D 102138 (Pages : 2) Name.......................................

Reg. No.................................

SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2024

(CBCSS)

Computer Science

CSS 2C 07—OPERATING SYSTEM CONCEPTS

(2019 Admission onwards)

Time : Three Hours Maximum : 30 Weightage

Part A

Answer any **four** *questions.*

Each question carries 2 weightage.

1. What is a "Zombie Process" ?

2. Define a Thread. Give the benefits of multithreading.

3. Write about deadlock avoidance algorithm.

4. List the purpose of Paging and Page tables.

5. Give a note dynamic loading.

6. What are the criteria for evaluating the CPU scheduling algorithms ? Why do we need it ?

7. List the applications of client server computing.

$(4 \times 2 = 8$ weightage)

Part B

Answer any **four** *questions.*

Each question carries 3 weightage.

8. What resources are used when a thread is created ? How do they differ from those used when a process is created ?

9. How does deadlock avoidance differ from deadlock prevention ?

Turn over

10. A system uses 3 page frames for storing process pages in main memory. It uses the First in First out (FIFO) page replacement policy. Assume that all the page frames are initially empty. What is the total number of page faults that will occur while processing the page reference string given below-4, 7, 6, 1, 7, 6, 1, 2, 7, 2. Also calculate the hit ratio .and miss ratio.

11. Write note on multiprocessor scheduling.

12. How does the system detect Thrashing ? What can the system do to eliminate this problem ?

13. Discuss the term page fault frequency.

14. Describe service oriented architecture.

(4 × 3 = 12 weightage)

Part C

Answer any **two** *questions.*

Each question carries 5 *weightage.*

15. State dining philosopher's problem and give a solution using semaphores. Write structure of philosopher.

16. What is virtual memory ? How it is implemented.

17. Consider the following processes with burst time (CPU execution time). Calculate the average waiting time and average turnaround time.

Process id	Arrival time	Burst time / CPU Execution time
P1	0	2
P2	1	3
P3	2	5
P4	3	5
P5	4	6

18. Describe client server architecture and its applications.

(2 × 5 = 10 weightage)