

4TH SEM./AI &ML/ CS&E/IT/ 2024(S)

Th-1 Operating System

Full Marks: 80

Time- 3 Hrs

Answer any five Questions including Q No.1& 2
Figures in the right hand margin indicates marks

1. Answer **All** questions 2 x 10
 - a. Define IPC.
 - b. Difference between multiprogramming and multiprocessing.
 - c. What is turnaround time?
 - d. Define buffering.
 - e. Define file and folder.
 - f. What is the use of valid and invalid bits in paging?
 - g. Define kernel.
 - h. Define dead lock.
 - i. Define tokens, lexeme.
 - j. Define semaphore.
2. Answer **Any Six** Questions 6 x 5
 - a. Explain monolithic Structure of operating system.
 - b. What is device management? Explain function of dedicated, shared virtual device with example.
 - c. Define Process and explain about different process State.
 - d. Define page. Explain demand paging technique of memory management.
 - e. write the difference between spooling and buffering
 - f. State and explain Bankers safety algorithm.
 - g. Explain different file access methods.
3. Why dead locks occur? Explain how dead lock is recovered and prevented. 10
4. Explain briefly about different phases of compiler. 10
5. Consider the set of 3 processes whose arrival time and burst time are given below- 10

Process Id	Arrival time	Burst time
P1	0	5
P2	1	7
P3	2	3
P4	3	4

If the CPU scheduling policy is Round Robin, and time quantum is 3 calculate the average waiting time and average turnaround time.
6. Differentiate between contiguous and non-contiguous memory allocation. 10

Explain Swapping.
7. Short notes(any 2) 10
 - i. Race condition.
 - ii. Virtual memory.
 - iii. Memory compaction.
 - iv. Types of scheduler.