SE Sem - IV | Branch - I.T | NOV - 2025 | Q.P. code - 00041

Time: 3 hours Date - 08-12-2025 Max. Marks: 80

N.B.: 1) Question No.**1** is **compulsory**.
2) Attempt any **THREE** questions out of remaining **FIVE** questions.
3) **Figures** to the **right** indicates **full** marks.
4) Assume suitable data if **necessary**.

Q1	**Answer any FOUR**	**20**
a	Compare process scheduling and process switching	
b	Explain Race condition with example.	
c	What is Semaphore? What is its significance?	
d	What are the various objectives and functions of Operating Systems?	
e	What are features of Mobile and Real Time Operating Systems?	
Q.2		
a	Consider the following reference string: 1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6. Find the number of page faults with FIFO, Optimal Page Replacement and LRU with frame size=4	**10**
b	State features of Cloud OS. Enlist its advantages and disadvantages.	**10**
Q.3		
a	Explain file allocation methods in detail with proper diagram	**10**
b	What is a thread? How multithreading is beneficial? Compare and contrast different multithreading models.	**10**
Q.4		
a	What is an Operating System? Explain structure of Operating System.	**10**
b	What is RAID? What are different levels of RAID	**10**
Q.5		
a	Explain paging in detail. Describe how logical address is converted into physical address	**10**
b	Discuss virtual memory technique. compare a physical address and a virtual address?	**10**
Q.6	**Write short notes on (any FOUR)**	**20**

a) Deadlock avoidance
b) Process Control Block
c) Disk Scheduling
d) Real Time OS
e) Threading and Multithreading

****