

OPERATING SYSTEM
(3 hours)

Total marks: 80

Note:

- Q1 is compulsory
- Attempt any four from remaining six questions

- Explain dining philosopher and bounded buffer problem with the help of example. 10
 - Explain File Allocation Techniques. 10
- Consider the head of disk having 0-299 cylinders and currently on track 99. Request queue is 120,150,170, 36, 225, 260, 35. What are the total head movements required for the following algorithms?
a) SSTF b) SCAN c) CSCAN d) FCFS 8
 - Define External and internal fragmentations? Explain the technique to overcome that with the help of an example 7
- Define Protection. Explain the concept of access matrix with the help of an example. 8
 - What is page fault? How to deal with it? 7
- What are semaphore and monitors? How they are used for concurrency control, explain with the help of an example? 8
 - For the process listed in table, draw a Gantt chart and find their average waiting time and average turnaround time using
i) Round Robin (quantum=3)
ii) FCFS
ii) SJF(both preemptive and non-preemptive) 7

Process	Arrival Time	Processing Time
A	0	4
B	2	6
C	2	8
D	6	10

- Explain various deadlock prevention and recovery techniques. 8
 - Define thread. Explain different kinds of thread. 7
- Given a reference string to the following pages by a program
0,9,0,1,8,3,4,5,6,3,7,8,4,6,7,8,2,5,8,6,7,
How many page faults will occur for the following page replacement algorithm assuming three frames
a) Optimal Replacement 8
b) FIFO
c) LRU
 - What do you mean by CPU Scheduling? Explain the term process context switching with the help of an example. 7
- Write notes on any three 15

 - Thrashing
 - Deadlock
 - Process Control Block
 - DMA