Reg. No ....   Name **24U210**

B C A DEGREE END SEMESTER EXAMINATION - MARCH 2024

SEMESTER 2 - MOBILE APPLICATIONS AND CLOUD TECHNOLOGY

COURSE : **19U2CRBCA4 - OPERATING SYSTEM**

(For Regular - 2023 Admission and Improvement / Supplementary – 2022/2021/2020/2019 Admissions)

Time : Three Hours   Max. Marks: 75

PART A
Answer All (1 mark each)

1.   What is meant by denial of service?
2.   What is Belady's anomaly?
3.   What is dead lock?
4.   Define Non- preemptive scheduling algorithms.
5.   What are long term schedulers?
6.   What is demand paging?
7.   What is authorization?
8.   What is Master file table?
9.   Can you provide a definition for decryption?
10. What is page fault trap?

(1 x 10 = 10)

PART B
Answer any 8 (2 marks each)

11. What are the roles of Memory Management component of an operating system?
12. Can you classify intruders and attackers?
13. What is the use of directory structure?
14. What are the benefits of virtual memory management?
15. Why system calls are needed?
16. What is producer consumer problem? How it can illustrate the classical problem of synchronization? Explain.
17. What is mean by revocation of access matrix?
18. Differentiate between the security division 'A' and the security division 'B'.
19. What are necessary conditions for dead lock?
20. What are the activities of an operating system concerning protection?

(2 x 8 = 16)

PART C
Answer any 5 (5 marks each)

21. Explain language based protection with examples.
22. Define Monitor. Explain how it overcomes the drawback of semaphores.
23. Explain priority scheduling algorithm with an example.
24. Explain different sub components of an operating system.
25. Define the virtual memory? What are its advantages?
26. Write a short note on context switching with a neat diagram.
27. What is a thread? What are the advantages of threads?

(5 x 5 = 25)

PART D
Answer any 2 (12 marks each)

28. What is access matrix? Explain various methods to implement an access matriix.

29. What are the various disk space allocation methods? Explain them.

30. Define essential properties of the following types of Operating system:

    a. Batch operating system
    b. Interactive operating system
    c. Time sharing operating system
    d. Real time operating system
    e. Distributed operating system

31. What is bankers' algorithm? Consider a system with five processes and four type of resources. Suppose that at time 'T' the snapshot of the system has taken as follows.

process	Allocation of resources				Maximum need of resources			
	A	B	C	D	A	B	C	D
P1	0	0	1	2	0	0	1	2
P2	2	0	0	0	2	7	5	0
P3	0	0	3	4	6	6	5	6
P4	2	3	5	4	4	3	5	6
P5	0	3	3	2	0	6	5	2

Whether the system is dead lock free if the available resources are (A,B,C,D)=(2,1,0,0)? If deadlock free, find the safe state sequence of process schedule?

(12 x 2 = 24)