



B.E. (FULL-TIME) DEGREE END SEM EXAMINATIONS May/June 2012  
ELECTRICAL AND ELECTRONICS ENGINEERING  
IV SEMESTER (REGULATION 2008)  
**EE9029 OPERATING SYSTEMS**

Time: 3 Hours

Max. Marks: 100

Answer ALL Questions

**PART – A (10 x 2 = 20 Marks)**

- 1 How do Multiprocessor systems differ from Distributed systems.
- 2 What are the main advantages of the microkernel approach to system design?
- 3 What are the various scheduling criteria for CPU scheduling?
- 4 What are a safe state and an unsafe state?
- 5 Define logical address and physical address.
- 6 What are the different accessing methods of a file?
- 7 Distinguish between a STREAMS driver and a STREAMS module
- 8 What are the I/O services provided by Kernel?
- 9 Why is it difficult to protect a system in which users are allowed to do their own I/O?
- 10 What are the various methods of implementing the accessing matrix?

**PART – B (5 x 16 = 80 Marks)**

- 11 a (i) Write the features of Windows XP. Show the architecture of Windows XP. List its components.
  
- 12 a (i) Write in detail about the evolution of operating system with various types.  
(ii) What are the five major activities of an operating system in regard to process management?

**OR**

- b (i) What is the purpose of system call, system program and application program?  
(ii) What are the benefits of creating Virtual machine?
  
- 13 a (i) Discuss briefly the various issues involved in implementing Inter Process Communication (IPC) in message passing system.  
(ii) Assume that following jobs have arrived in the order 1,2,3,4 and 5:
 

Job	Arrival Time	Burst Time
1	0	15
2	2	3
3	5	5
4	6	8
5	7	12

 calculate Avg. Turnaround Time and Waiting Time for:
  - FCFS
  - SJF

**OR**

- b (i) Describe the semaphore. How the semaphores help in the process synchronization?  
(ii) State and explain the necessary condition that lead to deadlock situation.

- 14 a (i) What is the purpose of paging the page tables?  
(ii) List and explain the various page replacement algorithms used for page replacement?

**OR**

- b (i) What is the cause of thrashing? How does the system detect thrashing? Once it detects thrashing, what can the system do to eliminate this problem?  
(ii) Explain the various Directory structures.

- 15 a (i) Draw a typical Kernel I/O structure.  
(ii) Differentiate Scan Vs C-Scan and Look Vs C-Look

**OR**

- b (i) What is disk scheduling? Explain the following types of disk scheduling by giving an example:-
  - SSTF Scheduling
  - C-SCAN Scheduling(ii) Explain in detail about RAID structures and RAID levels.