

BACHELOR OF TECHNOLOGY (CBCS - 2023)
B. Tech. Sem-IV Computer Science & Business Systems : SUMMER : 2025
SUBJECT: OPERATING SYSTEM

Day : Tuesday
Date : 27/05/2025

S-29285-2025

Time : 10:00 AM-01:00 PM
Max. Marks : 60

NB :

1. Assume suitable data, if necessary.
2. Draw neat labelled diagrams WHEREVER necessary.
3. Figures to the right indicate FULL marks for the question.
4. All questions are COMPULSORY.

Q. 1 Define operating system and list the basic services provided by operating system. (10)

OR

Q. 1 Discuss in detail the operating system structure. Illustrate the layers of the kernel. (10)

Q. 2 What is process? Explain different states of a process with suitable diagram. (10)

OR

Q. 2 Explain User level and Kernel level threads. Explain concept of multithreading. (10)

Q. 3 Explain process scheduling. State different criteria used for process scheduling. (10)

OR

Q. 3 Consider following processes where Arrival and Burst Time are shown below. Calculate Average waiting time and Average Turn-around time, if the processes are scheduled using FCFS and SRTF. (10)

Process	Burst Time	Arrival Time
P1	5	0
P2	4	2
P3	7	3
P4	6	5

Q. 4 Explain in detail Readers-Writers problem in operating system. (10)

OR

Q. 4 What is deadlock? Explain necessary conditions for deadlock with example. (10)

Q. 5 Illustrate first fit, best fit and worst fit memory allocation strategies with suitable example. (10)

OR

Q. 5 Elaborate the concept of demand paging with appropriate diagram. (10)

Q. 6 Write in detail about various file access method with suitable diagram. (10)

OR

Q. 6 Suppose that a disk drive has 400 tracks (0 to 399) and the requests to be addressed are- (10)
370,30,390,130,310,170,340,180. The Read/Write arm is at 160. Starting from the current head position, what is the total distance 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) LOOK

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