GANPAT UNIVERSITY

B. TECH SEM-III (CE/IT) REGULAR EXAMINATION– NOV-DEC 2016

2CE304/2IT304: Object Oriented Programming

TIME: 3 HRS   TOTAL MARKS: 60

Instructions: (1) This Question paper has two sections. Attempt each section in separate answer book.
(2) Figures on right indicate marks.
(3) Be precise and to the point in answering the descriptive questions.

SECTION: I

Q.1   a) Explain features of JAVA.   (05)
     b) Differentiate class variable, instance variable and local variable with example.   (05)

OR

Q.1   a) Explain the following :   (05)
         I. super keyword (II) static method (III) this keyword.

     b) Discuss the following: (05)
         I.   Garbage collection in JAVA.
         II.   Implicit and explicit Type casting with example.

Q.2   a) Differentiate method **overriding** and method **overloading** with the help of example.   (05)

     b) Design a class named Fan to represent a fan.   (05)

The class contains:

- Three constants named **SLOW, MEDIUM** and **FAST** with values 1,2 and 3 to denote the fan speed.
- An int data field named speed that specifies the speed of the fan (default SLOW).
- A boolean data field named f_on that specifies whether the fan is on(default **false**).
- A double data field named radius that specifies the radius of the fan (default 4).
- A data field named color that specifies the color of the fan (default blue).
- A no-arg constructor that creates a default fan.
- A parameterized constructor initializes the fan objects to given values.
- A method named display() will display description for the fan. If the fan is on, the display() method displays speed, color and radius and returns the message "fan is ON". If the fan is not on, the display() method displays fan color and radius and returns the message "fan is OFF".

Write a test program that creates two Fan objects. One with default values and the other with medium speed, radius 6, color brown, and turned on status true.
Display the descriptions for two created Fan objects.

OR

Q.2   a) Compare String with StringBuffer. Also write a program to count occurrence of character 'X' in a given string.   (05)

     b) Explain exception handling in JAVA. Write a program that generates custom exception if any integer value given from its command line arguments is negative.   (05)

Q.3   a) Explain & illustrate by examples use of final, finally and method finalize().   (05)
     b) Explain Dynamic method dispatch with proper example.   (05)

SECTION: II

Q.4 a) The Transport interface declares a deliver() method. The abstract class Animal with **(05)** relation() method which display name of animal is the super class of the Tiger, Camel, Deer and Donkey classes. The Transport interface is implemented by the Camel and Donkey classes. Write a test program that creates objects of these four animal classes and call methods of them. If the class implements the Transport interface, the deliver() method is invoked.

b) What is inheritance in java? Explain different types of inheritance with proper example. **(05)**

OR

Q.4 a) Declare a class called employee having employee_id and employee_name as **(05)** members. Extend class employee to have a subclass called salary having designation and monthly_salary as members. Declare constructor and assign 5 employees details. A method with name display() to find and display all details of employees which has drawing salary more than Rs. 20000/-. Create another class which contains main method, scanning all employee details and storing in array.

b) What is package and import statement? Explain access modifiers in java. **(05)**

Q.5 a) Write a program to create interface with name shape which contains area() method. **(05)** Create Rectangle, Triangle, Sphere classes that implement shape interface and override area() to calculate area of rectangle ,triangle and sphere.

b) Explain life cycle of Applet. Create a simple Applet having a message "Hello". **(05)**

OR

Q.5 a) Write a program that creates and starts three threads. Each thread is instantiated **(05)** from the same class. It executes a loop with 10 iterations. Each iteration displays string "HELLO", sleeps for 300 milliseconds. The program waits for all the threads to complete & displays the message "Good Bye...".

b) Compare **Abstract Class** and **Interface** with example. **(05)**

Q.6 a) Draw and explain life cycle of thread. Also list and explain various methods of **(05)** thread.

b) Explain Following methods with example: **(05)**

    I.   drawPolygon()

    II.   drawRect()

    III. fillRoundRect()

    IV. drawOval()

    V.   drawArc()

------------------------------------END OF PAPER------------------------------------