B.E.(with Credits)-Regular-Semester 2012-Computer Science and Engineering Sem V
CSE505 - Operating System

P. Pages : 2

Time : Three Hours

GUG/W/16/3702

Max. Marks : 80

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Notes : 1. All questions carry equal marks.
2. Illustrate your answers wherever necessary with the help of neat sketches.
3. Due credit will be given to neatness and adequate dimensions.
4. Assume suitable data wherever necessary.

1. a) Discuss task switching & also explain the dual mode operation of an operating system. **8**

b) What is bootstrap program? Discuss kernel in detail. **8**

OR

2. a) Discuss any two file allocation methods in detail. **8**

b) Distinguish between single level and two level directory structure. **8**

3. a) What is scheduling? Explain different types of schedulers and also discuss the difference scheduling criterias. **8**

b) Consider the following snapshot of a system. **8**

Process	Arrival Time	Burst Time	Priority
P_1	0	10	3
P_2	0	1	1
P_3	5	2	3
P_4	10	5	2

i) Draw Gantt chart illustrating the execution of these processes using SJF (pre-emption) & priority algorithm.
ii) What is the turnaround time of each process for each of the scheduling algorithm.
iii) What is the waiting time of each process for each of the scheduling algorithm.

OR

4. a) Given the following queue : 95, 180, 34, 119, 11, 12, 123, 62, 164 with head initially at track 50 & ending at track 199. Calculate the number of moves using, SSTF & SCAN disk scheduling algorithm. **8**

b) Discuss sector queuing in detail with proper diagram. **8**

5. a) Explain segmentation and compaction in detail with an example. **8**

b) Given memory partition of 900K, 1200K, 600K, 400K, 1500K & 700 K resp., how would each of the first fit, best fit & worst fit algorithm place processes of 800K, 1000K, 1200K, 350K & 1700K (in order). **8**

OR

6.	a)	For the following page reference string, calculate the page fault & page fault rate using FIFO & LRU for 3 & 4 frames respectively 4, 3, 2, 1, 4, 3, 5, 2, 1, 4, 3, 2, 5.	**8**
	b)	Explain virtual memory & thrashing in detail.	**8**
7.	a)	With the help of a system model, explain a deadlock & discuss the necessary conditions that must hold simultaneously in a system for a deadlock to occur.	**8**
	b)	Explain the different methods used to recover from deadlock.	**8**

OR

8.	a)	What is semaphore? How semaphore is used to solve critical section problem.	**8**
	b)	Explain interprocess communication in detail.	**8**
9.	a)	State & explain different types of file organization technique.	**8**
	b)	Explain file management. How can we provide security to the file?	**8**

OR

10.	a)	Explain various file protection mechanism.	**8**
	b)	Discuss security & provide goals for security.	**8**

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