QP CODE : 541202

Time: 3 Hours   Max Marks: 80

N.B.:   (1) Question No. 1 is compulsory.
        (2) Attempt any three questions out of remaining five.

1   (a)   Explain JVM in detail.   5
    (b)   Compare Interface and abstract class.   5
    (c)   Write a Java program to calculate maximum & minimum of three numbers using   5
          conditional operator, accept input from command line.
    (d)   Explain super & final keywords with suitable example.   5

2   (a)   Identify classes, their attributes, relationships and multiplicity for the Hotel   8
          Management System and draw class diagram based on it.
          Main functions of the system are as follows,
          Customer registration, Room Booking, Payment, Cancellations, feedback, food
          items, other facilities etc.
    (b)   Write a Java program to perform functions listed in Q2(a) using various types of   6
          constructors and methods. Display output data for all the listed functions in
          Q2(a).
    (c)   WAP that accepts a shopping list of items and performs the following operations: 6
          Add an item at a specified location, delete an item in the list, and print the
          contents of the vector.

3. (a)   Write an applet program to draw a smiley face. (It should cover various shapes   8
          like line, circle, rectangle, arc etc).
    (b)   Draw a sequence diagram for user registration and login authentication of a   6
          website.
    (c)   Write a Java program to print following output using multidimensional array.   6
          0
          1 2
          3 4 5
          6 7 8 9

4. (a)   Write a Java program to find number of uppercase and lowercase characters,   8
          blank spaces, digits and special characters from input string.
    (b)   Write a Java program to check if the given number is Armstrong number or not.   6
          Take input from command line. (e.g. Armstrong no. : $153=1^3+5^3+3^3$)
    (c)   How will you add an interface to a package? Explain with example.   6

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5. (a) Write a java program to calculate gross salary of an employee. Read employee's   8
         details as Name, Birth date, Designation, Basic salary, No. of leaves etc.
         Make use of try, catch, throws, throw and finally keywords.
    (b) Explain various methods of thread class (at least 5) with suitable example.   6
    (c) Write a Java program to calculate area of circle and triangle using multilevel   6
         inheritance.

6.   Write short note on **(any four)**   20
    (a) Wrapper classes
    (b) Type casting in Java
    (c) Features of OOPM
    (d) Lifecycle of a thread
    (e) Coupling and Cohesion

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