

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION MO/2024)

CLASS: BTECH
BRANCH: CSE

SEMESTER : VII
SESSION : MO/2025

SUBJECT: CS439 PARALLEL COMPUTING

TIME: 02 Hours

FULL MARKS: 25

INSTRUCTIONS:

1. The question paper contains 5 questions each of 5 marks and total 25 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates
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		CO	BL
Q.1(a)	Define the term parallel processing. Differentiate between pipelining and data parallelism with suitable example.	[2] 2	2
Q.1(b)	Explain Flynn's taxonomy and its applications with suitable example.	[3] 3	3
Q.2(a)	What is the purpose of Amdahl's law? Describe Amdahl's law with suitable example.	[2] 1	1
Q.2(b)	Describe parallel random access machine (PRAM) model of computation using CRCW, and PRIORITY approaches.	[3] 3	3
Q.3(a)	Write PRAM algorithm to find pre-order traversal of following data set: A, B, C, D, E, F, G, H	[2] 2	1
Q.3(b)	Write the PRAM algorithm to find the prefix sum of following data set: 40, 30, 80, 20, 90, 10, 0, 50, 60, 30	[3] 4	3, 4
Q.4(a)	Describe the Mesh network, and 8-processor De-Bruijn network with suitable example. Provide the advantages and disadvantages of each of these networks.	[2] 2	2
Q.4(b)	Describe UMA, and TC2000 NUMA multiprocessor systems. Out of these two types of multiprocessors which one will have higher complexity and why? Justify your answer.	[3] 3	3,4
Q.5(a)	Describe nCUBE 2 and Paragon XP/S multicomputer machines with respect to their computation capabilities.	[2] 2	2
Q.5(b)	Explain the differences between static and dynamic load balancing approaches with suitable example. Why dynamic load balancing is preferred over static load balancing? Justify your answer.	[3] 3	3

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