C 4721

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Name..

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

SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

Computer Science

CSS 2C 07—OPERATING SYSTEM CONCEPTS

(2019 Admissions)

Maximum : 30 Weightage

Time : Three Hours

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*

2. *The minimum number of questions to be attended from the Section/Part shall remain the same.*

3. *There will be an overall ceiling for each Section/Part that is equivalent to the maximum weightage of the Section/Part.*

Section A

Answer any **four** *questions.*
Each question carries 2 weightage.

1. Explain Process Control Block.

2. List the requirements of Mutual exclusion.

3. Explain "race condition".

4. Differentiate between logical and physical address space.

5. Explain the principle of FCFS scheduling.

6. Identify the role of "granularity" in multiprocessor scheduling.

7. Explain any two characteristics of mobile operating systems.

(4 × 2 = 8 weightage)

Section B

Answer any **four** *questions.*
Each question carries 3 weightage.

8. Demonstrate the concept of multi-threading with examples.

9. Give an overview of Linux thread management.

Turn over

10. Demonstrate the use of Semaphores.

11. Explain any two page replacement algorithms with examples.

12. Explain the implementation of virtual memory concept.

13. Consider the following set of processes with arrival time and burst time in ms. Calculate average turnaround time and waiting time if Shortest job first is applied :

Process	Arrival time (ms)	Burst Time (ms)
P1	0	4
P2	1	8
P3	2	6
P4	3	10
P5	4	3
P6	5	5

14. Identify features of Three tier Client-server architecture.

$(4 \times 3 = 12 \text{ weightage})$

Section C

Answer any two questions.
Each question carries 5 weightage.

15. Discuss principles of deadlock, deadlock detection and recovery.

16. Discuss the need and implementation details of paging and segmentation.

17. List and analyse the characteristics of Real time OS. Compare Deadline scheduling with Rate monotonic scheduling.

18. Discuss the need, features and implementation details of Remote Procedure Calls.

$(2 \times 5 = 10 \text{ weightage})$