Reg No.:_____ Name:_____

0720MCA172122301

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Second Semester MCA (Two Years) Degree (R,S) Examination May 2024

Course Code: 20MCA172

Course Name: ADVANCED OPERATING SYSTEMS

Max. Marks: 60 Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks. Marks

1	Differentiate between distributed operating system and real time operating systems?	(3)
2	Explain different states of a process with a neat diagram.	(3)
3	List out the requirements of Mutual Exclusion algorithms.	(3)
4	Write Rickart-Agarwala Algorithm.	(3)
5	Define a distributed file system. Explain its services?	(3)
6	Differentiate between load balancing and load sharing.	(3)
7	Discuss any two interconnection networks for multiprocessor systems.	(3)
8	Differentiate between UMA and NUMA architecture of multiprocessor Systems.	(3)
9	Differentiate between serial log and log equivalence.	(3)
10	What are the basic synchronization primitives for concurrency control algorithms in database systems?	(3)

PART B

Answer any one question from each module. Each question carries 6 marks.

Module I

11	What is meant by distributed operating systems? Explain in detail any three issues in distributed operating systems	(6)

OR

12 Write short notes on the following

a. Monitor

b. Serializer

Module II

13	Explain any six Design Principles for Secure Systems.	(6)

OR

14	Explain Access Matrix Model with its access control list method implementation.	(6)

Module III

15	Explain Sender Initiated Algorithm and Receiver Initiated Algorithm.	(6)

OR

16	Explain different algorithms for implementing distributed shared memory	(6)

Module IV

17	Write short notes on the following. a. Swap Instruction b. Fetch-and-Add Instruction	(6)

OR

18	a. Illustrate Virtualization in Operating Systems. b. Explain different type of hypervisors	(6)

Module V

19	Explain two Phase Locking (2PL) with example. Write down the major problems with 2 PL	(6)

OR

20	Elaborate on the Optimistic concurrency control algorithms.	(6)

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