

II/IV B. Tech. DEGREE EXAMINATIONS, FEB / MAR - 2023

First Semester

**ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING
OPERATING SYSTEMS**

Time : **Three Hours**

Maximum : **70 Marks**

Answer All Questions

Answer ONE question from each Unit.

5x14=70 M

UNIT - I

1. a) Explain short note on Generations of Operating Systems.
- b) Demonstrate system calls and explain different types of system calls.

(OR)

2. a) Explain the Process State Transitions with neat diagram.
- b) Explain in detail about various operations on process.

UNIT - II

3. a) Define Thread ? Explain the benefits and types of Threads.
- b) Explain the Terms : (a) Waiting Time (b) Turn Around Time with examples.

(OR)

4. a) Describe the classical problems of Synchronization.
- b) Explain Peterson's Solution problem with the necessary code.

UNIT - III

5. a) What is Dining Philosophers problem ? Discuss the solution to Dining philosopher's problem using monitors.
- b) Explain with neat diagram internal and external fragmentation.

(OR)

P.T.O.

6. a) Consider the reference stream 1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6. How many page faults while using FCFS and LRU using 2 frames ?
- b) Explain allocation of frames in detail.

UNIT - IV

7. a) Explain about various Accessing methods in files.
- b) Explain free space management on file and how to recover the file in detail.

(OR)

8. a) Define File. Explain about Directory Implementation with an example.
- b) Explain about File System Mounting in detail.

UNIT - V

9. A disk drive has 200 cylinders, numbered 0 to 199. The drive is currently serving a request at cylinder 53. The queue of pending requests, in FIFO order, is 98, 183, 37, 122, 14, 124, 65, 67. Starting from the current head position, what is the total distance (in cylinders) that the disk arm moves to satisfy all the pending requests for each of the following disk-scheduling algorithms ? (i) FCFS (ii) SSTF (iii) SCAN (iv) C-SCAN.

(OR)

10. a) Explain about Disk Management in detail.
- b) Explain about Swap Space Management in detail.



II/IV B. TECH DEGREE EXAMINATIONS, JULY/AUGUST-2023**First Semester****ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING****OPERATING SYSTEMS**

Time: Three Hours**Maximum: 70 Marks****Answer ONE Question from each unit.****5 x 14 = 70 M****All Questions carry equal marks.****UNIT-I**

1. a) Describe the operating system structure in detail.
b) Define a system call and mention how it differs from a standard library function.

(OR)

2. a) Explain the Process State Transitions with neat diagram.
b) Explain about Interprocess Communication with an example.

UNIT-II

3. a) Explain User and Kernel Threads in detail.
b) Explain the terms critical section and mutual exclusion.

(OR)

4. a) Explain solution to producer-consumer problem using semaphores.
b) Explain the Calculation of Waiting Time in Round Robin Scheduling Algorithm with example.

UNIT-III

5. a) What is Dining Philosophers problem? Discuss the solution to Dining philosopher's problem using monitors.
b) Describe demand paging with the steps to handle a page fault in it.

(OR)

6. a) Consider the page frame as 3 and find the count of page faults for the given string below using FIFO page replacement technique. 1,2,1,3,4,2,4,5,6,4,3,5,6,4,2,3,4,1,2,3,2,4,3.
b) Define thrashing? What are the causes for thrashing?

UNIT-IV

7. a) Write a brief note on File System Structure.
b) Discuss the Log Structured File System with an example.

(OR)

8. a) Explain about various Accessing methods in files.
b) Explain free space management on file and how to Recover the file in detail.

UNIT-V

9. Disk requests come to disk driver for cylinders 10, 22, 20, 2, 40, 56 and 38 in that order at a time when the disk drive is reading from cylinder 20. The seek time is 6 m sec per cylinder. Compute the total seek time if the disk scheduling algorithm is: (i) First come First serve
(ii) Shortest Seek Time First.

(OR)

10. a) Define stream? Explain various streams in I/O in detail.
b) Explain about Application I/O interface in detail.

