[Total No. of Questions - 9] [Total No. of Printed Pages - 2]
(2125)

15614

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 : Attempt any one question each from Section A-D. Section E is compulsory.

SECTION - A

1. Define operating system. Discuss in detail the functions and services provided by an operating system. (12)

2. Discuss in detail Parallel, Multiprogramming and Real Time Systems. (12)

SECTION - B

3. Draw the Gantt chart and compute the average waiting time and turnaround time using FCFS, SJF, Priority and RR scheduling (with time quantum=1).

PROCESS	BURST	PRIORITY
P1	8	4
P2	6	1
P3	1	2
P4	9	2
P5	3	3

(12)

[P.T.O.]

4. (a) What do you understand by Critical Section Problem? What requirements should be met by its solution? (6)

   (b) Define deadlock. Explain various prevention and recovery methods for deadlock handling. (6)

SECTION - C

5. Discuss and highlight the significance of each of the following memory management techniques: Segmentation with paging, Demand Paging and Thrashing. (4×3=12)

6. Consider the virtual page reference string 1,2,3,4,1,2,3,1,3, 4,1, 2,3,2,1,2,1,1,3,1,2,4,4,3,1,2 Compute the no. of page faults using LRU, FIFO and OPTIMAL page replacement algorithms. (consider frame size as three) (12)

SECTION - D

7. Describe and distinguish between contiguous, linked and index allocation methods. (12)

8. (a) Explain in detail the structure of UNIX operating system. Why most of application or web servers are UNIX/LINUX based systems? (7)

   (b) Discuss the functions and commands of any one editor used in UNIX Operating System. (5)

SECTION - E

9. (a) What is spooling?

   (b) What is context switching?

   (c) What are components of Process Control Block?

   (d) What are binary and counting semaphores?

   (e) What is a file allocation table?

   (f) Why page sizes are always powers of 2? (2×6=12)