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Examination: Odd Semester Examination – 2024

Paper: Java Programming (BTECE 310/ BTECE 310-Lateral Entry/BTECE 310-Backlog)

Note: Follow proper numbering for answering the questions. TIME: 2.5 Hours, MAX. MARKS: 60

SECTION – A (20 Marks) Attempt all FOUR Questions. Each question carries 5 marks.

Question	CO	BL
Q1. Explain method overloading in Java with code examples.	1	L2
Q2. What is the “final” keyword in Java? Explain with a suitable example of your choice when used before class, method, or field declaration	3	L1
Q3. What is inheritance in Java? Assume a class “Animal” with methods eat() and move(). Explain inheritance by giving the code of the “Animal” class and of the “Dog” and “Cat” as its derived class. Demonstrate inheritance.	2	L4
Q4. What is an exception? Explain with code StringIndexOutOfBoundsException.	3	L3

SECTION – B (40 Marks) Attempt any FOUR Questions out of SIX. Each question carries 10 marks

Question	CO	BL
Q1. Write a note on static keyword. Write suitable code to explain in detail. How would you decide which method to make static?	2	L6
Q2. Code a class called Triangle, which models a Triangle with three 2-D vertices, has to be designed as below. The Triangle class uses three points as its three vertices. It should contain: - A constructor that constructs a Triangle with three sets of coordinates, (x1, y1, x2, y2, x3, y3). - An overloaded constructor that constructs a Triangle with two sets of coordinates (x2, y2, x3, y3) and x1, y1 assumed to be at origin (0,0). - A printCoordinates() method that returns a string description of the instance in the format " Rectangle [v1=(x1,y1),v2=(x2,y2),v3=(x3,y3)]". Also, write a test driver i.e. a class with main() (called TestMyTriangle) to test all the public methods defined in the class. - Data hiding and Java coding conventions should be strictly followed.	5	L4
Q3. Differentiate between an abstract class and a normal class (concrete class). When would you prefer to use an abstract class instead of an interface? Explain with a suitable coding example.	3	L4
Q4. Write a Java program to create a Point class and then extend this class definition to a three-dimensional Point (Point3D class) with the following considerations - Demonstrate dynamic binding while calling printPointDetails() in the driver class(A class having a main method to start execution) on objects of the Point class and Point3D class.	2	L5
Q5. A. Explain advance for loop (for-each loop) in Java with a code example. B. What is implicit and explicit cast in Java with code examples?	3	L3
Q6. A. Explain how platform independence in Java is achieved. Explain the role of bytecode in platform independence. B. Give the output of the following code- <pre>public class Test { public static void main(String args[]) { String str = new String("Hello World"); System.out.println(str.charAt(30)); } }</pre>	3	L3