Reg. No.												

Question Paper Code	12694

M.E. / M.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024

First Semester

M.E - Computer Science and Engineering

(Common to Computer Science and Engineering (with Specialization with Networks))

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.	Define dependency and list its types.	2	K1	CO1
3.	What do you mean by multiple Issue processors?	2	K1	CO2
4.	How to Enhance Dependability in Memory Systems.	2	K2	CO2
5.	Describe interconnection network.	2	K2	CO3
6.	Differentiate Buses from crossbar networks.	2	K2	CO3
7.	Explain warehouse.	2	K1	CO4
8.	Differentiate between SMT and CMP.	2	K2	CO4
9.	Differentiate between scalar and vector processors.	2	K2	CO5
10.	Describe the Vector functional units.	2	K2	CO5

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

			Marks	K – Level	CO
11.	a)	Discuss about Dynamic scheduling using Tomasulo's approach.	13	K2	CO1
		OR			
	b)	Discuss how to reduce Branch cost with dynamic hardware prediction technique.	13	K2	CO1
12.	a)	Explain the architecture and function of super scalar processor.	13	K2	CO2
		OR			
	b)	Describe the various cache hit time reduction techniques for improving the cache performance.	13	K2	CO2
13.	a)	Explain Centralized Shared Memory Architectures.	13	K2	CO3
		OR			

	b) i)	Demonstrate the Cache Coherence Performance issues.	*7*	*K2*	*CO3*
	ii)	Illustrate in detail Snooping Coherence Protocols.	*6*	*K2*	*CO3*
14.	a)	Explain the SUN CMP architecture in detail and Analyze Intel Multicore Architecture.	*13*	*K2*	*CO4*
		OR			
	b) i)	Explain Google Warehouse-Scale Computer	*7*	*K2*	*CO4*
	ii)	Explain the customized and standardize 1AAA container for Google.	*6*	*K2*	*CO4*
15.	a) i)	Describe Vector Architecture in detail.	*7*	*K2*	*CO5*
	ii)	Explain the details of handling Multidimensional Arrays in Vector Architectures	*6*	*K2*	*CO6*
		OR			
	b) i)	Identify the need for SIMD Extension for multimedia.	*7*	*K2*	*CO5*
	ii)	Explain how to Handle Sparse Matrices in Vector Architectures.	*6*	*K2*	*CO6*

PART - C (1 × 15 = 15 Marks)

16.	a)	Prepare the primary components of the instruction set architecture of VMIPS and explain the basic vector architecture with neat block diagram.	*15*	*K3*	*CO6*
		OR			
	b)	Order the issues in Eliminating Dependent Computations and Finding Dependences.	*15*	*K3*	*CO6*