



QP CODE: 25050797



Reg No :

Name :

MSc DEGREE (CSS) EXAMINATION DECEMBER 2025

First Semester

M Sc Computer Science (Data Analytics)

Core Courses - CA030103 - ADVANCED OPERATING SYSTEMS

2020 Admission Onwards

A08220A0

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. What is the main difference between single processor and multiprocessor system ?
2. What is the function of the system call 'fork()' ?
3. What is multi thread?
4. What is meant by throughput?
5. Explain about the Resource allocation graph?
6. What is safe state?
7. How is free space management performed?
8. What is page fault in memory management?
9. What are the features of Linux Systems?
10. What is the use of file command in Linux?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Write note on process management by operating system .
12. Explain the simple OS structure with an example .
13. Write a note on Process Termination.
14. Write a note on Multilevel queue scheduling.
15. Explain about Synchronization Hardware.





16. Explain Dining Philosophers Problem of Synchronization.
17. Describe the benefits of a virtual memory system.
18. What is the process context of Linux System?

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

Weight 5 each.

19. Explain different computing environments.
20. Explain Process Scheduling in detail.
21. Explain the deadlock prevention method of handling deadlock. Consider the following information about resources in a system.
 1. There are two classes of allocatable resource labeled R1 and R2.
 2. There are two instances of each resource.
 3. There are four processes labeled P1 through P4.There are some resource instances already allocated to process as follows:
 - a). One instance of R1 held by P2, another held by P3.
 - b). One instance of R2 held by P1, another held by P4.Some process have requested additional resources, as follows:
 - a). P1 wants one instance of R1.
 - b). P3 wants one instance of R2
 - i). Draw the resource allocation graph for this system.
 - ii). Is this system deadlocked? If so, state which processes are involved. If not, give an execution sequence that eventually ends, showing resource acquisition and release at each step.
22. Briefly explain different page replacement algorithms.

(2×5=10 weightage)

