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II Semester B.C.A. Degree Examination, June/July - 2025

COMPUTER APPLICATIONS

**Operating System
(SEP Scheme Freshers)**

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

Answer All the Parts.

PART - A

I. Answer any TEN questions. Each question carries 2 marks. (10×2=20)

1. What is operating system and mention any two functions of OS.
2. List out methods for handling deadlocks (necessary conditions).
3. What is disk formatting?
4. What is Thrashing?
5. What is kernel and what are types of kernels?
6. Mention any two file attributes.
7. What are Free-space Management?
8. What is Process Control Block?
9. Define tracks and sectors.
10. What is Mutex Locks?
11. What is contiguous memory location?
12. What is Belady's anomaly?

PART - B

II. Answer any SIX questions. Each question carries 5 marks. (6×5=30)

13. Explain types of multithreading models.
14. Explain critical section problem.
15. What are the scheduling criteria's and explain.

[P.T.O.]



16. What is process? Draw a process state transaction diagram with explain

17. Difference between paging and segmentation.

18. Consider the disk queue with the requests.

Head pointer is 53 and find total head movement using FCFS Disk Scheduling Algorithm with diagram.

98, 183, 37, 122, 14, 124, 65, 67

19. Explain Dining Philosopher's problem.

20. Describe Linux System architecture with diagram.

PART - C

III. Answer any **THREE** questions. Each question carries **10** marks. (3×10=30)

21. Explain any five types of operating systems with each advantages and disadvantages. (10)

22. a) Consider the reference string with page frame 3. (6)

7 0 1 2 0 3 0 4 2 3 0 3 2 1 2 0 1 7

Explain and find the page fault using FIFO and LRU page replacement algorithm.

b) What is Semaphore? Explain types of semaphores. (4)

23. a) Explain different file access methods. (5)

b) Write a short note on Deadlock Prevention and Avoidance. (5)

24. Explain Linux Internal and External commands with examples. (10)

25. a) Consider the following set of process with a Time - Slice 4ms. (5)

Process	Burst Time
P ₁	25
P ₂	03
P ₃	03

Draw the Gantt Chart and execution of process using Round-Robin scheduling.

Find average waiting time and average turn around time.

b) What are system calls? Explain the types of system calls. (5)