Register No: ……………………       Name: ................................................................

# SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)
(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)
## EIGHTH SEMESTER INTEGRATED MCA DEGREE EXAMINATION(R), MAY 2024
### (2020 SCHEME)

Course Code    :    **20IMCAT452**

Course Name    :    **Advanced Operating Systems**

Max. Marks    :    **60**                          **Duration:3 Hours**

## PART A
*(Answer all questions. Each question carries 3 marks)*

1. Write notes on the features of distributed operating systems.

2. What are concurrent processes?

3. Explain the schematic diagram of an access matrix.

4. Explain the requirements for mutual exclusion.

5. Write a short note on load distribution in distributed scheduling.

6. Explain the advantages of distributed shared memory.

7. How do the interconnection networks used in multiprocessor systems differ in terms of performance and scalability?

8. What are the design issues related to memory management in multiprocessor operating system?

9. Explain multiversion timestamp ordering algorithm.

10. Explain serializable graph with a neat diagram.

## PART B
*(Answer one full question from each module, each question carries 6 marks)*
### MODULE I

11. Elaborate the functions of an operating system.      6

**OR**

12. List and explain the synchronization problems.      6

### MODULE II

13. Explain the design principles for secure systems.      6

**OR**

14. Elaborate on Suzuki Kasami's broadcast algorithm.      6

### MODULE III

15. Explain receiver-initiated algorithm in load distribution.      6

**OR**

16. Discuss the mechanisms for building distributed file systems.      6

### MODULE IV

17. Differentiate memory virtualization and I/O virtualization.      6

**OR**

18. Elaborate on the design issues in multiprocessor operating systems.                    6

**MODULE V**

19. Elaborate on the problems with two-phase locking algorithm.                    6

**OR**

20. Explain the concurrency control model of database systems.                    6

************