



**B.Tech III Semester Regular/Supplementary Examinations, December 2025**

**COMPUTER ORGANIZATION & OPERATING SYSTEMS**  
(CSE(DS))

Maximum Marks: 60

Date:24.12.2025

Duration: 3 hours

- Note: 1.This question paper contains two parts A and B.  
2. Part A is compulsory which carries 10 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 (10X1M=10 Marks)		Marks	CO	BTL
1.a)	Define Functional Unit of a computer.	1M	1	1
b)	What is a Bus?	1M	1	1
c)	Define Floating Point representation.	1M	1	1
d)	What is an Instruction Cycle?	1M	1	1
e)	Define Cache Memory.	1M	2	1
f)	What is RAID?	1M	2	1
g)	Define DMA.	1M	3	1
h)	What is PCI bus?	1M	3	1
i)	Define a System Call.	1M	4	1
j)	What is Virtual Memory?	1M	5	1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
2	Explain the basic structure of a computer with neat block diagram and Describe Fixed-Point and Floating-Point number representation with examples	10M	1	2
OR				
3	a) Explain different types of computer instructions and the Instruction Cycle. b) Describe various addressing modes with suitable examples.	5M 5M	1	2
4	a) Explain the microprogrammed control unit with block diagram. b) Discuss cache memory organization and performance considerations.	5M 5M	2	2
OR				
5	Write short notes on Virtual Memory and RAID levels.	10M	2	1
6	Explain synchronous and asynchronous data transfer modes in detail	10M	3	2
OR				

7	Describe Priority Interrupts and Direct Memory Access (DMA).	10M	3	2
8	Describe Scheduling Criteria and compare different CPU scheduling algorithms.	10M	4	2
OR				
9	a) Discuss Deadlock characterization and methods of deadlock prevention.	5M	4	2
	b) Explain system call interface for process management: fork, wait, exit, waitpid, exec.	5M		
10	a) Explain file system implementation: allocation methods and free-space management.	5M	5	2
	b) Discuss synchronization hardware and classical problems of synchronization.	5M		
OR				
11	Describe page replacement algorithms with examples (FIFO, LRU, Optimal).	10M	5	2