



MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(AN AUTONOMOUS INSTITUTION)

(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)

Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section 2(f) & 12(B) of the UGC act, 1956

II B.Tech I Sem Regular End Examination, February-2022

Operating Systems
(CSM & CSD)

Time: 3 Hours.

Max. Marks: 70

Note: 1. Question paper consists: Part-A and Part-B.

2. In Part – A, answer all questions which carries 20 marks.

3. In Part – B, answer any one question from each unit.

Each question carries 10 marks and may have a, b as sub questions.

PART- A

(10*2 Marks = 20 Marks)

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|-------|---|----|-----|-----|
| 1. a) | Which operating system is real time operating system? | 2M | C01 | BL1 |
| b) | What is difference between multiprogramming and multitasking? | 2M | C01 | BL1 |
| c) | What are the fundamental models of interprocess communication? | 2M | C02 | BL1 |
| d) | What are the benefits of multithreaded programming? | 2M | C02 | BL1 |
| e) | List the four necessary conditions that must hold for a deadlock. | 2M | C03 | BL1 |
| f) | State the Dining-Philosophers problem. | 2M | C03 | BL1 |
| g) | What is demand paging? | 2M | C04 | BL1 |
| h) | What is meant by page-fault? | 2M | C04 | BL1 |
| i) | What happens when a user calls lseek system call? | 2M | C05 | BL1 |
| j) | List the operations that need to be done on directory. | 2M | C05 | BL1 |

PART- B

(10*5 Marks = 50 Marks)

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|-------|--|----|-----|-----|
| 2. a) | Explain in detail about distributed operating systems. | 5M | C01 | BL4 |
| b) | List and explain briefly the functions provided by operating system services for ensuring the efficient operation of the system. | 5M | C01 | BL4 |

OR

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|-------|--|-----|-----|-----|
| 3. | What is meant by system calls? Illustrate how system calls are used for writing a simple program to read data from one file and copy them to another file. | 10M | C01 | BL4 |
| 4. a) | What is a process? Discuss the different process states with the corresponding state diagram. | 5M | C02 | BL2 |
| b) | Explain RR scheduling with suitable example. | 5M | C02 | BL4 |

OR

5	What is meant by CPU scheduling? Explain the criteria for comparing CPU scheduling algorithms.	10M	C02	BL4
6	a) What is deadlock avoidance approach? b) What is semaphore? Discuss mutual exclusion implementation using semaphore.	5M 5M	C03 C03	BL1 BL2
OR				
7	Explain in detail the Banker's algorithm with suitable example.	10M	C03	BL4
8	a) Explain optimal page replacement algorithm. b) What is segmentation? How it differs from paging?	5M 5M	C04 C04	BL4 BL2
OR				
9	On a simple paging system with 220 bytes of physical memory, 512 pages of logical address space and a page size of 28 bytes i) How many bits are in a logical address? ii) How many bits are in a physical address? iii) How many entries are in the page table (How long is the page table)? iv) How many bits are needed to store an entry in the page table?	10M	C04	BL3
10	a) Discuss about the contiguous allocation method of allocating disk space. b) Explain the use of ioctl system call.	5M 5M	C05 C05	BL2 BL4
OR				
11	Explain the different methods of maintaining free space list.	10M	C05	BL4

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