R22 Regulation *Subject code:4E3FD*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech III Semester Supplementary Examinations, June 2026

OBJECT ORIENTED PROGRAMMING THROUGH JAVA

(IT)

Maximum Marks: 60 Date:16.06.2026 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 10 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 (10X1M=10 Marks)		Marks	CO	BTL
1.a)	What is an abstract class	1M	1	CO1
b)	List types of constructors	1M	1	CO1
c)	What is the purpose of the garbage collector in Java?	1M	2	CO1
d)	Differentiate between 'throw' and 'throws.'	1M	2	CO2
e)	Name the classes used to map files to memory in Java IO.	1M	3	CO1
f)	Which package contains ZIP classes	1M	3	CO1
g)	What is event-driven programming? Give one example of an event in Java AWT/Swing.	1M	4	CO1
h)	List the main components of the Event Delegation Model.	1M	4	CO1
i)	Describe all thread states in Java	1M	5	CO1
j)	What is a deadlock	1M	5	CO1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
2	a) Demonstrate with an example how to implement multiple inheritance in Java b) Explain the access protection in packages.	5M 5M	1	CO3
	OR			
3	How to implement interfaces? Illustrate Nested interfaces with examples.	10M	1	CO1
4	a) Differentiate between checked and Unchecked exceptions with examples. b) Explain user-defined exception handling with an example.	5M 5M	2	CO2
	OR			
5	a) Discuss the difference between Hash List, HashMap, Set, and List b) Write a program that stores values in an ArrayList and HashSet and displays them.	5M 5M	2	CO6

6	a) Summarize Java's Stream Hierarchy with a neat diagram. b) Write a program to read a file using FileInputStream and display the bytes as characters.	4M 6M	3	CO2
	OR			
7	a) Illustrate Java's serialization mechanism. b) Write a program to serialize and deserialize an object.	4M 6M	3	CO2
8	a) List and explain different types of layout managers with suitable examples. b) Explain the steps to connect Java with a database using JDBC.	5M 5M	4	CO2
	OR			
9	a) List the Event classes and Listener Interfaces. b) What is an applet? Explain the life cycle of an applet with a neat sketch.	4M 6M	4	CO1
10	a) Implement a program that prints the state of a thread before it starts, after it starts, and after it completes. b) Explain inter-thread communication using wait(), notify(), and notifyAll().	5M 5M	5	CO3
	OR			
11	a) Explain why synchronization is needed in multithreading. b) With an example, demonstrate the concept of thread synchronization.	3M 7M	5	CO5