Reg. No.												

Question Paper Code	13585

M.E. - DEGREE EXAMINATIONS, APRIL / MAY 2025

First Semester

M.E. - Computer Science and Engineering

20PCNPC101 - ADVANCED COMPUTER ARCHITECTURE

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	Define Amdhal's Law.	2	K1	CO1
2.	Write down the equation for calculating CPU performance Equation.	2	K1	CO1
3.	Define pipeline and its stages.	2	K1	CO2
4.	What do you mean by multiple issue processors?	2	K1	CO2
5.	State serialization and list its advantages.	2	K1	CO3
6.	Define Distributed shared memory.	2	K1	CO3
7.	List the categorization of Cloud Computing.	2	K1	CO4
8.	Write the features of Google File System.	2	K1	CO4
9.	List the Structural hazards in vectored architecture.	2	K1	CO5
10.	Classify the factors influencing the Vector Execution Time.	2	K2	CO5

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

			Marks	K – Level	CO
11.	a)	What is ILP? Discuss about the types of dependencies with an example.	13	K2	CO1
		OR			
	b)	Discuss about multiple instruction issue using dynamic scheduling with suitable example.	13	K2	CO1
12.	a)	Explain the architecture and function of Super Scalar processor.	13	K2	CO2
		OR			
	b)	Illustrate virtual memory translation and TLB with necessary diagram.	13	K2	CO2
13.	a)	Identify the challenges of Parallel Processing and discuss about the Distributed Shared Memory in detail.	13	K3	CO3
		OR			
	b)	Construct the Crossbar interconnection Networks and discuss the Multi-Stage Interconnection Networks using suitable example.	13	K3	CO3

14. a) Explain the SUN CMP architecture in detail and analyze the working of Intel Multicore Architecture. *13 K2 CO4*

OR

b) What do you mean by Warehouse-scale computers and discuss the functions of a Batch processing framework with an example. *13 K2 CO4*

15. a) Develop in detail about Roofline Visual Performance model with suitable example. *13 K3 CO5*

OR

b) Identify and discuss the factors in Eliminating dependent computations with an example. *13 K3 CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Identify the VMIPS functional units that consume one element per clock cycle. *15 K3 CO6*

OR

b) Build any four multicore architectures and discuss its advantages and disadvantages. *15 K3 CO6*