**NOVEMBER 2025** **52508/325C5A/ 320C5A**

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer any TEN questions.

1. Define an Operating System.
2. What are system calls?
3. Mention two services provided by an OS.
4. Define process scheduling.
5. What is the use of a semaphore?
6. Define deadlock.
7. What is paging in memory management?
8. Define : Demand paging.
9. What is meant by file protection?
10. Mention any two page replacement algorithms.
11. What is meant by domain in system protection?
12. Mention two threats to system security.

PART B — ($5 \times 5 = 25$ marks)

Answer any FIVE questions.

13. Explain the structure of an Operating System.

14. Describe inter-process communication with example.

15. Discuss deadlock prevention methods.

16. Explain paging and segmentation with differences.

17. Describe the concept of thrashing.

18. Write short notes on file allocation methods.

19. Explain user authentication and encryption techniques in OS.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

20. Discuss the different scheduling algorithms with examples.

21. Explain the classical problems of synchronization.

22. Describe the structure of a page table and how paging is managed.

23. Explain directory structures and free space management in file systems.

24. Write in detail about the I/O hardware and kernel I/O subsystem.

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