

ANNA UNIVERSITY OF TECHNOLOGY, COIMBATORE
B.E. / B.TECH. DEGREE EXAMINATIONS : NOV / DEC 2011
REGULATIONS : 2008
FOURTH SEMESTER
080250012 - OPERATING SYSTEMS
(COMMON TO CSE / IT)

Time : 3 Hours

Max.Marks : 100

PART - A

ANSWER ALL QUESTIONS

(10 x 2 = 20 MARKS)

1. Why the operating system is viewed as an resource allocator?
2. Define SYSTEM CALL.
3. What is preemptive and non preemptive scheduling?
4. Describe the four necessary conditions for deadlocks.
5. What is the basic method of segmentation?
6. Why should paging be used by operating systems?
7. What are the different accessing methods of a file?
8. What are the allocation methods of a disk space?
9. What is meant by RAID?
10. What are the various disk-scheduling algorithms?

PART - B

ANSWER ALL QUESTIONS

(5 x 16 = 80 MARKS)

- 11.(a) i)What is a process? Explain the process control block and various process states. (8)
- ii) What are the system components of an operating system and explain them? (8)

(OR)

11. (b) i) Write about the various system calls. (8)

- ii) Briefly explain the four major functions of an operating system (8)

- 12.(a) Consider the following set of processes, with the length of CPU-burst time given in millisecond

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 order p1,p2,p3,p4,p5 all at time 0.

- (i) Draw Gantt charts illustrating the execution of these processes using FCFS, SJF, a non-preemptive priority (a smaller priority number implies a higher priority) and RR (quantum=1) scheduling

- (ii) What is the turn around time of each process for each of the scheduling algorithms?

(OR)

- b) (i) What are Semaphores? Discuss whether semaphores satisfy the three requirements for a solution to the critical section problem. (8)

- (ii) Give a detailed description about deadlocks and its characterization (8)

13. (a) Consider the following page reference string :
1,2,7,8,3,4,2,1,4,2,5,6. How many page faults would occur for the following page replacement algorithms, assuming an allocation of 3 frames?
- (i) LRU (5)
 - (ii) FIFO (5)
 - (iii) Optimal. (6)

(OR)

13. (b) (i) Explain Demand paging. (8)
- (ii) Explain the principles of segmentation with examples. (8)

- 14.(a) (i) What are the various file operations? (8)
- (ii) Explain about various allocation methods of a file system (8)

(OR)

- (b) Describe different schemes for defining the logical structure of a directory.

- 15.(a) (i) Describe the salient features of the file system of UNIX. (8)
- (ii) Explain UNIX buffer cache mechanism. (8)

(OR)

- (b) (i) Explain different disk scheduling Techniques. (8)
- (ii) Explain different levels of RAID (8)

*****THE END*****