Reg. No ..... Name **25U2068**

END SEMESTER EXAMINATION - APRIL 2025

SEMESTER 2: INTEGRATED M.Sc. PROGRAMME COMPUTER SCIENCE - DATA SCIENCE

COURSE : **21UP2CRMCP06 - OPERATING SYSTEMS**

(For Regular - 2024 Admission and Improvement / Supplementary - 2023/2022/2021 Admissions)

Time : Three Hours Max. Weightage: 30

PART A
Answer any 8 Questions

1. State the significance of a pager with respect to virtual memory.
2. The ---------- scheduler controls the degree of multiprogramming.
3. Define the term concurrent process.
4. State a drawback of optimal page replacement algorithm.
5. Disks provide the bulk of secondary storage on which a file system is maintained. Mention a characteristic that make them a convenient medium for storing multple files.
6. State any one drawback of resource allocation graph algorithm.
7. Define virtual memory.
8. "We can ignore the problem altogether and pretend deadlocks never occur in the system" - list any two operating systems that uses this solution for deadlock.
9. Define the term kernel with respect to Operating System.
10. Give examples of operating systems that do not support long term schedulers.

(1 x 8 = 8 Weight)

PART B
Answer any 6 Questions

11. Explain the process swapping with respect to memory management.
12. State the parameters that define a multilevel feedback queue scheduler.
13. Comment on Peterson's solution to the critical section problem.
14. Discuss briefly about APIs.
15. Discuss the issue with priority scheduling. Explain how it can be prevented.
16. Indexed allocation in directories solves the problems faced by the other allocation methods. Prepare short notes on its implementation.
17. Explain Belady's anomaly in page replacement.
18. Write the sequence in which a process may utilize a resource.

(2 x 6 = 12 Weight)

PART C
Answer any 2 Questions

19. Consider the following segment table:

Segment	Base	Length
0	219	600
1	2300	14
2	90	100
3	1327	580
4	1952	96

Construct the physical memory with the above data mapped to it. Calculate the physical addresses for the following logical addresses:
(a). 0, 430 (b). 3, 400

20. Illustrate the concept of safe, unsafe and deadlocked states with an example.
21. Make notes on Time sharing and Distributed Operating Systems.
22. Discuss the various operations on processes.

(5 x 2 = 10 Weight)