VIT

Vellore Institute of Technology

Winter Semester 2019-2020

Continuous Assessment Test – I

Programme Name & Branch: B.Tech

Course Name & Code: Java Programming & CSE1007

Class Number: 0742/6762/0728/0735/0736/6649/0745/0793/0796 **Slot:** G1+TG1

Exam Duration: 1Hr 30Min **Maximum Marks: 50**

Answer All Questions *5 x 10 = 50*

1. Given a class Employee_Health, with data members, name, age, height, weight, diabetic (Boolean). Create an interface BMI with an abstract method Calculate_BMI(). (use BMI=Weight/(Height*Height) kg/m^2) (10M)

   a. Implement the interface Employee_Health.
   b. Create an array of objects to maintain the health information of n employees.
   c. Use method Input () to get the values of an employee.
   d. Define Calculate_BMI () inside Employee_Health to get the BMI of an employee.
   e. Write the method Fittest () to identify and print the employee information with Normal BMI and no diabetics. BMI is normal if the value falls between18.5 to 25.

2. Write a program that reads a sentence from the user and print the type of sentence. (10M)

Ex:

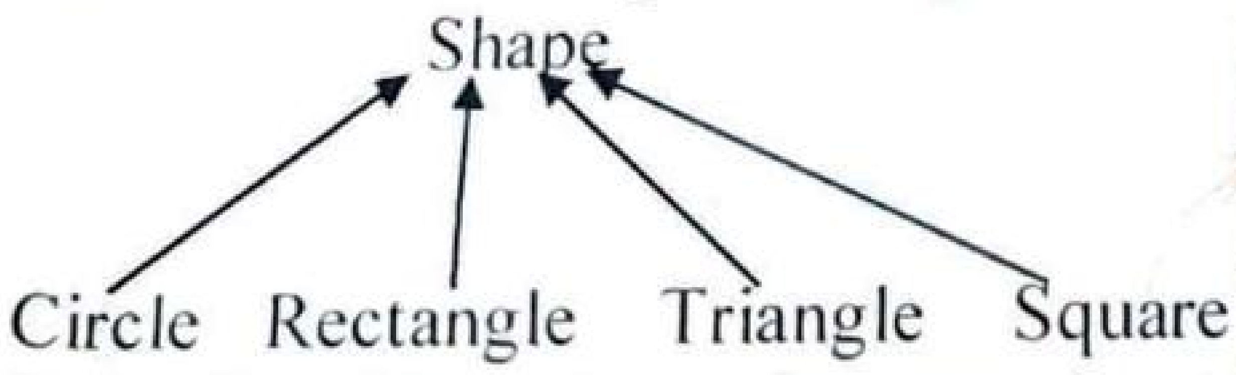
Declarative **sentence** (statement) – The sun rises in the east. (ends with full stop)

Interrogative **sentence** (question) - What is your name? (ends with ?)

Imperative **sentence** (command) – open the door. (starts with verb) Use String Array to store the list of verbs.

Exclamatory **sentence** (exclamation) - Oh my God! (ends with !)

3. Given the following hierarchy (10M)



Base class Shape has a data member 'result' of type double. Include abstract methods area (), perimeter () and display (). Classes Circle, Rectangle, Triangle, Square are subclasses to Shape. Include data members in subclass if necessary. Override the member functions area and perimeter in respective subclasses. Use Dynamic polymorphism to find the area and perimeter for each subclass.

4. a. "Java is platform independent but JDK is platform dependent", justify. (5M)

   b. Differentiate Method overloading and Method overriding with suitable illustrations. (5M)

5. Create a package named Pack1, with a class ‘Extract’. Create another package Pack2 inside Pack1 with two classes ‘Sum’ and ‘SumOfSquares’ in it. (10M)

a. In the ‘Extract’ class, define a method extractDigits() that will extract the digits of a number passed to it and store the extracted digits in an array.

b. In the ‘Sum’ class, define a method printSum() to find the sum of the elements of the array stored in ‘Extract’ class.

c. In the ‘SumOfSquares’ class, define a method printSumofSquares() to find the sum of the squares of the array elements

d. Define the main class and import the packages and call the methods under the classes Extract, Sum, SumOfSquares respectively.