PRN:		Course Code :	UCS301

Second Year **B. Tech**End Semester Examination Winter2023

Computer Organization and Architectures

Day and Date: wednesday, 29/11/2023 Max Marks: **100**

Time : 10.30 am to 1.30 PM Duration: **03** hrs

Instructions:All questions are compulsory.

			Marks	Bloom's Level	CO
Q.1		**Attempt the following**			
	a)	Classify computers based on instruction and data streams.	08	2	CO1
	b)	Explain NUMA shared memory multiprocessor.	08	2	CO1
		OR			
	b)	Explain with neat diagram element of modern computers. .	08	3	CO1
Q.2		**Attempt the following**			
	a)	Illustrate the basic working of systolic arrays and different configurations of the same.	08	2	CO1
	b)	Explain Cray-I in detail.	08	2	CO4
		OR			
	b)	Discuss C-Access memory organization.	08	5	CO2
Q.3		**Attempt any two from the following**			
	a)	Explain associative memory organization.	08	5	CO3
	b)	What is latency? Explain latency hiding technique.	08	1	CO3
	c)	Explain Principle of Multithreading.	08	3	CO3
Q.4		**Attempt any two from the following**			
	a)	Explain Tightly coupled architectures.	08	5	CO3
	b)	Explain components of the Kmap in Cm*.	08	2	CO3
	c)	Explain the working of intracluster communication in Cm* architecture model.	08	5	CO3
Q.5		**Attempt any Two of the following**			
	a)	Construct vector architecture with neat diagram.	09	4	CO1
	b)	What is GPU? Where it is used? How GPUmemory is shared by all vector loops.	09	2	CO4
	c)	Explain SIMD instruction set extension for multimedia.	09	3	CO4
Q.6		**Attempt any Two of the following**			
	a)	What is hardware and software parallelism? With suitable example explain mismatch between them. .	09	4	CO4
	b)	List and explain following types of dependencies to achieve parallelism inprogram execution	09	3	CO4
	c)	Write short note on 1] Grain size. 2] Grain scheduling.	09	2	CO4

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