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BT-4 / M-18

OPERATING SYSTEM

Paper–CSE–210 N

Time allowed : 3 hours] *[Maximum marks : 75*

Note :- *Attempt **five** questions in all by selecting at least **one** question from each unit. All questions carry equal marks.*

Unit–I

1. (a) How can you classify operating systems? Explain in detail. 7.5

(b) Explain various modes of operating systems along with its architecture. 7.5

2. (a) Discuss the storage structure and hierarchy in a computer system. 7.5

(b) Comment on the need of protection of a system. How it can be achieved? Explain. 7.5

Unit–II

3. (a) What is inter-process communication? How synchronization can be achieved with the help of Peterson's algorithm? 7.5

(b) What is a semaphore? How semaphores can be implemented? Discuss various types of semaphores along with their usage. 7.5

4. Comment on the need of CPU-Scheduling. Explain various CPU scheduling algorithms using suitable examples. 15

Unit–III

5. (a) What is segmentation? Discuss segmentation hardware with the help of diagram. What type of fragmentation can be caused by segmentation? 7.5

   (b) Write and explain Banker's algorithm with the help of an appropriate example. 7.5

6. (a) What is demand paging? Explain its advantages and disadvantages. Explain with suitable example. 7.5

   (b) How a system can recover from a deadlock situation? Explain. 7.5

Unit–IV

7. (a) Explain various directory structures used by operating systems in detail. Also give advantages and disadvantages of each of them. 7.5

   (b) Find the total head movement when head starts at cylinder 50 in case of (i) FCFS (ii) SSTF (iii) SCAN (iv) C-SCAN (v) LOOK (vi) C-LOOK. Disk queue is: 90, 170, 30, 55, 68, 98, and 89. 7.5

8. (a) Explain various file allocation method. 7.5

   (b) Explain various protection issues and protection measures in detail. 7.5