R22 Regulation *Subject code:4E4FC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech IV Semester Supplementary Examinations, December 2025

OPERATING SYSTEMS

(IT)

Maximum Marks: 60 Date:23.12.2025 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	Bloom Tx
1.a)	Write the 3 objectives of an OS Design.	1M	CO1	BL2
b)	What is User view and system view?	1M	CO1	BL1
c)	Differentiate a Thread and a Process.	1M	CO2	BL2
d)	Name some classic problem of synchronization.	1M	CO2	BL1
e)	What do you mean virtual memory?	1M	CO3	BL1
f)	What is contiguous memory allocation in OS?	1M	CO3	BL1
g)	Give the operations that can be performed on a directory.	1M	CO4	BL1
h)	What are the structures used in file-system implementation?	1M	CO4	BL1
i)	Define deadlock.	1M	CO5	BL1
j)	List the goals of system protection.	1M	CO5	BL2

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	Bloom Tx
2	Describe about Operating Systems structures in detail.	10M	CO1	BL2
	OR			
3	What is system call? Classify and explain the system calls.	10M	CO1	BL2
4	Explain in detail about the various scheduling algorithms.	10M	CO2	BL2
	OR			
5	What is the important feature of critical section? State the Readers Writers problem and give solution using semaphore.	10M	CO2	BL3
6	a) Consider a swapping system in which memory consists of the following hole sizes in memory order: 10 KB, 4 KB, 20 KB, 18 KB, 7 KB, 9 KB, 12 KB, and 15 KB. Which hole is taken for successive segment requests of: (i) 12 KB (ii) 10 KB (iii) 9 KB for first fit, best fit, worst fit, and next fit approaches. b) Explain paging concept with neat diagram.	5M 5M	CO3	BL4

	OR			
7	Explain about three basic page replacement algorithm with an example.	10M	CO3	BL2
8	a) Discuss the different file access methods in detail. b) Explain file mounting and file sharing procedure.	5M 5M	CO4	BL4
	OR			
9	a) What is a Directory? Write short note on Directory implementation. b) Explain about linked allocation method of a file.	5M 5M	CO4	BL3
10	Explain deadlock Avoidance in detail.	10M	CO5	BL2
	OR			
11	What is Access Matrix? Explain implementation of Access Matrix in detail.	10M	CO5	BL2