TB244148U

Reg. No :.....

Name :.....

BACHELOR'S DEGREE (C.B.C.S) EXAMINATION, MARCH 2024

2022 ADMISSIONS REGULAR

SEMESTER IV - B. Voc. Software Development - SKILL

VSD4S04B18 - Operating Systems

**Time : 3 Hours** **Maximum Marks : 80**

## Part A

**I. Answer any Ten questions. Each question carries 2 marks** **(10x2=20)**

1. Describe Batch Systems.
2. Define GUI.
3. Describe Real time systems.
4. List the various scheduling criteria for CPU scheduling
5. Explain process control block.
6. What is scheduler?
7. Define Deadlock.
8. List the conditions under which a deadlock situation may arise?
9. Describe Reference String.
10. Explain the basic method of Segmentation?
11. Define latency time?
12. What are the various disk-scheduling algorithms?

## Part B

**II. Answer any Six questions. Each question carries 5 marks** **(6x5=30)**

13. Explain the different categories of System Programs
14. Explain the various scheduling criterias
15. Discuss the structure of a PCB
16. What are semaphores? Explain its types
17. Explain dining philosopher's problem
18. Explain about contiguous memory allocation?
19. Explain Working set model
20. Explain the file operations
21. Discuss the different file access methods



## Part C

**III. Answer any Two questions. Each question carries 15 marks** **(2x15=30)**

22. Compare and contrast different types of Operating Systems

23. Consider the following questions based on the banker's algorithm:

| | Allocation | Max | Available |
|---|---|---|---|
| | A B C D | A B C D | A B C D |
| P0 | 0 0 1 2 | 0 0 1 2 | 1 5 2 0 |
| P1 | 1 0 0 0 | 1 7 5 0 | |
| P2 | 1 3 5 4 | 2 3 5 6 | |
| P3 | 0 6 3 2 | 0 6 5 2 | |
| P4 | 0 0 1 4 | 0 6 5 6 | |

(1) Define safety algorithm.

(2) What is the content of the matrix Need?

(3) Is the system in a safe state?

24. Explain about given memory management techniques. (i) Contiguous allocation (ii) Non-Contiguous allocation

25. Compare the functionalities of FCFS, SSTF, C-SCAN and C-LOOK with example