Mid Semester Examination

Name of the Program: B.Tech.(CSE) Semester: 7th

Name of the Course: Advanced Computer Course Code: TCS 704

Architecture

Time: 1-1/2 Hour Maximum Marks: 50

Note:

(i) Answer **all the questions** by choosing *any one of the sub questions*.

(ii) Each question carries 10 marks

Q1	(10 marks)	
(a)	Explain the concept of Moore's Law and its significance in the field of computer architecture. Provide examples of how it has influenced the development of microprocessors.	CO1
	OR	
(b)	What are the different classes of parallelism in computer architecture? Provide examples of each class and discuss their relevance in modern computing.	
Q2	(10 marks)	
(a)	Describe the role of Instruction Set Architecture (ISA) in computer architecture. How does it impact the design and functionality of a CPU?	CO1
	OR	
(b)	Explain the concept of Reduced Instruction Set Computer (RISC) and Complex Instruction Set Computer (CISC) architectures. Compare and contrast their strengths and weaknesses.	
Q3	(10 marks)	
(a)	What are some common performance metrics used to evaluate the performance of computer systems? Provide examples of scenarios where each metric is relevant.	CO1
	OR	
(b)	Explain Amdahl's Law and its implications for parallel computing. How does it help in understanding the limits of performance improvement when adding more processors to a system?	
Q4	(10 marks)	
(a)	Explain the concept of memory hierarchy in computer systems. What is its purpose, and why is it essential for system performance?	CO2
	OR	
(b)	Describe the key components of a typical memory hierarchy, from the highest level to the lowest level. What role does each component play in improving memory access times?	
Q5	(10 marks)	
(a)	Define memory coherence and locality properties in the context of memory hierarchy. How do these properties impact the efficiency of memory access?	CO2
	OR	
(b)	Discuss techniques for improving cache performance, such as cache prefetching, cache write policies, and victim caches. Provide examples of scenarios where each technique is beneficial.	