B.E / B. Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL/MAY 2014

ELECTRONICS AND COMMUNICATION ENGINEERING

Elective: Sixth Semester

## EC 9077 - OPERATING SYSTEMS
(REGULATIONS 2008)

Time: 3 Hours                                                                                      Maximum Marks: 100

Answer ALL Questions

### Part – A (10 x 2 = 20 Marks)

1. What are the advantages of Multiprocessor Systems?
2. Write any four functions that are helpful to the user provided by operating system services.
3. What is meant by degree of multiprogramming?
4. What are the circumstances under which CPU-Scheduling decisions take place?
5. What is meant by logical address and physical address?
6. Define: Demand Paging
7. List out any four attributes of a file.
8. Draw the storage device hierarchy in a computer system.
9. What are the major reasons for building distributed systems?
10. What are the components of a linux system?

### Part – B (5 x 16 = 80 Marks)

11.     . Draw the abstract view of the components of a computer system and explain its two viewpoints.

12. (a). Explain the concept of process with process state diagram and process control block.

or

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

| 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, P5 all at time 0.

(i). Draw four Gantt charts that illustrate the execution of these processes using the scheduling
    algorithms: FCFS, SJF, Non-preemptive Priority and Round Robin.                    (8)

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(ii). What is the turnaround time of each process for each of the scheduling algorithms.     (4)

(iii). What is the waiting time of each process for each of the scheduling algorithms.     (4)

13. (a). Explain the basic method of implementing the "Paging" Memory Management System.

or

13. (b). Illustrate FIFO page replacement algorithm and Optimal page replacement algorithm for the reference string: 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0,3, 2, 1, 2, 0,1, 7, 0, 1 for a memory with 3 frames.

14. (a). With neat diagram explain the tree structured directory of arbitrary height.

or

14. (b). Explain any two disk scheduling algorithm for a disk queue with requests for I/O to blocks on cylinders in the order: 98, 183, 37, 122, 14, 124, 65, 67.

15. (a). Compare the advantages and disadvantages of any four Network Topologies.

or

15. (b). Explain the characteristics of real-time system and features necessary for real-time Kernals.

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