



R20 Regulation

**TKR COLLEGE OF ENGINEERING AND TECHNOLOGY**

(Autonomous, Accredited by NAAC with 'A+' Grade)

Subject code: 3P3HA

**B.Tech III Semester Supplementary Examinations, February 2024**

**INTRODUCTION TO OBJECT-ORIENTED PROGRAMMING & DATA STRUCTURES USING  
JAVA  
(CSE(DS))**

**Maximum Marks: 70**

Date:16.02.2024 Duration: 3 hours

- Note:**
1. This question paper contains two parts A and B.
  2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
  3. Part B consists of 5 Units. Answer any one full question from each unit.
  4. Each question carries 10 marks and may have a, b, c, d as sub questions.

**Part-A**

| All the following questions carry equal marks |                                                                                                        | (10X2M=20 Marks) | CO  | Bloom Tx |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------------|------------------|-----|----------|
| 1                                             | List the types of operators used in java.                                                              |                  | CO1 | L1       |
| 2                                             | Relate between break and continue.                                                                     |                  | CO1 | L2       |
| 3                                             | Compare between abstract class and concrete class.                                                     |                  | CO2 | L2       |
| 4                                             | What is the significance of the CLASSPATH environment variable in creating/using a package?            |                  | CO2 | L1       |
| 5                                             | List any six built-in exceptions in java.                                                              |                  | CO3 | L1       |
| 6                                             | What is Synchronization and why it is important?                                                       |                  | CO3 | L1       |
| 7                                             | Compare insertion sort and selection sort.                                                             |                  | CO4 | L2       |
| 8                                             | Differentiate between singly linked list and doubly linked list.                                       |                  | CO4 | L1       |
| 9                                             | Show the detailed contents of stack to evaluate the given postfix expression. {1 2 3 + * 3 2 1 - + * } |                  | CO5 | L1       |
| 10                                            | What is queue ADT?                                                                                     |                  | CO5 | L1       |

**Part-B**

Answer All the following questions. (5X10M=50Marks)

|    |                                                                                  |   |     |    |
|----|----------------------------------------------------------------------------------|---|-----|----|
| 11 | a) Explain the structure of a typical Java program with an example.              | 5 | CO1 | L2 |
|    | b) Write the significance of Java Virtual Machine.                               | 5 |     | L3 |
| OR |                                                                                  |   |     |    |
| 12 | a) List the primitive data types available in Java and explain                   | 5 | CO1 | L3 |
|    | b) What is an array? How do you declare the array in java? Give examples.        | 5 |     | L2 |
| 13 | a) What is inheritance and how does it help to create new classes quickly.       | 5 | CO2 | L2 |
|    | b) What is polymorphism? Explain different types of polymorphisms with examples. | 5 |     | L2 |
| OR |                                                                                  |   |     |    |
| 14 | a) Explain about CLASSPATH environment variables.                                | 5 | CO2 | L2 |
|    | b) Explain the different levels of access protection available in Java.          | 5 |     | L2 |

|    |                                                                                                                                                                                    |        |     |          |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----|----------|
|    |                                                                                                                                                                                    |        |     |          |
| 15 | a) What is an Exception? What are the different ways to handle exceptions? Explain.<br>b) What are advantages of using Exception handling mechanism in a program?                  | 5<br>5 | CO3 | L2<br>L2 |
|    | OR                                                                                                                                                                                 |        |     |          |
| 16 | a) Write a program with nested try statements for handling exception.<br>b) How to create a user defined exception?                                                                | 5<br>5 | CO3 | L3<br>L1 |
| 17 | a) Write a program to implement bubble sort.<br>b) Write a program to delete an element from single linked list.                                                                   | 5<br>5 | CO4 | L3<br>L3 |
|    | OR                                                                                                                                                                                 |        |     |          |
| 18 | a) Define and explain about circularly linked list and its operations with an example.<br>b) Compare between binary search and linear search.                                      | 5<br>5 | CO4 | L2<br>L2 |
| 19 | a) What are the common algorithms implemented in java Collections Framework? Discuss.<br>b) What is difference between Array List and Linked List in collection framework? Explain | 5<br>5 | CO5 | L2<br>L2 |
|    | OR                                                                                                                                                                                 |        |     |          |
| 20 | a) Discuss about linked implementation of stack ADT.<br>b) What are the various applications of stacks? Explain infix to postfix conversion.                                       | 5<br>5 | CO5 | L2<br>L2 |