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Question Paper Code: 43205

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

Third Semester

Computer Science and Engineering

14UCS305 - OPERATING SYSTEMS

(Regulation 2014)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

- Which of the following operating systems is better for implementing client server network?
 - MS - DOS
 - Windows 95
 - Windows 98
 - Windows 2000
- Which is not a function of operating system?
 - Memory management
 - Disk Management
 - Application Management
 - Virus protection
- Which scheduling policy is most suitable for a time-shared operating system?
 - Shortest-job First.
 - Priority
 - Round-Robin.
 - First-Come-First-Serve
- The section of code which accesses shared variables is called as _____.
 - Critical section
 - Block
 - Procedure
 - Semaphore
- A Page fault occurs when
 - the deadlock happens
 - when segmentation starts
 - when page is found in the memory
 - when page is not found in the memory

6. Consider a logical address space of eight pages of 1024 words each mapped onto a physical memory of 32 frames. How many bits are in Logical Address?
 (a) 10 (b) 12 (c) 13 (d) 15
7. The operating system keeps the information of files in a table called
 (a) File Folder Table (FFT) (b) File Index Table (FIT)
 (c) File Allocation Table(FAT) (d) Directory Index Table(DIT)
8. Consider a disk with 10 blocks, where blocks 1, 4, 6, 8, 10 are free and the rest are allocated. The free space bit map would be
 (a) 1001010101 (b) 1010100101
 (c) 1001010111 (d) 0110101010
9. The dmesg command
 (a) Shows user login logoff attempts (b) Shows the syslog file for info messages
 (c) Kernel log messages (d) Shows the daemon log messages
10. Windows Naming Service (WINS)
 (a) Dynamically allocates IP addresses to client computers
 (b) Runs on Windows NT W/S
 (c) Resolves computer names to IP addresses
 (d) Increases broadcast traffic

PART - B (5 x 2 = 10 Marks)

11. Illustrate process transition diagram.
12. List the necessary conditions for the occurrence of a deadlock.
13. When do page fault occur?
14. What are the operations that can be performed on a directory?
15. Brief about kernel modules in Linux system.

PART - C (5 x 16 = 80 Marks)

16. (a) Explain in detail about computer system organization and operating system structure with operations. (16)

Or

- (b) (i) Explain in detail the various multithreaded models. (6)
(ii) Explain about Inter Process Communication. (10)
17. (a) (i) Explain the classical problem on synchronization. (8)
(ii) Explain about monitors. (8)

Or

- (b) Consider the following snapshot of a system:

<i>Process</i>	<i>Allocation</i>				<i>Max</i>				<i>Available</i>			
	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>P0</i>	0	0	1	2	0	0	1	2	1	5	2	0
<i>P1</i>	1	0	0	0	1	7	5	0				
<i>P2</i>	1	3	5	4	2	3	5	6				
<i>P3</i>	0	6	3	2	0	6	5	2				
<i>P4</i>	0	0	1	4	0	6	5	6				

Answer the following question using banker's algorithm: (i) what is the content of the need matrix? (ii) Is the system in a safe state? (iii) If the request from process *P1* arrives for (0, 4, 2, 0), can the request be granted immediately. (16)

18. (a) (i) Discuss in detailed about segmented memory management. (8)
(ii) Explain about IA-32 Architecture. (8)

Or

- (b) Explain about the concepts of virtual memory in detail. (16)
19. (a) Explain in detail about the concepts of disk scheduling and disk management. (16)

Or

- (b) (i) Describe the various disk allocation methods with its merits and demerits. (10)
(ii) How reliability and protection is provided in a file system. (6)

20. (a) Explain in detail about the memory management concepts of Linux. (16)

Or

(b) (i) Describe about system components in Windows 2000. (8)

(ii) Discuss how networking is implemented in Windows 2000. (8)