

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

CLASS: BTECH
BRANCH: CSE

SEMESTER : VII
SESSION : MO/2024

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 scalability and control parallelism 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 CREW, CRCW, COMMON, and PRIORITY approaches.	[3]	3	3
Q.3(a)	Describe Flynn's taxonomy with suitable examples.	[2]	2	1
Q.3(b)	Write the PRAM algorithm to find the prefix sum of following data set: 4, 3, 8, 2, 9, 1, 0, 5, 6, 3	[3]	4	3, 4
Q.4(a)	Describe the hyper tree and hyper cube networks of processor organization. Further, write the approach which is most efficient for processor organization?	[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)	Describe the dynamic load balancing on multi computers. Also find the complexity level of your approach.	[3]	3	3

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