

2019

Full Marks - 40

Time - 3 hours

The questions are of equal value.

Answer *all* questions

1. Answer on the following :
 - a) What are the different types of schedules ?
 - b) Define semaphore and explain it.
 - c) What is demand paging ? How it is achieved ?
 - d) What are the different access methods to File.

2.
 - a) Explain different types of operating system with example.
 - b) Briefly discuss types of scheduler ? What is a process scheduling, explain it with details.

OR

What are different CPV scheduling algorithm ?
Calculate the average turn around and waiting time for the following process using FCFS, SJF, Round Robin scheduling algorithm.

[2]

Process	CPU burst time	Arrival time
P ₁	3	0
P ₂	6	2
P ₃	4	4
P ₄	5	6
P ₅	2	8

3. a) What is process synchronization ? Briefly explain different types of classical synchronization problems.

b) What are the necessary conditions for deadlock ? Explain Resource Allocation graph with a deadlock and no-deadlock with a cycle.

OR

A system snapshot is given below

	Max	Allocation	Available
P ₀	001	001	
P ₁	175	100	
P ₂	235	135	
P ₃	065	063	
Total		299	152

[3]

Consider there are 3 resources A, B, C using Banker's Algorithm

- How many resources of types (A, B, C) ?
- What is the content of the need matrix ?
- Is the system in a safe state ? Why ?

4. a) Explain demand paging in details with its advantages and disadvantages.

b) Given 5 memory partitions of 100kb, 500kb, 200kb, 300kb, 600kb in order. How would the first-Fit, best-Fit, worst-Fit, algorithm places the processes of 212kb, 417kb, 112kb and 412kb. Which algorithm makes the most efficient use of memory ?

OR

What is page Fault ? Why does it occur ? Let there are 4 frames and given page reference string is :
1 2 3 2 1 5 2 1 6 2 5 6 3 1 3 6 1 2 4 3.

Find the number of Page Faults and Fault rate using FCFS and LRV algorithm.

[4]

5. Explain File allocation methods in detail with proper diagram along with their advantages and disadvantages.

OR

Given the following queue : 95, 180, 34, 119, 11, 123, 62, 64 with the Read-write head initially at the track 50 and the tail track being at 199. Find the total number of head movements for FCFS, SSTF, SCAN and e-SCAN algorithm.