

MCA/D07
OPERATING SYSTEMS
MCA -304

Time : 3 Hours

MM:50

Note:- Attempt Five questions in all, selecting One question from each unit.

UNIT-I

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| 1(a) | Define Operating System. What are the services it provides? Discuss. | 3 |
| (b) | Discuss the different types of operating systems, giving their differences advantages. | 7 |
| 2(a) | Discuss the advantages and disadvantages of the various file access and allocation methods. | 6 |
| (b) | What is Directory? Discuss the various directory systems with examples | 4 |
| 3 | Write short notes on the following: | |
| (a) | Interrupt mechanisms. | |
| (b) | System calls. | |
| (c) | System programs | |
| (d) | Real Time Systems. | 10 |

UNIT-II

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| 3 | Define the concept of process. Explain the following process scheduling algorithms with the help of examples: | |
| | (a) FCFS | |
| | (b) SJF | |
| | (c) SRTF | |
| | (d) RR | |
| | (e) Multilevel scheduling | 10 |
| 5 | What is Disk scheduling? What are its main objectives? Discuss and compare the various disk scheduling methods with suitable examples. | 10 |
| 6(a) | Discuss the Internal and external fragmentation of memory. How is it removed? Explain. | 3 |
| (b) | Discuss the Static and Dynamic partitioned memory management methods with examples. | 4 |
| (c) | What is Segmentation? Discuss its role in memory management? What is the difference between paging and segmentation? Explain. | 3 |

- 7(a) Define Demand paging. What do you mean by Page fault? Discuss the various page replacement algorithms with examples. 7
- (b) Explain the following terms:
- (i) Thrashing
 - (ii) Swapping
 - (iii) Compaction
 - (iv) Virtual memory 3

UNIT-III

- 8 What do you mean by Deadlock? Explain the various deadlock prevention, avoidance, detection and recovery methods with the help of examples. 10
- 9(a) What are Critical regions? How do they express mutual exclusion principles? Explain. 4
- (b) Explain the following with examples:
- (i) Semaphores
 - (ii) Lock and Unlock primitives
 - (iii) Interprocess communications
 - (iv) Synchronization 6
- 10(a) Compare and contrast at DOS, WINDOW, UNIX and LINUX systems. 7
- (b) Explain the various protection schemes in UNIX. 3