# B.TECH VI SEMESTER (R20)

(AUTONOMOUS)

REGULAR / SUPPLEMENTARY EXAMINATIONS - JUN 2024

JAVA

Time: 3 Hours Max. Marks: 70

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\*\*B.Tech VI Semester (R20) Computer Networks Exam\*\*  
  
\*\*Time:\*\* 3 Hours \*\*Max Marks:\*\* 100  
  
\*\*PART A (20 Marks)\*\*  
  
Answer all questions. Each question carries 2 marks.  
  
| Question No. | Question | CO | BT Level |  
|--------------|------------------------------------------------------------------------------------------------------------|----|----------|  
| 1 | Briefly explain the concept of garbage collection in Java. | 1 | Remember |  
| 2 | Differentiate between shallow and deep comparisons of Strings in Java. | 2 | Understand |  
| 3 | Explain the purpose of the `finally` block in exception handling. | 3 | Understand |  
| 4 | What is the difference between `wait()` and `notify()` methods in multithreading? | 4 | Understand |  
| 5 | Explain the role of Layout Managers in AWT. | 5 | Understand |  
| 6 | What are the Java buzzwords? Name any three. | 1 | Remember |  
| 7 | Briefly explain method overriding in Java with an example. | 2 | Understand |  
| 8 | Describe the importance of the CLASSPATH environment variable. | 3 | Understand |  
| 9 | Explain the difference between multithreading and multiprocessing. | 4 | Understand |  
| 10 | List five commonly used Swing components and their functionalities. | 5 | Remember |  
  
  
\*\*PART B (80 Marks)\*\*  
  
Answer one question from each unit. Each question carries 10 marks.  
  
\*\*UNIT 1: BASICS OF JAVA\*\*  
  
1. (a) Explain the concept of constructors in Java. Discuss different types of constructors with examples. (5 Marks) <br> (b) Explain the use of command-line arguments in Java with a suitable program. (5 Marks)  
  
 \*\*OR\*\*  
  
 (a) Explain the concept of method overloading in Java. Write a Java program to demonstrate method overloading. (5 Marks) <br> (b) Explain the role of the `this` keyword in Java with examples. (5 Marks)  
  
  
\*\*UNIT 2: STRING HANDLING, INHERITANCE AND INTERFACES\*\*  
  
2. (a) Explain String handling in Java. Describe various string operations with examples. (5 Marks) <br> (b) Explain the concept of inheritance and polymorphism in Java. Illustrate with an example. (5 Marks)  
  
 \*\*OR\*\*  
  
 (a) Explain the concept of interfaces in Java with suitable examples. Discuss the differences between abstract classes and interfaces. (5 Marks) <br> (b) Explain the functionality of `StringBuffer` class in Java. Write a program to demonstrate its use. (5 Marks)  
  
  
\*\*UNIT 3: PACKAGES AND EXCEPTION HANDLING\*\*  
  
3. (a) Explain the concept of packages in Java. Explain how to create and use a package with an example. (5 Marks) <br> (b) Explain the different types of exceptions in Java. Discuss the mechanisms for handling exceptions using `try`, `catch`, and `finally` blocks. (5 Marks)  
  
 \*\*OR\*\*  
  
 (a) Write a Java program to demonstrate nested try-catch blocks. Explain the flow of execution. (5 Marks) <br> (b) Explain the difference between checked and unchecked exceptions in Java with examples. (5 Marks)  
  
  
\*\*UNIT 4: MULTITHREADING AND FILE HANDLING\*\*  
  
4. (a) Explain the concept of thread synchronization in Java. Describe various methods for achieving synchronization. (5 Marks) <br> (b) Write a Java program to demonstrate file reading and writing operations. (5 Marks)  
  
 \*\*OR\*\*  
  
 (a) Explain the life cycle of a thread. Describe the different states a thread can be in. (5 Marks) <br> (b) Write a Java program to create and manage two threads that communicate with each other using `wait()`, `notify()` and `notifyAll()` methods. (5 Marks)  
  
  
\*\*UNIT 5: EVENT HANDLING AND SWINGS\*\*  
  
5. (a) Explain the Delegation Event Model in Java AWT. Explain the role of event listeners and adapter classes. (5 Marks) <br> (b) Compare and contrast AWT and Swing. Explain the advantages of Swing over AWT. (5 Marks)  
  
 \*\*OR\*\*  
  
 (a) Describe the various layout managers available in Java Swing. (5 Marks) <br> (b) Write a Java program using Swing to create a simple window with a text field, a button, and a label. The label should display the text entered in the text field when the button is clicked. (5 Marks)  
  
  
\*\*Note:\*\* CO refers to Course Outcome, and BT Level refers to Bloom's Taxonomy Level (Remember, Understand, Apply, Analyze, Evaluate, Create). The specific CO and BT Level for each question are indicative and may vary slightly based on the specific course learning outcomes.