END SEMESTER EXAMINATION - MARCH 2024
SEMESTER 2: INTEGRATED M.Sc. PROGRAMME COMPUTER SCIENCE
COURSE : **21UP2CRMCP06 - OPERATING SYSTEMS**
(For Regular - 2023 Admission and Improvement / Supplementary - 2022/2021 Admissions)

Time : Three Hours   Max. Weightage: 30

PART A
Answer any 8 Questions

1. Expand the term API.
2. State an example of a non-preemptive CPU scheduling algorithm.
3. State the drawback of SJF algorithm.
4. Concurrent access to shared data may result in data ---------------.
5. A deadlocked system is in a ------------ state.
6. The --------------- semaphores are also known as mutex locks.
7. State the need of base register.
8. Define fifty-percent rule in fragmentation.
9. State the data structures needed to implement LRU page replacement algorithm.
10. 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.

(1 x 8 = 8 Weight)

PART B
Answer any 6 Questions

11. Write short notes on caching.
12. List the various sections of a process.
13. Differentiate between preemptive and non-preemptive scheduling.
14. Write short notes on any one synchronization tool.
15. Discuss how it can be ensured that deadlocks never occur in the system.
16. Discuss the solutions to various types of fragmentation.
17. Discuss address binding in brief.
18. List and explain the various attributes of a file.

(2 x 6 = 12 Weight)

PART C
Answer any 2 Questions

19. Write short notes on Batch Operating Systems and Multiprogramming Operating Systems.
20. Examine Round-Robin scheduling in detail.
21. Examine the conditions that may ensure that deadlock can be prevented.
22. 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

(5 x 2 = 10 Weight)