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END SEMESTER EXAMINATION – MAY 2025

COMPUTER SCIENCE – II SEMESTER BCA

24BCA25 – OPERATING SYSYTEMS

Time: 3 Hours **Max. Marks: 80**

Instruction: *Answer should be written completely in English*

SECTION – A

Answer any FIVE questions. Each question carries TWO marks. **(5X2=10)**

1. What is an operating system?
2. What is inter-process communication (IPC)?
3. Define turnaround time in process scheduling.
4. What is a race condition?
5. State encryption with an example.
6. Define a directory in file systems.
7. What is the difference between diff and cmp command in Linux?
8. Mention any five file related commands in Linux.

SECTION -B

Answer any SIX questions. Each question carries FIVE marks. **(6X5=30)**

9. Describe the role of schedulers and differentiate between long-term, short-term, and medium-term schedulers.
10. Explain types of operating system.
11. What is multilevel queue scheduling? Explain with a diagram.

12. Draw Gantt chart and calculate the average waiting time and turnaround time for the following data using shortest seek time first scheduling algorithm.

Process	Burst Time
P1	8 ms
P2	2 ms
P3	6 ms
P4	1 ms

13. What are the advantages and disadvantages of paging?
14. Describe FIFO and optimal page replacement algorithms.
15. What are the main types of directory structures in file systems?
16. Briefly explain about general utility commands in Linux.

SECTION – C

Answer any FIVE questions. Each question carries EIGHT marks. **(5X8=40)**

17. Describe the components of an operating system in detail.
18. Define process synchronization. Explain in detail about classical problem of synchronization.
19. Discuss the Banker's Algorithm in detail with an example.
20. Describe in detail about the segmentation with neat diagram.
21. Compare and contrast FIFO, Least Recently Used, and optimal page replacement algorithms with examples.
22. Describe about Linux system architecture with neat diagram.