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SE-7369

B. E. - IV (Sem. VII) (Computer Engineering) Examination

April / May – 2011

Operating Systems

Time : 3 Hours] [Total Marks : 100

Instructions :

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ B. E. - 4 (SEM. 7) (COMPUTER ENGINEERING)

Name of the Subject :

☛ Operating Systems

☛ Subject Code No. : 7 3 6 9 ☛ Section No. (1, 2,.....) : 1&2

Seat No. :

Student's Signature

Section – I

Q.1

(a) State True or False: [10]

1. Threads is a light weight process.
2. A Shell reads, interprets and executes control statements.
3. System call does not have any library procedure.
4. Peterson's solution is used for mutual exclusion.
5. System programs provide convenient environment for program development and execution
6. Programs like remote administration are system programs.
7. Operating system is a control program.
8. In contemporary OS, there can be atmost one thread in a process.
9. Microkernel assigns only a few essential functions to the kernel including scheduling.
10. There are two types of real time systems: Hard and Soft.

(b) Answer the following: [10]

1. Write differences for User Threads Vs Kernel Threads.
2. Describe system programs.

Q.2 Answer the following:

1. Explain Deadlock Prevention. [08]
2. Consider the following set of processes with their arrival time, service time and priority: [07]

Process	Arrival Time (mSec)	Servicell Time (mSec)	Priority
A	0	7	1
B	1	5	4
C	2	4	2
D	3	2	3

Find Average waiting time and Average turnaround time using FCFS and SJF preemptive algorithm drawing the Gantt chart.

OR

Q.2 Answer the following:

1. Solve producer-consumer problem using message passing. [08]
2. Solve dining-philosophers problem with semaphores. [07]

Q.3 Answer ANY THREE: [15]

1. Draw and explain process state transitions.
2. Explain Strong semaphore with a diagram.
3. Portray Naming and Copying issues of Message Passing.
4. Draw process queuing diagram with short-term and long-term scheduler.

SECTION II

Q:4	A	Do as Directed(Any 10)	10
	1	Define seek time	
	2	Define virus	
	3	A virtual address has two parts. What are they?	
	4	Define lazy swapper.	
	5	Which of the following files in the current directory are identified by the regular expression a?b*. a. aaab b. abb c. abc d. axabb e. abxy	
	6	For some file the access permissions are modified to 764. Which of the following interpretation are valid: a. Everyone can read, group can execute only and the owner can read and write. b. Everyone can read and write, but owner alone can execute. c. Everyone can read, group including owner can write, owner alone can execute	
	7	Absolute path names begin by identifying path from the root. a. True b. False	
	8	Explain grep command.	
	9	Segmentation is faster than paging. a. True b. False	
	10	List out the type of file.	
	11	Write a command to change the directory.	
	12	Explain echo command.	
Q4	B	Consider the following page reference string 1 2 3 4 2 1 5 6 2 1 2 3 7 6 3 2 1 2 3 6 How many page faults would occur for LRU and FIFO. (Assuming 3 frames)	8

Q5		**Write a short note on of the following (any four)**	**16**
		1. Thrashing	
		2. Swapping.	
		3. Directory structure.	
		4. Demand paging.	
		5. File mounting.	
		6. TLB.	
Q6		**Attempt the following (any four)**	**16**
		1. Explain the feature of UNIX system.	
		2. Write a note on virtual memory.	
		3. Discuss the Linux file system.	
		4. Explain the distributed operating system.	
		5. Write a shell script to find the area of triangle.(*Area=(1/2) x Base x Height*)	
		6. What is an i-node? Explain in brief.	