

QP Code : 26678

(3 Hours)

[Total Marks : 80

Note:

1. Question 1 is compulsory.
2. Attempt any four questions from the remaining six questions.

1. a) Explain different File Allocation Techniques. 10
- b) What is deadlock? What are the necessary conditions for deadlock? Explain the techniques for handling deadlock? 10
2. a) Differentiate between the following: 8
 - 1) Monolithic kernel & Microkernel
 - 2) User level Thread & Kernel Level Thread.
- b) Explain the concept of Demand paging? On a simple paging system with 64 entries of 11 bits (including valid/invalid bit) each, and a page size of 512 bytes. 7
 - a) How many bits in a logical address specify offset?
 - b) How many bits in a logical address specify page number?
 - c) How many bits in a physical address specify frame number?
3. a) Consider the following set of processes. 8

Process	Arrival Time	Burst Time
A	0.0000	4
B	1.0001	3
C	2.0001	3
D	3.0001	5

Draw a Gantt Chart, and find average waiting time and average turnaround time for following process scheduling algorithm.

- (a) FCFS First come first served
- (b) Shortest Job first (preemptive)
- (c) Round robin (quantum = 2)
- b) Explain the Domain structure and Access control Matrix for protection of the system. 7
4. a) What is Semaphore? How semaphores are used to solve the Producer Consumer problem? 8
- b) Explain different types of thread models. 7

[TURN OVER]

5. a) Given the disk has 200 (0-199) cylinders. Suppose the disk queue contains the request for I/O to blocks on the cylinder in following order: 8

55, 58, 39, 18, 90, 160, 150, 38, 184

The head of the disk drive is currently at cylinder at 100, previous request served was 130. What are the total head movements for the following algorithms?

- a) FIFO b) SSTF c) SCAN d) CSCAN

- b) Explain Direct Memory Access in detail. 7

6. a) Given reference string to the following pages by a program: 8

0, 9, 0, 1, 8, 1, 8, 7, 8, 7, 1, 2, 8, 2, 7, 8, 2, 3, 8, 3

How many page fault will occur for the following page replacement algorithms, assuming three frames?

- i) LRU Replacement.
ii) FIFO replacement.
iii) Optimal replacement.

- b) Explain Linker and Loader 7

7. Write short notes on: (Any Three) 8

- a) Monitors 15
b) Android OS
c) Context Switch
d) Translation Look aside buffer
e) Thrashing
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