Register Number: ……..

M.C.A DEGREE EXAMINATIONS: JUNE 2010

Second Semester

MASTER OF COMPUTER APPLICATIONS

MCA509: Operating System

Time: Three Hours **Maximum Marks: 100**

Answer All Questions:-

PART A (10 x 2 = 20 Marks)

1. Give any four operating system services.
2. What is a system call? Give example.
3. How the priority of the process can be increased?
4. How the turn around time of a process is calculated? Give example.
5. Define deadlock with an example.
6. List out the solutions that help to avoid critical section problem.
7. Differentiate internal and external fragmentation with a neat diagram.
8. Define Working sets.
9. List out file attributes.
10. Write the difference between LAN, WAN and SAN.

PART B (5 x 16 = 80 Marks)

11. (a) Write a note on

    (i) Distributed System (8)

    (ii) Multiprocessing system. (8)

(OR)

(b) Why operating system is known as a resource manager?

12. (a) Explain Inter-Process communication in detail.

(OR)

(b) Consider the following set of processes, with the length of the CPU-burst time given in milliseconds.

Process	Burst Time	Priority
P1	10	3
P2	1	1
P3	2	3
P4	1	4
P5	5	2

The process are assumed to have arrived in the order P1, P2, P3, P4, P5 all at the time 0.

a. Draw Gantt chart using FCFS, SJF (a non preemptive), priority and round robin (Quantum=1) scheduling. (6)

b. What is the turnaround time and waiting time of each process for each of the scheduling algorithm given in a. (6)

c. Which of the schedules in part a results in minimal average waiting time? (6)

13. (a) Explain semaphores with its working principles.

(OR)

(b) Write about bankers algorithm in detail.

14. (a) Explain about paging with a neat diagram.

(OR)

(b) Consider the following page-reference string.

1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6.

How many page –fault would occur for the following page replacement algorithms assuming there are 4 frames. Remember that all frames are initially empty, so all of your first unique pages will cost one page fault.

(i) LRU Replacement (ii) FIFO Replacement (iii) Optimal Replacement

15. (a) Explain the following Disk-Scheduling algorithms.

(i) FCFS (3)

(ii) SSTF (3)

(iii) SCAN and C-SCAN (6)

(iv) LOOK and C- LOOK (6)

(OR)

(b) Discuss about Disk Allocation methods in detail with a neat diagram.

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