



R20 Regulation *Subject code:307DD*
TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VII Semester Regular/Supplementary Examinations, December 2024

OPERATING SYSTEMS
(ECE)

Maximum Marks: 70

Date:02.01.2025

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)	CO	Bloom Tx
1	Define operating system		1	1
2	List any four functions of operating system		1	1
3	Distinguish between thread and process		2	1
4	Define IPC?		2	1
5	Describe the purpose of banker's algorithm		3	1
6	Define deadlock?		3	1
7	Define Segmentation?		4	1
8	Define Page fault?		4	1
9	Define the terms – file, file path, directory		5	1
10	Define grouping in free space management?		5	1

Part-B

Answer All the following questions.		(5X10M=50Marks)	CO	Bloom Tx
11	A. Explain the differences between multiprogramming and time-sharing systems [5M]		1	4
	B. Illustrate operating system structure with a neat sketch [5M]			
OR				
12	A. With a neat diagram and example explain how system calls are used [5M]		1	4
	B. Illustrate various services of the operating system. [5M]			

13	<p>Suppose the following processes arrive for processing at the times indicated, each job will run the listed amount of time. [10M]</p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Process</th> <th>Arrival Time</th> <th>Burst Time (in secs)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.0</td> <td>8</td> </tr> <tr> <td>2</td> <td>0.4</td> <td>4</td> </tr> <tr> <td>3</td> <td>1.0</td> <td>1</td> </tr> </tbody> </table> <p>Give Gantt chart illustrating the execution of these processes using the non-pre-emptive FCFS and SJF scheduling algorithms. Compute the average turnaround time and average waiting time of each job for above algorithms</p>	Process	Arrival Time	Burst Time (in secs)	1	0.0	8	2	0.4	4	3	1.0	1	2	3
Process	Arrival Time	Burst Time (in secs)													
1	0.0	8													
2	0.4	4													
3	1.0	1													
OR															
14	<p>A. Illustrate process states with a neat diagram [5M] B. Write a program to demonstrate the use of fork, wait and waitpid [5M]</p>	2	3 3												
15	<p>A. Explain the concept of Peterson's solution [5M] B. Explain different ways of recovering from deadlocks in detail. [5M]</p>	3	4 4												
OR															
16	<p>A. Explain the need of monitors and how they solve dining philosophers problem [5M] B. Describe resource-allocation graph? Explain how resource graph can be used for detecting deadlocks? [5M]</p>	3	4 4												
17	<p>Explain the basic Scheme of page replacement and about the various page replacement algorithms 1) FIFO 2) Optimal with example [10M]</p>	4	4												
OR															
18	<p>Explain briefly about paging and paging with TLB with neat diagrams. [10M]</p>	4	4												
19	<p>A. Illustrate file access methods in detail. [5M] B. Explain about file system structure. [5M]</p>	5	4 4												
OR															
20	<p>A. Explain the directory structure [5M] B. Illustrate in detail the file allocation techniques in detail. [5M]</p>	5	4 4												