C.U.SHAH UNIVERSITY
Summer Examination-2019

Subject Name : Object Oriented Programming with Java

Subject Code : 4TE04OPJ1   **Branch: B.Tech (CE)**

Semester: 4   **Date: 01/05/2019**   **Time: 02:30 To 05:30**   **Marks : 70**

Instructions:
(1) Use of Programmable calculator & any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

Q-1   Attempt the following questions: **(14)**
  a) Name five packages in the Java class libraries and briefly describe their function.
  b) What does a throws clause in a method declaration indicates?
  c) What are bytecodes?
  d) What is the difference between applications and applets?
  e) When is object garbage collected?
  f) Name the eight wrapper classes.
  g) Describe uses of **this** keyword.
  h) Why must super() or this() be the first statement in a constructor?
  i) Can a class declaration include both the **abstract** and **final** modifiers? Justify.
  j) What are the two subclasses of **Throwable**? Explain the distinction between these.
  k) Name possible states through which a thread moves during its life cycle.
  l) What exception thrown by parseInt() method?
    i. ArithmeticException
    ii. ClassNotFoundException
    iii. NullPointerException
    iv. NumberFormatException
  m) Which provides runtime environment for java byte code to be executed?
    i. JDK   ii. JVM   iii. JRE   iv. JAVAC
  n) Which of these is supported by method overriding in Java?
    i. Abstraction   ii. Encapsulation
    iii. Polymorphism   iv. None of the mentioned

Attempt any four questions from Q-2 to Q-8

Q-2   Attempt all questions   **(14)**
  (a) Write an application in Java that accepts two doubles as its command-line arguments, multiplies these together and displays the product.
  (b) Explain final class, final method and final variable in Java with suitable

example.

Q-3 **Attempt all questions** **(14)**

(a) The abstract **Monster** class has three concrete subclasses named **Vampire**, **Werewolf**, and **Zombie**. Create six different monsters of various types, and store them in a one-dimensional array. Write a Java program that displays the type of each monster.

(b) What is constructor in Java? Explain constructor overloading with suitable example. Also explain copy constructor to copy one object into another with an example.

Q-4 **Attempt all questions** **(14)**

(a) Explain Java buzzwords in detail.

(b) The abstract class **Animal** has abstract subclasses named **Bird** and **Reptile**. Classes **Dove**, **Eagle**, **Penguin** and **Seagull** extend **Bird**. Classes **Rattlesnake** and **Turtle** extend **Reptile**. The **ColdBlooded** interface defines no constants and declares no methods. It is implemented by **Reptile**. The **OceanDwelling** interface also defines no constants and declares no methods. It is implemented by the **Penguin**, **Seagull** and **Turtle** classes. Define all of these classes and implement the interfaces as specified. Create one instance of each class and display all cold-blooded animals and all ocean-dwelling animals.

Q-5 **Attempt all questions** **(14)**

(a) What is thread? Explain two ways to create a thread with suitable examples.

(b) Write a program that generates a custom exception if any of its command-line arguments are negative.

Q-6 **Attempt all questions** **(14)**

(a) What are the four methods that are called by an applet viewer or browser during the lifetime of an applet? When are they invoked?

(b) What are the three responsibilities of event sources and what are the three responsibilities of event listener in the Delegation Event Model?

Q-7 **Attempt all questions** **(14)**

(a) List and explain different types of layout. Write a program that implements Border Layout, Flow Layout and Grid Layout using panel.

(b) Explain in detail use of adapter class. Also explain inner class and anonymous inner class with suitable example.

Q-8 **Attempt all questions**

(a) Why synchronization is required in multithreaded programming? Write a program that uses thread synchronization to guarantee data integrity in a multithreaded application. **(07)**

(b) Create an applet that draws Circle, Rectangle and Ellipse with filling effects. **(04)**

(c) What are the benefits of using generic types? **(03)**