

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: BTECH
BRANCH: CSE

SEMESTER : VII
SESSION : MO/2024

SUBJECT: CS439 PARALLEL COMPUTING

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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		CO	BL
Q.1(a)	Describe parallel random access machine (PRAM) model of computation using CREW, CRCW, COMMON, and PRIORITY approaches.	[5] 3	3
Q.1(b)	Define the term parallel processing. Differentiate between pipelining and data parallelism with suitable example.	[5] 2	2
Q.2(a)	Describe parallel random access machine (PRAM) model of computation using CREW, CRCW, COMMON, and PRIORITY approaches.	[5] 3	3
Q.2(b)	Write the PRAM algorithm to find the prefix sum of following data set: 14, 13, 18, 12, 19, 11, 10, 15, 16, 13	[5] 4	3, 4
Q.3(a)	Describe deadlock synchronization issues of multiprocessor systems with suitable example.	[5] 2	2
Q.3(b)	Describe the static and dynamic load balancing on multi computers. Also find the complexity level of your approach.	[5] 3	3
Q.4(a)	Describe row-column matrix multiplication algorithm for multi-computers. Find the complexity of your algorithm.	[5] 3	3
Q.4(b)	Describe the hypercube model of matrix multiplication with suitable example and diagram. Also find the complexity and order of your algorithm.	[5] 4	3, 4
Q.5(a)	Explain the Jacobi algorithm of solving the set of linear equations with suitable example.	[5] 3	2
Q.5(b)	Explain the steps of BITONIC merge algorithm. Find the complexity of your algorithm.	[5] 3	2

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