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B.E. Semester IV EXAMINATION (April - 2025)

Subject Code: CT405-N   Subject Name: OBJECT ORIENTED PROGRAMMING USING JAVA
Date: 30/04/2025   Time: 10:00 AM TO 01:00 PM   Total Marks: 70 Marks

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Use of scientific calculator is permitted.
4. Indicate clearly, the options you attempt along with its respective question number.
5. Use the last page of main supplementary for rough work.

Section-I

Q:1 Attempt Following.
    (A) Explain the different types of control structures in Java with examples.   [5]
    (B) What is method overloading? Explain with an example.   [5]
    (C) Discuss the various types of arrays in Java with examples.   [5]

OR

Q:1 (C) Write a Java program to demonstrate the use of the Math class functions such as sqrt(), pow(), and abs().   [5]

Q:2 Answer the following question.
    (A) Explain constructors and finalizers with examples.   [5]
    (B) What is the difference between String and StringBuffer classes? Give examples.   [5]

OR

Q:2 (A) Write a Java program to demonstrate the use of the 'this' reference.   [5]
    (B) Explain the visibility modifiers in Java with suitable examples.   [5]

Q:3 Answer the following question.
    (A) What is polymorphism? Explain dynamic binding with an example.   [5]
    (B) Differentiate between interfaces and abstract classes in Java..   [5]

OR

Q:3 (A) Write a Java program to demonstrate the use of the 'instanceof' operator.   [5]
    (B) Explain packages in Java. Discuss the UTIL package with an example.   [5]

Section II

Q:4 (All Compulsory)

   (A) Explain exception handling in Java using try-catch-finally with an example.   [5]

   (B) What is thread synchronization? Explain with an example.   [5]

   (C) Explain the thread life cycle in Java with a suitable diagram.   [5]

OR

Q:4 (C) Write a Java program to create a thread using the Runnable interface and display a message from the thread.   [5]

Q:5 Answer the following question.

   (A) Explain the difference between Text I/O and Binary I/O in Java.   [5]

   (B) What is event handling in Java? Explain different types of events with examples.   [5]

OR

Q:5 (A) Write a Java program to demonstrate Random Access Files in Java.   [5]

   (B) Explain Object I/O with an example.   [5]

Q:6 Answer the following question.

   (A) What are Layout Managers in Java? Explain different types with examples.   [5]

   (B) Explain GUI components in Java with an example of any three components.   [5]

OR

Q:6 (A) Write a Java program to create an applet that displays "Hello, Java!" and changes color on mouse click.   [5]

   (B) What are menus and dialog boxes in Java? Explain with an example.   [5]