Roll No:
Date: __/__/____

ST. CLARET COLLEGE LIBRARY Bengaluru-13 AUTONOMOUS

St. Claret College

Autonomous, Bengaluru

UG END SEMESTER EXAMINATION-MAY 2026
BCA II SEMESTER
CA2324: OPERATING SYSTEM

II

TIME: 3 hours. **MAX. MARKS: 80**

This paper contains TWO printed pages and FOUR parts

Instructions:
1. **Verify and ensure that the question paper is completely printed.**
2. **Any discrepancies or questions about the exam paper must be reported to the COE within 1 hour after the examination.**
3. **Students must check the course title and course code before answering the questions.**

PART-A

Answer ALL questions. Each answer carries ONE mark. **[10 x 1 = 10]**

1. What is the main function of an operating system?
   a) To provide a user interface b)To manage hardware resources
   c) Managing hardware and software resources d) All of the above
2. What is multitasking in operating systems?
   a) Running multiple processes simultaneously b) Running a single process
   c) Using multiple processors d) None of the above
3. Which of the following is used to uniquely identify a process?
   a) Process Control Block (PCB) b) Program Counter
   c) PID (Process Identifier) d) None of the above
4. What does CPU scheduling involve?
   a) Managing disk space b) Allocating processor time to processes
   c) Managing network connections d) Handling user inputs
5. Which scheduling algorithm is non-preemptive?
   a) Round Robin b) First Come First Serve (FCFS)
   c) Priority Scheduling d) Multilevel Queue Scheduling
6. Which part of the operating system is responsible for managing memory?
   a) File system b) Kernel c) User interface d) Device drivers
7. What happens when a requested page is not in memory?
   a) Page hit b) Page fault c) Page swap d) Page miss
8. The information about all files is kept in _____
   a) operating system b) separate directory structure
   c) swap space d) none of the mentioned
9. What is the significance of the Linux kernel?
   a) It provides a graphical user interface
   b) It manages system resources and hardware communication
   c) It stores user data
   d) It compiles software programs
10. Which among the following interacts directly with system hardware?
    a) Shell b) Commands c)Kernel d)Applications

PART-B

Answer any 5 questions. Each answer carries 2marks. **[5 x 2= 10]**

11. Define Operating system.Give two examples
12. What is process synchronization?
13. Define Deadlock.
14. What is memory management?
15. What is page fault?
16. Mention any two goals of protection.
17. What is the purpose of wc command?

PART-C

Answer any 4 questions. Each answer carries 5 marks. **[4 x 5 = 20]**

18. Explain the difference between process and program.
19. What is Semaphore? Explain the types of Semaphore.
20. Explain different methods of handling deadlocks.
21. What is swapping? How it works?
22. Explain different allocation methods in File system.
23. Explain the features of Linux.

PART-D

Answer any 4 questions. Each answer carries 10marks. **[4 x 10 = 40]**

24. a. Explain the state of process with a neat diagram. 5m
    b. Explain the functions of Operating System. 5m
25. a. Explain the concept of mutex locks with an example. 5m
    b. Explain Banker's algorithm for deadlock avoidance. 5m
26. Consider the following set of process with length of CPU burst time and arrival time as indicated

PROCESS	ARRIVAL TIME	BURST TIME
P1	0	5
P2	0	7
P3	0	4
P4	0	2

    a. Draw the Gantt chart illustrating the execution of these process using FCFS and SJF algorithm.
    b. Calculate turn- around time and waiting time.
27. a. What is fragmentation? Explain the types of fragmentation. 5m
    b. Explain demand Paging. 5m
28. Explain any five types of Disk scheduling algorithms with examples. 10m
29. a. Explain the Linux System architecture with a neat diagram. 5m
    b. Explain any five directory related Commands. 5m