

Code No.: R22CS303PC

R22

H.T.No.

8

R

**CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS**

**II-B.TECH-I-Semester End Examinations (Regular) - February- 2024
OPERATING SYSTEMS
(Common for CSE, IT, CSC, CSD, CSM)**

[Time: 3 Hours]

[Max. Marks: 60]

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 10 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A

(10 Marks)

1. a) What are the different types of operating systems? [1M]
- b) How parameters can be passed to system calls? [1M]
- c) Define dead lock? [1M]
- d) List the CPU Scheduling algorithms? [1M]
- e) Define semaphores. [1M]
- f) Explain about critical section problem? [1M]
- g) Distinguish between logical address and physical address? [1M]
- h) Define swapping? [1M]
- i) What are the methods for accessing the file? [1M]
- j) What is role-based access control? [1M]

PART-B

(50 Marks)

2. a) Explain about the structure of OS? [5M]
- b) Explain about the services of operating system [5M]

OR

3. a) State and explain various types of operating systems [5M]
- b) What is process? Explain the states of the process? [5M]

4. Following is the snapshot of a CPU [10M]

Process	CPU Burst	Arrival Time
P1	10	0
P2	29	1
P3	03	2
P4	07	3

Draw the Gantt chart and calculate the turnaround time and waiting time of the jobs for FCFS (First Come First Serve) scheduling algorithms.

OR

5. How can deadlock be detected and recovered? Explain in detail with relevant example? [10M]

6. What is Synchronization? Give the implementation of Bounded Buffer Producer Consumer Problem using Semaphore. [10M]

OR

7. Explain about Inter Process Communication? [10M]

- 8. a) Differentiate between paging and segmentations? [5M]
- b) Explain Contiguous memory allocation? [5M]

OR

9. Consider the following page reference strings: 1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6. [10M]
How many page faults would occur for the following replacement algorithm, assuming three, four frames? Remember that all frames are initially empty, so your first unique pages will cost one fault each. i) LRU replacement ii) Optimal replacement.

10. Explain in detail about file system structure and implementation. [10M]

OR

11. Discuss about Free Space Management. [10M]
