2012
M.Sc.
3rd SEMESTER EXAMINATION
COMPUTER SCIENCE
PAPER—COS-306
(PRACTICAL)
Full Marks : 50
Time : 6 Hours

The questions are of equal value.
The figures in the right-hand margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.
Illustrate the answers wherever necessary.

Group—A
(Java Lab)
[Marks : 25]

Answer any one question (in lottery basis) : 1×15

1. Create a Java applet that shows on screen the order of execution of the methods start(), init(), destroy().

2. Write a Java program that takes in a sentence and reverses the words e.g. This country is India—India is country This.

3. Create a Java program that accepts the number of terms and prints the Fibonacci series up to that term.

(Turn Over)
4. Create a Java program that accepts an integer from command line and displays whether that is prime or not.

5. Write a Java program to implement multilevel inheritance.

6. Write a program to read a string of maximum 255 characters and perform the following operations.
   (a) Reverse and print the string.
   (b) Find the number of words.

7. Design and implement a class two D array. The class stores data in a two dimensional array of size 3×3. The class should have a constructor that assigns input values to the array elements. The class should have additional functions to print the value is array and second to search a specified value in array.

8. Create a package to show whether a number is Armstrong or not. Import this package is your Java application program and that the gives number for Armstrong.

9. Design and implement the following class hierarchy.

   Student
   ↓
   Under Graduate             Post Graduate

   Your implementation of class hierarchy should include:
   • Member variables for each of the class by the class hierarchy.
   • A polymorphic function that displays the details of a student object.

10. Write a program to show the concept of overriding and overloading in a program.

    Internal Assessment    5
    Viva-voice            5
Group—B
(AI Lab)

[Marks : 25]

Answer any one question (in lottery basis) : 1×15

1. Write a Prolog program to show the nth Fibonacci number.

2. Write a Prolog program to calculate the sum of N natural number.

3. Write a Prolog program to count the number of elements in a given list.

4. Write a Prolog program to find out the sum of elements of a list.

5. Write a Prolog program to deduce the uncle and sister relation.
   (Basic relation — parent, male, female).

6. Write a Prolog program to check whether an inputted number is prime or not.

7. Write a Prolog program to calculate the factorial of N.

8. Write a Prolog program to deduce brother and nephew relation.
   (Basic relation — parent, male, female).

9. Write a Prolog program to read a digit (0 to 9) and print its word format, i.e. if You’ve entered 7 then the output will be SEVEN.
10. Write a Prolog program to find out maximum of a given list.

11. Write a Prolog program to find out the minimum of a given list.

12. Write a Prolog program to reverse a list.

13. Write a Prolog program to check whether a given list is a palindrome or not.

14. Write a Prolog program to check whether a given number is in the list or not.

15. Write a Prolog program to delete first three elements from the list.

16. Write a Prolog program to delete last three elements from the list.

17. Write a Prolog program to insert a number in its appropriate position in a sorted list.

18. Write a Prolog program to calculate the GCD of two numbers.

| Internal Assessment | 5 |
| Viva-voice          | 5 |