how trees are used in a program. Create a Tree node class and add two methods to the class, one that returns an Enumeration of the elements in the tree sorted from smallest to largest and another that returns an Enumeration sorted from largest to smallest. (16)

Or

(b) (i) Write a Java program to implement mergesort. Use Java.lang.Comparable interface. (8)

(ii) A text file has information of students in the format roll number, name, $. Write a Java program that reads this file and creates a linked list. Each node in the linked list should store the details of one student (roll number and name). At the end print the number of nodes inserted in the linked list. (8)

14. (a) Take two separate classes to make up a client. The first class, ComputePi, to look up and call a Compute Object. The second class, Pi, to implement the Task interface and define the work to be done by the compute engine. The job of the Pi class is to compute the value of π to some number of decimal places. Write the class definitions. Also draw a figure to depict the flow of messages among the ComputePi client, the rmiregistry, and the ComputeEngine. (16)

Or

(b) (i) What is meant by bean customization? What are the steps followed in writing a bean customizer? Write the code to customize a button. (8)

(ii) What are the classes in Java used in Object serialization. Describe how object serialization can be used in RMI. (8)

(a) Write a Java applet with the following Swing components :

Add four labels with Text only, image only, image and text with text displayed at top center, image only at right position. Add four buttons to the Applet – JButton1 with text "Try Me", JButton2 with text in the right position. JButton3 with the corn image and text in the left position and JButton4 with grapes image. Whenever a button is clicked, display a message about the selection in a text field. Make this text field non–editable, so that user cannot change its content. Add keyboard mnemonic to button 3 so that the button can be selected by pressing Alt + C in the keyboard. Add a tooltip to button4, so that it will be displayed when mouse hovers over the button. (16)

Or

(b) (i) Write a Javascript to print 1 2 4 5 6 7 8 9 10. Note 3 is skipped in the output. (8)

(ii) What are the advantages and limitations of Java 3D? (8)