Regulation R18 *Subject code: 2O5DE*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech V Semester Supplementary Examinations, February 2024

OPERATING SYSTEMS

(ECE)

Maximum Marks: 70 Date: 24.02.2024 **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)		Bloom's Tx	CO
1	Define an operating system.	L1	CO1
2	Define system call.	L1	CO1
3	Define short term scheduler	L1	CO2
4	Define semaphore	L1	CO2
5	Define segmentation	L1	CO3
6	Define page frame	L1	CO3
7	State FIFO page replacement policy	L1	CO4
8	How can we say that a process is thrashing?	L1	CO4
9	Define access right	L1	CO5
10	How the access matrix implemented.	L1	CO5
	Part-B		
Answer All the following questions. (10MX 5=50Marks)			
11	Define an operating system? State and explain the basic functions or services of an operating system? [10]	L2	CO1
	OR		
12	a) Is OS a resource manager? If so justify your answer. [5] b) Discuss about operating system structure based on modules. [5]	L4	CO1
13	Consider the following set of processes with the length of the CPU burst time given in milliseconds. [10] Process BurstTime Priority P1 10 3 P2 1 1 P3 2 3 P4 1 4 P5 5 2 The processes are assumed to have arrived in the order p1, p2, p3, p4, p5 all at time 0. a) Draw four Gantt charts illustrating the execution of these processes using FCFS, SJF, a non-pre-emptive priority (a smaller priority number implies a higher priority) and RR (quantum=1) scheduling. b) What is the turnaround time of each process for each of the scheduling algorithms in part?	L3	CO2

	c) What is the waiting time of each process for each of the scheduling algorithms in part? d) Which of the schedules in (a) results in the minimal average waiting time?		
	OR		
14	Discuss about classical problems of synchronization. [10]	L2	CO2
15	Explain in detail about resource allocation graph with example. [10]	L2	CO3
	OR		
16	Distinguish between internal and external fragmentation? [10]	L2	CO3
17	Explain thrashing, what are the causes of thrashing & explain the working set model for the same. [10]	L2	CO4
	OR		
18	Explain disk structure in detail. [10]	L2	CO4
19	a) List and explain different file system allocation methods. [5] b) Explain how protection is implemented in file system. [5]	L2	CO5
	OR		
20	Explain: a) Capability based system [5] b) Language based protection. [5]	L2	CO5