Q.P. Code : **4842**

(3 Hours) [Total Marks : 80

N.B. : (1) Question No. **1** is **compulsory**.
(2) Attempt any **three** from remaining.

1. (a) Write a program to calculate GCD of two numbers in JAVA. 5
   (b) Explain any three features of JAVA. 5
   (c) Draw and explain applet life cycle. 5
   (d) Explain wrapper class and its applications. 5

2. (a) Write a program in JAVA to display following pattern. (Take input for number 5
      of rows from command line)

      1
      1   2
      1   2   3
      1   2   3   4

   (b) Write a note on System.arraycopy ( ). 5

   (c) Identify classes and their attributes and draw the relationships specified by 10
      following problem.
      (i) Bank maintains two kinds of accounts for customer, Saving account
         & current account. Saving account provides compound interest and
         withdrawal facility. Current account provides cheque book facility
         but no interest.
      (ii) Library maintains books and magazines. A student can issue a book
         or return a book. A fine is charged if book is returned after 8 days.
         The magazines are not issued, but student can read it in library.

3. (a) What is a package ? Explain with example the steps to create package and 10
      add a class or an interface.
   (b) Write a program to create vector objects with student names. Program should 10
      perform following operations based on choice :
      (i) Add student name - To add new student name in the vector.
      (ii) Remove student name -Removes student name if already exists else
         display appropriate message.
      (iii) Display-Display contents of vector.

4. (a) What is Exception ? Explain how JAVA handles an Exception using following 10
      keywords :
         try, catch, throw, throws & finally

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(b) Write a program to read and display details of ten Employees with following 10
specifications :
Data Members : Emp_ID, Emp_name, Emp_Salary
Parameterized constructor to initialize data members of Employees and Member
functions :
    Display () - to display information of all employees

5. (a) With the help of suitable example explain how threads are created in JAVA. 5
   (b) Explain multiple inheritance in JAVA with example 5
   (c) Write a program to count the number of alphabets, digits and special symbols 10
from string.

6. Write short notes on (any **four**) 20
    (a) Method overloading & overriding
    (b) Static data members & methods
    (c) Abstract class & methods
    (d) Constructor & its type
    (e) JVM.