



B.Tech III Semester Regular/Supplementary Examinations, March/April 2023

Introduction to Object-Oriented Programming & Data Structures using JAVA
(CSE(DS))

Maximum Marks: 70

Date:27.03.2023 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

- 1 List the types of operators used in java. (10x2M=20 Marks)
- 2 Distinguish between break and continue.
- 3 Differentiate between abstract class and concrete class.
- 4 What is the significance of the CLASSPATH environment variable in creating/using a package?
- 5 List any six built-in exceptions in java.
- 6 What is Synchronization and why it is important?
- 7 Compare insertion sort and selection sort.
- 8 Differentiate between singly linked list and doubly linked list.
- 9 Show the detailed contents of stack to evaluate the given postfix expression.
{ 1 2 3 + * 3 2 1 - + * }
- 10 What is queue ADT?

Part-B

Answer All the following questions.

- 11 a) Describe the structure of a typical Java program with an example. (5X10M=50Marks)
b) Write the significance of Java Virtual Machine. 5M
- OR 5M
- 12 a) List the primitive data types available in Java and explain
b) What is an array? How do you declare the array in java? Give examples 5M
- 13 a) What is inheritance and how does it help to create new classes quickly.
b) What is polymorphism? Explain different types of polymorphisms with examples. 5M
- OR 5M
- 14 a) Discuss about CLASSPATH environment variables.
b) Explain the different levels of access protection available in Java. 5M
- 15 a) What is an Exception? What are the different ways to handle exceptions? Explain.
b) What are advantages of using Exception handling mechanism in a program? 5M
- OR 5M
- 16 a) Write a program with nested try statements for handling exception.
b) How to create a user defined exception? 5M

- 17 a) Write a program to implement bubble sort. 5M
b) Write a program to delete an element from single linked list. 5M
- OR
- 18 a) Define and explain about circularly linked list and its operations with an example. 5M
b) Differentiate between binary search and linear search. 5M
- 19 a) What are the common algorithms implemented in java Collections Framework? Discuss. 5M
b) What is difference between Array List and Linked List in collection framework? Explain 5M
- OR
- 20 a) Discuss about linked implementation of stack ADT. 5M
b) What are the various applications of stacks? Explain it's operations with suitable examples. 5M