



PART B — (5 × 16 = 80 marks)

11. (a) (i) Discuss the design issues to be considered for a good paging system. (8)
- (ii) Explain segmented memory system. Compare it with paging system. (8)

Or

- (b) Explain FIFO, Optimal, LRU and LRU approximation page replacement algorithms with an example reference string. Mention the merits and demerits of each of the above algorithms. (16)
12. (a) (i) Explain the use of semaphores in solving Producer-Consumer problem. (6)
- (ii) Explain the Banker's deadlock avoidance algorithm with an illustration. (10)

Or

- (b) (i) Differentiate preemptive scheduling from nonpreemptive scheduling. (4)
- (ii) Explain FCFS, SJF, and RR scheduling algorithms by considering five processes. Compare the turnaround and waiting times of each process for each of the above scheduling algorithms. (12)
13. (a) Explain the various file directory structures. (16)

Or

- (b) Explain the following :
- (i) File attributes and File operations. (5)
- (ii) Internet Worm (5)
- (iii) File protection mechanisms used in OS. (6)
14. (a) Discuss in detail the remote procedure call mechanism used in distributed operating systems. (16)

Or

- (b) (i) Explain the principle of atomic transactions. Discuss a protocol used for achieving atomic commit in distributed system. (8)
- (ii) Explain the implementation of distributed file system. (8)

15. (a) (i) What is the purpose of system calls? Briefly explain the types of systems calls provided by the UNIX operating system. (8)
- (ii) Explain how group communication is supported in Amoeba. (8)

Or

- (b) (i) Explain how memory and file systems are implemented in MS-DOS. (8)
- (ii) Compare Amoeba and Mach distributed operating systems. (8)
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