

Subject Code: C5805

M.Tech - I Semester [R09] Regular/Supplementary Examinations, April - 2012

OPERATING SYSTEMS
(Common to CS and CSE)

Time: 3 Hours

Max Marks: 60

Answer any FIVE questions. All questions carry EQUAL marks.

1. a. "Operating system can be viewed as resource allocator". Explain. 3M
b. What are system calls? Explain with an example how system calls are used? Explain the methods used to pass parameters to the operating system. 9M
2. Explain the following commands: 12M
 - i. Tail
 - ii. grep
 - iii. pg
 - iv. telnet
 - v. sort
 - vi. tar
3. a. Write a shell script that changes the name of the files passed as arguments to lowercase. 6M
b. Explain case statement with an example. 6M
4. Consider the following set of processes, with the length of the CPU burst given in milliseconds: 12M

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

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

- a. Draw four Gantt charts that illustrate the execution of these processes using the following scheduling algorithms: FCFS, SJF, nonpreemptive priority (a smaller priority number implies a high priority) and RR (Quantum = 1).
- b. What are the turnaround and waiting processes for each process for each of the scheduling algorithms in part a?

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5. a. What is meant by 'Belady's anomaly' in the context of FIFO page replacement algorithm? Explain with an example. 4M
b. Discuss situations under which the most frequently used page replacement algorithm generates fewer page faults than the least recently used page replacement algorithm. Also discuss under what circumstance the opposite holds. 8M
6. What is readers-writers problem? Solve the problem using semaphores. 12M
7. a. What information is stored in the in-memory structure of a file system? 6M
b. What problems of linked allocation techniques are solved by indexed allocation? Explain the method in detail. 6M
8. a. Explain how data is moved between client & server, by using shared memory technique. 6M
b. Draw and explain the "Kernel data structure for the semaphore set". 6M

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