**Goel Institute of Technology & Management, Lucknow**

**(*Affiliated to Dr. APJ Abdul Kalam Technical University, Lucknow*)**

**First Sessional Examination 2023-24 (EVEN SEM)**

**Course Name :B.Tech Branch:CS Semester:4th**

**Subject Name :** **Object-Oriented Programming with java Subject Code:BCS403**

**Time: 2 Hours Total Marks: 50**

**Note: Attempt all questions.**

**Question1. Attempt all Parts (4\*2=08Marks)**

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| **Qn** | **Question** | **CO** |
| a. | What are access specifiers in Java. ? | **CO1** |
| b. | W.A.P to Print Fibonacci series in java ? |
| c. | Explain the difference between Error and Exception in Java.? | **CO2** |
| d. | How to handle ArrayIndexOutOfBoundsException with catch block in Java? |

**Question 2.Attempt anyonepart (1\*07=07 Marks)**

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| a. | Discuss the purpose of getter and setter methods in Java classes, and how they  facilitate encapsulation by providing controlled access to class fields with example .? | **CO1** |
| b. | Explain the role of the “JVM” and “JRE” within the “JDK” and Compilation  process for java code ? |

**Question 3.Attempt any one part (1\*07=07 Marks)**

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| a. | What are static and final keyword in Java, and how do they differ from instance members? Explain their role in class-level data and behavior.? | **CO1** |
| b. | Explain String and arrays and discuss the role of loops in manipulating strings  and array with example in java ? |

**Question 4.Attempt anyonepart (1\*07=07 Marks)**

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| a. | What is inheritance in object-oriented programming and their type , and how  does it facilitate code reuse and organization ? | **CO1** |
| b. | Discuss the two main types of polymorphism in Java: compile-time polymorphism (method overloading) and runtime polymorphism (method overriding) with Program ? |

**Question 5.Attempt anyonepart (1\*07=07Marks)**

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| a. | Explain the differences between "throw", "throws", and custom exceptions in Exception Handling ? | **CO2** |
| b. | Explain the role of methods in interfaces, including how they are declared and  implemented by classes that implement the interface.? |

**Question 6.Attempt anyone part (1\*07=07Marks)**

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| a. | What is a package and import statement in Java, and how does it help in organizing and managing classes and interfaces with example ? | **CO2** |
| b. | What is abstraction in object-oriented programming, and how does it help in  managing complexity and enhancing code readability? |

**Question 7.Attempt anyone part (1\*07=07Marks)**

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| a. | Explain the purpose and functionality of try-catch blocks, finally blocks with example in java ? | **CO2** |
| b. | Explain the fundamental role of exception in programming, and their type with example ? |