R20 Regulation *Subject code:3P3HA*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech III Semester Supplementary Examinations, July 2022

Introduction to Object Oriented Programming and Data Structures using JAVA

(CSE(DS))

Maximum Marks: 70 Date:19.07.2022 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)

1 State the features of object-oriented programming?

2 What is meant by byte code?

3 What is a Constructor and list the different types of Constructors?

4 Briefly explain types of Polymorphism in JAVA.

5 Write the usage of try and catch.

6 What are the types of test cases in Recursion?

7 What is searching?

8 Disadvantages of Linked List over Array.

9 What are the operations of a queue?

10 How many ways List can be implemented and mention the syntax?

Part-B

Answer All the following questions. (10M X 5=50Marks)

11 a) What is the purpose of constructor in Java programming and explain it with suitable example? [5+5]

b) Describe the structure of a typical Java program with an example.

OR

12 a) Briefly explain about various Stream Classes in JAVA. [5+5]

b) Write a JAVA program to read a character from user by using Buffered Reader class.

13 a) What are the forms of inheritance and explain. [5+5]

b) Give an example program how multiple inheritance can be implemented in JAVA.

OR

14 a) What is the accessibility of a public method or field inside a nonpublic class or interface? Explain. [5+5]

b) Describe the process of importing and accessing a package with suitable examples.

15 a) Write a program with nested try statements for handling exception. [5+5]

b) How to create a user defined exception.

OR

16 a) What is recursion? Explain the applications of Recursion. [5+5]

b) Give a recursive code fragment for Linear Search.

17 a) Write a JAVA program to sort the elements using Insertion Sort. [5+5]

b) Construct Insertion Sort for the initial key set 42, 23, 74,11, 65,58,94,36,99,87.

OR

18 a) How the doubly linked lists can be represented? What are the operations of doubly linked lists? [5+5]

b) Write the routine to insert and delete element from doubly linked list.

19 a) Define double ended queue and its operations. Distinguish between queue and deque. [5+5]

b) Give an implementation of Deque ADT using an array list for storage.

OR

20 What is Java Collections Framework? List out some benefits of Collections framework and explain. [10M]