

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

Second Semester MCA (2 Year) Degree Regular and Supplementary Examination June 2023

**Course Code: 20MCA172****Course Name: ADVANCED OPERATING SYSTEMS**

Max. Marks: 60

Duration: 3 Hours

**PART A***Answer all questions, each carries 3 marks.*

Marks

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|----|---|-----|
| 1  | Explain functions of the Operating Systems.   | (3) |
| 2  | Illustrate the need of Lamport's Logical clock in Distributed Systems. List out the implementation rules of Logical clocks.         | (3) |
| 3  | State the classification of Mutual Exclusion algorithms. Illustrate how the performance of Mutual Exclusion algorithms are measured | (3) |
| 4  | Explain potential security violations   | (3) |
| 5  | List out the major components of Load Distributing algorithm  | (3) |
| 6  | Distinguish between load balancing and load sharing.  | (3) |
| 7  | Differentiate type1 & type 2 Hypervisors.   | (3) |
| 8  | Define Threads. Discuss types of Threads.   | (3) |
| 9  | Describe Log Equivalence.   | (3) |
| 10 | Explain the basic Synchronization Primitives for Concurrency Control.   | (3) |

**PART B***Answer any one question from each module. Each question carries 6 marks.***Module I**

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| 11 | Identify any six issues that are common with Distributed systems | (6) |
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**OR**

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| 12 | What is semaphore. Explain the usage of semaphores | (6) |
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**Module II**

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|----|---|-----|
| 13 | Explain Suzuki-Kasami's Broadcast algorithm with its use. | (6) |
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**OR**

- 14 (a) Define Access Matrix model & explain its components. (3)  
(b) Explain Access Control List Method. (3)

**Module III**

- 15 Explain the mechanisms for building Distributed File System. (6)

**OR**

- 16 (a) Define Distributed Shared Memory. Discuss the central issues in implementing Distributed Shared Memory. (2)  
(b) Explain any two algorithms for implementing Distributed Shared Memory. (4)

**Module IV**

- 17 Illustrate the type of Interconnection Networks for Multiprocessor Systems. (6)

**OR**

- 18 Discuss any three multiprocessor scheduling strategies (6)

**Module V**

- 19 Explain Serializability with its use. (6)

**OR**

- 20 Explain Optimistic Concurrency Control algorithm. (6)

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