



**M.Tech III Semester Supplementary Examinations, February 2024**  
**Operating Systems**  
**(Power Electronics)**

**Maximum Marks: 70**

**Date: 15.02.2024 Duration: 3 hours**

- Note:**
1. This question paper contains two parts A and B.
  2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
  3. Part B consists of 5 Units. Answer any one full question from each unit.
  4. Each question carries 10 marks and may have a, b, c, d as sub questions.

**Part-A**

All the following questions carry equal marks (5x4M=20 Marks)

- 1 Give two reasons why caches are useful. What problems do they solve ?
- 2 Explain the system calls fork(), exec().
- 3 What are different ways of handling deadlocks?
- 4 Define paging.
- 5 Describe access matrix in few words.

**Part-B**

Answer All the following questions. (5X10M=50Marks)

- 6 What is the need of Operating system and explain the different structures of Operating System. [10]

OR

- 7 Explain the following a) Process management b) Memory management [5+5]

- 8 Explain critical section problem & what is software based solution to it explain. [10]

OR

- 9 a) Consider the following set of processes with the length of the CPU burst time given in milliseconds. [5]

Process	BurstTime
P1	24
P2	3
P3	3

The processes are assumed to have arrived in the order p1, p2, p3 all at time 0.  
Draw Gantt charts illustrating the execution of these processes using Round Robin (quantum=4) scheduling.

- b) explain FCFS scheduling algorithm with suitable example. [5]

- 10 Explain the various methods which we apply for recovery from deadlocks. [10]

OR

- 11 Write a short note on a) Hierarchical paging b) Hashed page table [5+5]

- 12 Explain the concept and performance of demand paging. [10]

OR

- 13 a) Illustrate the concept of copy on write. [5]  
b) Explain the concept of virtual memory on windows. [5]
- 14 a) Explain the access methods of files. [5]  
b) Briefly outline the directory overview. [5]
- OR
- 15 a) Explain the concept of revocation access rights. [5]  
b) Explain the concept of goals of protection. [5]