

Duration : 2¹/₂ Hours

Total Marks : 60

Q. 1

Attempt any four of the following

16

- Describe structure of PCB.
- What are single and multithreaded processes? Write benefits of multithreaded programming.
- Enlist operating system services. Describe any for in detail.
- Explain Functions of operating system in detail.
- Write a short note on five state process model.
- Write short note on structure of operating system
- Write short note on interprocess communication
- What is the System call ? Explain its types.

Q. 2

Attempt any four of the following

16

- Consider the following table. Calculate average waiting time and turnaround time using SJF.(non-preemptive)

Process	Arrival Time	Burst Time
P1	0	6
P2	1	2
P3	2	5
P4	3	6
P5	7	1

- What is a deadlock? State necessary and sufficient conditions for the same.
- Write a short note on Dining Philosophers problem and give its examples.
- Write a note on Round-Robin algorithm and give its examples.
- Write short note on Methods For Handling Deadlocks
- Define the following terms:
 - Seek Time
 - Access Time
 - Page Fault
 - Transfer time
- Explain Semaphores in detail.
- Explain Recovery from deadlock in detail.

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Q. 3

Attempt any four of the following

16

- a. State any page replacement algorithm and solve the following problem using FIFO. Consider page reference string 1, 3, 0, 3, 5, 6, 3 with 3 page frames. Find the number of page faults.
- b. What is Swapping and Contiguous memory allocation? Explain in detail.
- c. Write short note on Disk Management.
- d. Describe Allocation of frames in detail.
- e. Write short note on trashing.
- f. Explain File Access Methods in detail.
- g. Explain Disk Scheduling in detail.
- h. What is logical and physical address space? Explain in detail.

Q. 4

Attempt any Three of the following

12

- a. Explain Interprocess communication.
- b. Explain Scheduling Criteria.
- c. Explain File System structure.
- d. Write a note on process scheduling.
- e. Write a short note on page table.
- f. Describe structure of disk.