

16551(D)

MCA 3rd Semester Examination

Operating System (NS)

MCA-303

Time : 3 Hours

Max. Marks : 60

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

**Note :** Candidates are required to attempt five questions in all selecting one question from each of the sections A, B, C, D of the question paper and all the subparts of the questions in section E.

**SECTION - A**

1. Define Operating System. Discuss in detail the functions of an Operating System. (12)
2. Differentiate between Personal Computer System, Parallel Systems & Distributed Systems. (12)

**SECTION - B**

3. (a) Explain the basic functions of Process Management. (6)  
(b) Discuss Dining Philosophers problem and its solution. (6)
4. (a) What are the different principles which must be considered while selection of a scheduling algorithm? (6)  
(b) What is Critical Section Problem? (6)

**SECTION - C**

5. (a) What are the differences between paging and segmentation? (6)

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- (b) Explain the concept of Demand Paging. (6)
6. What is Page Replacement? Discuss FIFO, Optimal & LRU Page replacement algorithms. (12)

**SECTION - D**

7. Explain FCFS, SSTF, C-SCAN Disk Scheduling algorithm. (12)
8. What is UNIX Operating System? Discuss its structure and various commands used in Unix Operating System (12)

**SECTION - E**

8. Explain the following:
  - (a) Describe the two general goals of an Operating System.
  - (b) Write in brief about Operating System Services.
  - (c) What is Inter-Process Communication?
  - (d) What are the conditions required for deadlock to occur?
  - (e) When does Page fault error occur?
  - (f) Write short note on Swapping.
  - (g) What are Boot Blocks?
  - (h) Explain briefly how interrupts are handled by the Operating System.

(1½×8=12)