

Reg. No.

B.E / B.TECH END SEMESTER EXAMINATION, NOV/DEC. 2011
Common to CSE / Information Technology
Fourth Semester

20

CS9252 OPERATING SYSTEMS
(Regulation 2008)

Time: 3 hours

Max. Marks: 100

Answer all the Questions
Part _A (10 * 2 = 20 Marks)

1. What is layered operating system?
2. Define- zero capacity and unbounded capacity buffering.
3. Differentiate multilevel queue and multilevel feedback queue scheduling
4. Define –semaphores.
5. Given memory partitions of 100KB, 500KB, 200KB, 300KB and 600KB (in order), How would each of the first fit, best fit and worst fit algorithms place process of 212 KB , 417KB 112KB and 426KB (in order)?
6. What is working set model to take care trashing?
7. What is file system mounting?
8. List out the different free space management facilities available.
9. List out the security features of Linux system
10. Write short notes on networking facility of Windows 2000

Part – B (5 * 16 = 80 Marks)

11.
 - a. Explain various operating system operations.
 - b. Explain – process state and process scheduling
- 12(a)
 - i. Explain classic problems of process synchronization
 - ii. Consider the following set of processes with the length of CPU-burst time given in milliseconds

Process	Burst time	Priority	Arrival Time
P1	10	3	0
P2	1	1	1
P3	2	3	2
P4	1	4	1
P5	5	2	2

- a. Draw the Gantt chart for the execution of these processes using FCFS, SJF, SRTS, preemptive and non-preemptive priority
- b. Find out the response time, waiting time, turnaround time of each of the processes and average of all these timings

(Or)

- 12(b) i. Explain – algorithm evaluation of process scheduling
ii. Consider the following snapshot of a system

Processes	Allocation				Max				Available			
	A	B	C	D	A	B	C	D	A	B	C	D
P ₀	0	0	1	2	0	0	1	2	1	5	2	0
P ₁	1	0	0	0	1	7	5	0				
P ₂	1	3	5	4	2	3	5	6				
P ₃	0	6	3	2	0	6	5	2				
P ₄	0	0	1	4	0	6	5	6				

Answer the following question using Bankers algorithm

- Is the system is in safe state
 - Find any one the safe sequence and prove it that it is safe
 - If the request fro P1 arrives for (0 4 2 0) can the request be granted immediately?
- 13(a) i. Explain processes involved in contiguous storage allocation.
ii. Consider the following page reference string
1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1

How many page faults would occur for the following replacement algorithms, assuming 1,2,3 frames. Remember that all frames are initially empty so you are first unique pages will all cost one fault each.

- LRU replacement
- FIFO
- Optimal replacement

(Or)

- 13(b) i. Consider the following segmentation table

Segment	base	Length
0	219	600
1	2300	14
2	90	100
3	1327	580
4	1952	96

What are the physical addresses for the following logical addresses?

- 3400
 - 0110
- ii. Explain about basic concept and performance of demand paging

- 14(a)** i. Suppose the disk drive has 5000 cylinders numbered 0 to 4999. the drive is currently serving the request at cylinder 143, and the previous request was at the cylinder 125. the queue of the pending requests , in FIFO order is,

86, 1470, 913, 1774, 948, 1509

Starting from the head position, what is the total distance (in cylinders) that the disk arm moves to satisfy all the requests using following disk scheduling scheme

- a. FCFS, b. SSTF, c. SCAN, d. LOOK.
ii. Explain the different implementations of directory structure

(Or)

- 14(b)** i. Explain – file system allocation methods
ii. Explain- various disk management facilities.

- 15(a)** Explain the kernel modules, process management , memory management and inter-process communication facility present in Linux operating system

(Or)

- 15(b)** Explain the design principle, system components, environmental subsystems, and file system of Windows 2000
