



R20 Regulation

Subject code:307BA

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VII Semester Regular Examinations, November 2023

OPERATING SYSTEMS

(EEE)

(Open Elective)

Maximum Marks: 70

Date:08.12.2023 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 which carries 10M.
 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 Tx

1	What are the different types of operating systems?	L1
2	How parameters can be passed to system calls?	L1
3	Differentiate thread and process.	L2
4	Explain SJF scheduling.	L2
5	What is monitor?	L2
6	Define deadlock.	L2
7	Distinguish between logical address and physical address.	L1
8	Define swapping and thrashing.	L1
9	Define mounting.	L1
10	What are the files attributes updated during file creation?	L1

Part-B

Answer All the following questions.

(5X10M=50Marks)

11	A. State and explain various types of computer systems. [5] B. Explain if you run the same program twice, what section would be shared in the memory. [5]	L1 L2															
OR																	
12	A. Explain features of Distributed Operating System. [5] B. What are the various components of Operating System structure and explain simple layered approach of Operating System in detail. [5]	L2 L1															
13	Following is the snapshot of a CPU [10] <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Process</th> <th>CPU Burst</th> <th>Arrival Time</th> </tr> </thead> <tbody> <tr> <td>P1</td> <td>10</td> <td>0</td> </tr> <tr> <td>P2</td> <td>29</td> <td>1</td> </tr> <tr> <td>P3</td> <td>03</td> <td>2</td> </tr> <tr> <td>P4</td> <td>07</td> <td>3</td> </tr> </tbody> </table> <p>Draw the Gantt chart and calculate the turnaround time and waiting time of the jobs for FCFS (First Come First Served), SJF (Shortest Job First), SRTF (Shortest Remaining Time First) and RR (Round Robin with time quantum 10) scheduling algorithms.</p>	Process	CPU Burst	Arrival Time	P1	10	0	P2	29	1	P3	03	2	P4	07	3	L3
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P1	10	0															
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P4	07	3															

	OR	
14	Explain typical elements of inter process communication models. [10]	L2
15	A. What is critical section problem? Write and explain Peterson's solution for it. [5] B. How to prevent necessary and sufficient conditions of deadlock? Explain. [5]	L2 L2
	OR	
16	Discuss readers/writers problem and give solution by using semaphores where readers have priority. [10]	L2
17	Consider the following page reference strings: 1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6. How many page faults would occur for the following replacement algorithm, assuming three, four frames? Remember that all frames are initially empty, so your first unique pages will cost one fault each. a) LRU replacement b) Optimal replacement. [5+5]	L1
	OR	
18	A. What is the need of demand paging? Explain briefly. [5] B. Explain in detail about segmentation on with paging technique. [5]	L1 L2
19	A. Write any two methods used to protect user files with examples. [5] B. Explain about the system call for File operations. [5]	L1 L2
	OR	
20	Explain in detail about different file allocation methods. [10]	L2