

Code No: 133BM

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech II Year I Semester Examinations, February - 2024****OBJECT ORIENTED PROGRAMMING THROUGH JAVA****(Computer Science and Engineering)****Time: 3 Hours****Max. Marks: 75****Note:** i) Question paper consists of Part A, Part B.

ii) Part A is compulsory, which carries 25 marks. In Part A, answer all questions.

iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

**PART – A****(25 Marks)**

- 1.a) Identify the differences between Classes and Instances. [2]
- b) Explain the need of Constructors? [3]
- c) Discuss the concept of Packages. [2]
- d) Describe the generics with examples. [3]
- e) Explain the need of Multithreading. [2]
- f) List the thread priorities with examples. [3]
- g) Write a short note on String Tokenizer. [2]
- h) Explain the Collection algorithms. [3]
- i) Explore GUI Programming with Swing. [2]
- j) Describe the Event Handling in detail. [3]

**PART – B****(50 Marks)**

- 2.a) Can you demonstrate how the principles of object-oriented thinking can be applied to solve a real-world problem?
- b) Using Java, can you implement a practical example of method overriding to demonstrate polymorphic behavior? [5+5]

**OR**

- 3.a) Can you create a multilevel class hierarchy in Java to model a system with different levels of abstraction?
- b) Given a scenario, can you propose a solution that leverages Java's inheritance concepts to optimize code structure? [5+5]

4. Write a Program to demonstrate how to create a package and use it in another class. [10]

**OR**

- 5.a) Give an Example to demonstrate the extension of interfaces in Java.
- b) Demonstrate Enumerations and Auto-Boxing in Java. [5+5]
- 6.a) Analyze the impact of not using exception handling in a program. How does it affect the overall program flow and user experience?
- b) Analyze the advantages and disadvantages of thread-based multitasking compared to process-based multitasking. In what scenarios is one more suitable than the other? [5+5]

**OR**

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7.a) Evaluate the role of throw, throws, and finally in exception handling. How do these constructs contribute to robust error management in a program?

QA

b) Evaluate the use of wait() and notify() for inter-thread communication. How do these mechanisms contribute to effective coordination between threads? [5+5]

8. Analyze the use of utility classes in complex data processing scenarios. How can these classes contribute to code readability and maintainability, and are there any trade-offs associated with their usage? [10]

**OR**

QA

9.a) Critically evaluate the design choices made in the definition of collection interfaces. How do these choices contribute to the flexibility and extensibility of the Collections Framework?

b) Analyze the impact of using for-each loops on code readability and maintainability. How does this alternative contribute to or hinder the expressiveness of the code?[5+5]

10. Propose a comprehensive comparison between AWT and Swing, considering not only their limitations but also their strengths. Formulate recommendations for situations where AWT might still be preferable. [10]

QA

**OR**

11. Synthesize a strategy for handling simultaneous mouse and keyboard events in a Swing application. Propose solutions for scenarios where efficient handling of multiple input sources is crucial. [10]

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