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**B.E.DEGREE END EMESTER EXAMINATION May 2012**

VI semester

**ELECTRONICS AND COMMUNICATION ENGINEERING**

**EC9077 OPERATING SYSTEMS**

Time: 3 Hours

Answer ALL Questions

Max. Marks: 100

**PART-A**

10 x 2 = 20

1. What is multiprogramming?
2. Justify the importance of interrupt in OS design
3. Write short notes on Process Control Block
4. What is meant by mutual exclusion?
5. Compare external fragmentation and internal fragmentation
6. What is pure demand paging?
7. Write short notes on file mounting
8. What is a device driver?
9. What are the advantages of distributed operating systems?
10. Write short notes RTOS.

**PART-B**

5 x 16 = 80

11. i. Explain in detail various operating system structures with neat sketches 10
- ii. Discuss the advantages of layered structure of OS 6
- 12a. i. What is racing? Give an illustration 6
- ii. What is a semaphore? Explain in detail the solution for sleeping barber 10  
problem using semaphore.

(OR)

- 12b. Assume the following 5 processes arrive for execution at time the time indicated.

Process	Burst time (ms)	Priority	Arrival time
P1	6	2	0
P2	2	2	1
P3	3	4	1
P4	1	1	2
P5	2	3	2

	(i) Draw the Gantt chart illustrating the execution of these processes using FCFS, Round robin (quantum =1) and priority (Preemptive and Non-preemptive) scheduling algorithms.	4
	(ii) Calculate the average waiting time and turn around time for the above algorithms.	12
13a.	What is paging? Discuss the advantages of paging memory management. Explain how a logical address is converted in to physical address in a paging memory management with neat sketch (OR)	16
13b. (i)	What is a page fault? With the reference string given below calculate the page fault for Optimal replacement, LRU replacement and FIFO replacement with 3 and 4 frames. The reference string is 1 2 3 4 5 3 4 1 6 7 8 7 8 9 7 8 9	8
	(ii) What is segmentation? Explain how a logical address is converted in to physical address in a segmentation memory management with neat sketch	8
14a.	What is a file? What are the various file types? Discuss in detail various file accessing and various allocation methods (OR)	16
14 b.	Consider a disk queues with request for I/O to block as cylinders 99, 183, 37, 122, 14, 124, 65, 67. The disk head is at cylinder 53. Find the total head movement for (i) FCFS scheduling (ii) SSTF scheduling (iii) SCAN scheduling (iv) C-SCAN scheduling and LOOK scheduling	16
15a.	Explain the architecture of LINUX operating system with neat diagram (OR)	16
15 b.	Write short notes on: (i) Dual mode operation (ii) System calls (iii) RAID structure (iv) FAT	4X4 =16