



ST. FRANCIS DE SALES COLLEGE

A FRANSALIAN INSTITUTE OF HIGHER EDUCATION **AUTONOMOUS**

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END SEMESTER EXAMINATION – APRIL/MAY 2026

COMPUTER SCIENCE – II SEMESTER BCA(F+R)

24BCA25 – OPERATING SYSTEMS

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 the purpose of the System Boot process?
2. What are the four necessary conditions for a deadlock to occur?
3. Give any two examples for synchronization.
4. What is page fault?
5. What is Dynamic Loading?
6. What are the purposes of the /bin and /etc directories in the Linux file system?
7. Define Linux command format with an example.

SECTION - B

Answer any **SIX** questions. Each question carries **FIVE** marks.

(6X5=30)

8. List and explain the various services provided by an Operating System to the user and the system.
9. Explain the difference between shared memory and message passing in Inter-process communication.
10. Explain FCFS process scheduling algorithm using the data given below. Calculate Average TAT and WT (Arrival Time is 0).

Process	P1	P2	P3
CPU Burst Time	5	3	8

11. Explain how Peterson's solution handles the critical-section problem for two processes.
12. Explain Swapping. List its advantages and disadvantages.
13. Explain SSTF disk scheduling algorithm for the given disk request queue: 98, 183, 37, 122, 14, 124, 65, 67 where the initial head position: 53.
14. Demonstrate the use of File Related commands cat, more, and less to view file content with examples.
15. Apply directory commands to create, remove, and navigate directories with example.

SECTION - C

Answer any **FIVE** questions. Each question carries **EIGHT** marks.

(5X8=40)

16. Describe the Computer System Organization in detail.
17. Explain different types of Multithreading models.
18. Differentiate between Deadlock Prevention and Deadlock Recovery.
19. Consider the below process table, calculate the following 2 things using Banker's Algorithm.
Available = 3 2 1

1. Calculate the Need Matrix?
2. Is the system in safe state?



Process	Allocation	Max
	A B C	A B C
P0	1 1 2	5 4 4
P1	2 1 2	4 3 3
P2	3 0 1	9 1 3
P3	0 2 0	8 6 4
P4	1 1 2	2 2 3

20. Explain the working of Paging with the structure of page table.
21. Describe FIFO and Optimal page replacement algorithms. Use the sequence given 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1.
22. Explain the disk related commands used in Linux.

