

B.E /B.TECH DEGREE EXAMINATIONS: NOV/DEC 2012

Fifth Semester

CSE112: OPERATING SYSTEMS

(Common to CSE/IT)

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. A program in execution is called _____.
 - a) Process
 - b) Procedure
 - c) Instruction
 - d) Function
2. Multiprogramming systems _____.
 - a) Are easier to develop than single programming systems
 - b) Execute more jobs at the same time
 - c) Execute each job faster
 - d) Are used only on large main frame computers
3. Which takes process from ready queue
 - a) Long term scheduler
 - b) Short term scheduler
 - c) Mid term scheduler
 - d) None of the above
4. Which scheduling policy is most suitable for a time-shared operating system?
 - a) Shortest-job First
 - b) Elevator
 - c) Round-Robin
 - d) First-Come-First-Served
5. An operating system contains 3 user processes each requiring 2 units of resource R. The minimum number of units of R such that no deadlocks will ever arise is _____.
 - a) 5
 - b) 3
 - c) 4
 - d) 6
6. _____ is a technique of temporarily removing inactive programs from the memory of computer systems.
 - a) Scheduling
 - b) Swapping
 - c) Spooling
 - d) Semaphore
7. In which of the following page replacement policies Balady's anomaly occurs?
 - a) NRU
 - b) LRU
 - c) LFU
 - d) FIFO
8. Before proceeding with its execution, each process must acquire all the resources it needs and this is called _____.
 - a) No pre-emption
 - b) circular wait
 - c) hold and wait
 - d) starvation

(OR)

- b) (i) Consider the following set of jobs with their arrival times and execution times (10) (in Minutes).

Job ids	Arrival Time	Execution Time
1	0	5
2	1	15
3	3	12
4	7	25
5	10	5

Calculate the mean turn-around time and the throughput for FCFS and SJF scheduling algorithms.

- (ii) What are the differences between user level threads and kernel supported threads? (4)

23. a) (i) A system contains 10 units of resource class R_u . The resource requirements of three user processes P_1 , P_2 and P_3 are as follows: (7)

	P_1	P_2	P_3
Maximum requirements	8	7	5
Current allocation	3	1	3
Balance requirements	5	6	2
New request made	1	0	0

Using Banker's algorithm, determine if the projected allocation state is safe and whether the request of P_1 will be granted or not.

- (ii) Define deadlock. What are the four necessary conditions of deadlock prevention? (7)

(OR)

- b) (i) Explain the differences between paging and segmentation (6)
(ii) Why are Translation Look-aside Buffers (TLBs) important? In a simple paging system, what information is stored in a typical TLB table entry? (8)

24. a) List the steps needed to perform page replacement. Explain the different page replacement policies. Also list out the main requirements, which should be satisfied by a page replacement policy.

(OR)

- b) Explain indexed file allocation with example.

25. a) (i) What criteria should be adopted for choosing the type of file organization? (8)
(ii) Explain about directory implementation. (6)

(OR)

- b) (i) Explain about the main features of LINUX operating system (8)
(ii) Consider the situation in which the disk read/write head is currently located at track 45 (of tracks 0-255) and moving in the positive direction. Assume that the following track requests have been made in this order: 40, 67, 11, 240, 87. What is the order in which optimised C-SCAN would service these requests and what is the total seek distance? (6)
