Question Paper Code : 31510

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Fifth Semester

Information Technology

IT 2301/10144 IT 501 — JAVA PROGRAMMING

(Regulation 2008/2010)

Time : Three hours
Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the output of the main method in the given code.

```
public static void main(String[ ]args)
{screen .write(sum ( ));
}
static int sum()
{
int A = 12;
int B = 13;
return = A+B;
}
```

2. Can an abstract class in Java be instantiated? Give the reason.

3. Differentiate a vector and an array in Java.

4. Is there any error in the given Java statement? Analyze:

    char[ ] string = "abcdef ";

5. How can you prevent the overwriting of a displayed text in a TextField of a Java program?

6. How does a radio button in Java differ from a check box?

7. Name the Listener methods that must be implemented for the KeyListener interface.

8. Code a Graphics method in Java to draw the String "Hello World" from the coordinates (100,200).

9. Define a thread.

10. State any two challenges of generic programming in virtual machines.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Write a Java program that mimics a calculator. Input two real numbers and state the type of arithmetic operation (addition, subtraction, multiplication or division) between them through another keyboard input. (8)

    (ii) Define polymorphism. Show how compile-time polymorphism is achieved in a Java program with a suitable example. (8)

Or

    (b) (i) State the use of constructor and finalize( ) method in Java using a programming example. Show how garbage collection is achieved here. (8)

    (ii) Can Java directly support multiple inheritance? Illustrate your answer with an example Java program. (8)

12. (a) (i) Write a Java program that collects the input as a decimal number of integer type and converts it into a String of equivalent hexadecimal number. (8)

    (ii) Write a Java program that multiplies two 3x3 matrices. (8)

Or

    (b) (i) Write a Java program that arranges the given set of Strings in the alphabetical order. Supply the Strings through the command line.(8)

    (ii) With the help of a Java program, explain the concept of 'package'. (8)

13. (a) (i) An analysis of examination results at a school gave the following distribution of grades for all subjects taken in one year:

Grade	Percentage
A	10
B	25
C	45
D	20

Write a java program to represent the distribution of each grade in a pie chart, where each slice of pie is differently colored. (10)

(ii) List and discuss the role of various Buffer classes used in java programming. (6)

Or

(b) Write a Java program to plot the path of a small circle moving around the circumference of a Larger circle.

14. (a) (i) Rotate a compass needle on the screen about a fixed point in response to the mouse being moved around the screen. (8)

(ii) Write an exception class for a time of day that can accept only 24 hour representation of clock hours (example: 15:35). Write a java program to input various formats of timings and throw suitable error messages. (8)

Or

(b) Design and write a Java program to display the buttons from a digital telephone. As a number is dialed, play the respective tone. After a six-digit number is input, the program should play a ringing tone. The termination of this call should be initiated after playing this tone for 20 seconds.

15. (a) Write a Java program that synchronizes three different threads of the same program and displays the contents of the text supplied through these threads.

Or

(b) Explain the concept of implementing a virtual machine using Java. Also, highlight how the features can be shared among the physical space.

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31510