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Question Paper Code	12443
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B.E./B.Tech - DEGREE EXAMINATIONS, NOV / DEC 2023
Fourth Semester
Computer and Communication Engineering
20CCPW401 - OPERATING SYSTEMS WITH LABORATORY
(Regulations 2020)

Duration: 3 Hours

Max. Marks: 100

PART - A (10 × 2 = 20 Marks)
Answer ALL Questions

- | | <i>Marks,
K-Level, CO</i> |
|---|-------------------------------|
| 1. Define Operating system. | 2,K1,CO1 |
| 2. What are the objectives of operating system? | 2,K1,CO1 |
| 3. List out the data fields associate with Process Control Block. | 2,K2,CO2 |
| 4. What is the use of fork and exec system calls? | 2,K1,CO2 |
| 5. What is Race Condition? | 2,K1,CO3 |
| 6. What is Spin Lock? | 2,K1,CO3 |
| 7. Differentiate paging and segmentation. | 2,K2,CO4 |
| 8. List two differences between logical and physical addresses. | 2,K2,CO4 |
| 9. What are the File Operations available? | 2,K1,CO6 |
| 10. List out the File Attributes and its types. | 2,K1,CO6 |

PART - B (5 × 13 = 65 Marks)
Answer ALL Questions

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| 11. a) Explain different operating system structures with neat sketch. | 13,K2,CO1 |
| OR | |
| b) Explain the various types of system calls with examples. | 13,K2,CO1 |
| 12. a) Explain in detail about Inter Process Communication. | 13,K2,CO2 |
| OR | |
| b) Explain the various CPU Scheduling Algorithms with an example. | 13,K2,CO2 |
| 13. a) Explain in detail about Classical Problems of Synchronization. | 13,K2,CO3 |
| OR | |
| b) Briefly discuss about Semaphore and its types with an example. | 13,K2,CO3 |

14. a) Illustrate what are the various Page Replacement Algorithms used in memory management. *13,K2,CO4*

OR

- b) With a neat sketch, explain how logical address is translated into physical address using Paging mechanism. *13,K2,CO4*

15. a) Explain in detail about *13,K2,CO6*
(i) File Access Methods
(ii) Single – Level Directory
(iii) Two – Level Directory
(iv) Tree – Structured Directories.

OR

- b) Discuss about directory and disk structure. *13,K2,CO6*

PART - C (1 × 15 = 15 Marks)

16. a) Suppose that the disk drive has 5000 cylinders number 0 to 4999. The drive is serving a request at cylinder 143. The queue of pending request in FIFO order is: 86,1470,913,1774,948,1509,1022,1750,130 starting from the head position, what is the total distance (cylinders) that the disk arm moves to satisfy all the pending requests for each of the disk scheduling algorithms? FCFS, SSTF, SCAN, LOOK, C-SCAN, C-LOOK. *15,K3,CO5*

OR

- b) (i) Discuss about the Kernel I/O Subsystems. *7,K3,CO5*
(ii) Explain about the Streams. *8,K3,CO5*