Register No: ……………………   Name: ....

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)
(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)
FOURTH SEMESTER B.TECH DEGREE EXAMINATION(R,S), MAY 2024
Computer Science and Engineering
(2020 SCHEME)

Course Code	:	**20CST206**
Course Name	:	**Operating system**
Max. Marks	:	**100** **Duration:3 Hours**

Scientific calculator and statistical table is allowed in the examination hall.

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

1. Define the following terms
   A) Kernel
   B) Shell

2. What are the functions of an Operating System?

3. What is starvation, and how can it be addressed effectively?

4. Define threads.

5. Explain the conditions to be satisfied by a Critical Section Problem.

6. What is meant by Race Condition?

7. What is lazy swapper in demand paging?

8. Describe the operations performed on the stack to maintain a record of the most recently accessed pages and ensure efficient page replacement.

9. Suppose the order of requests are 70, 140, 50, 125, 30, 25, 160 and the initial position of the Read-Write head is 60. And it is given that the disk arm should move towards the larger value. Find the seek time using LOOK algorithm.

10. What you mean by Network-Attached Storage (NAS) in disk attachment?

PART B
(Answer one full question from each module, each question carries 14 marks)
MODULE I

11. Explain Monolithic Structure and MicroKernel Structure of Operating system with suitable diagrams.   14

OR

12. Explain the various operating system structures using necessary sketches.   14

MODULE II

13. Illustrate the Producer-Consumer problem with algorithms and examples.   14

OR

14. Explain various fields of PCB in detail.   14

MODULE III

15. Explain the concept of deadlock prevention in operating systems. 14

OR

16. Explain Dining Philospher Problem with solution. 14

MODULE IV

17. Compare Contiguous memory management scheme with Non Contiguous scheme with the help of diagrams. 14

OR

18. Explain Paged Memory management scheme with the help of suitable diagram. 14

MODULE V

19. a. Explain the concept of directory implementation in operating systems. 8
b. Explain how file systems manage disk space allocation using data structures such as file allocation tables (FAT). 6

OR

20. Explain the various File access methods in detail. 14

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