[No. of Printed Pages – 3] **R69**

CSIT123 Enrol. No. .....

[ET]

END SEMESTER EXAMINATION : DECEMBER, 2023

OPERATING SYSTEM CONCEPTS

Time : 3 Hrs. *Maximum Marks : 60*

Note: ***Attempt questions from all sections as directed.***

SECTION – A (24 Marks)

Attempt any **four** *questions out of* **five.**

Each question carries **06** *marks.*

1. What is an Operating System? Explain types of Operating System and its services.

2. Explain the functions of Long, Medium and Short Schedulers in Time sharing system.

3. State the differences between Paging and Segmentation.

P.T.O.

4. Write short notes on Semaphores. Explain Critical Section problem in detail.

5. Explain the need and working principle of virtual memory.

SECTION – B (20 Marks)

Attempt any **two** *questions out of* **three**.

Each question carries **10** *marks.*

6. Explain different page replacement algorithms.

7. Explain the directory structures in detail.

8. What is Starvation? How it can be solved?

SECTION – C (16 Marks)

(Compulsory)

9. (a) Explain how to detect and avoid a Deadlock situation. State Bankers algorithm for Deadlock avoidance. (8)

(b) Consider the following set of processes with the length of the CPU burst given in miliseconds

PROCESS	BURST TIME	PRIORITY
P1	10	3
P2	1	1
P3	2	3
P4	1	4
P5	5	2

The processes are assumed to be P1, P2, P3, P4, P5, all at time 0.

(i) Draw the Gantt charts for following scheduling algorithms FCFS, RR, SJF (Quantum=0)

(ii) Find out the turnaround time and waiting time of each process for each of these scheduling algorithms and also find out the average turnaround time and average waiting time. (8)