Seat No./Enrollment No.: _____

GUJARAT TECHNOLOGICAL UNIVERSITY
MASTER OF ENGINEERING – SEMESTER 2 – EXAMINATION – SUMMER 2026

Subject Code: ME02000351 **Date: 15/06/2026**

Subject Name: Parallel Algorithms

Time: 10:30 AM TO 01:00 PM **Total Marks: 70**

Instructions:

1. Attempt all questions.

2. Make suitable assumptions wherever necessary.

3. Figures to the right indicate full marks.

Q.1	**(a)**	Enlist Different parallel algorithm models. Discuss any two models in detail.	**07**
	(b)	Discuss an algorithm for generating combinations in parallel.	**07**
Q.2	**(a)**	Explain Parallel Random-Access Machine (PRAM) models.	**07**
	(b)	Discuss an algorithm for generating permutations in parallel.	**07**
		OR	
Q.2	**(b)**	Discuss Hyper quick sort with suitable example.	**07**
Q.3	**(a)**	Discuss Dense LU factorization.	**07**
	(b)	Explain Cannon's algorithm for matrix-matrix multiplication with example.	**07**
		OR	
Q.3	**(a)**	What is Bitonic sequence? Discuss Bitonic sort with example.	**07**
	(b)	Explain DNS algorithm for Matrix-Matrix multiplication with example.	**07**
Q.4	**(a)**	Explain sorted sequence CRCW searching with analysis.	**07**
	(b)	Write and explain parallel merge sort algorithm.	**07**
		OR	
Q.4	**(a)**	Explain random sequence CREW searching with example.	**07**
	(b)	Discuss sorting by Enumeration with the example.	**07**
Q.5	**(a)**	Discuss parallel formulation of Prim's algorithm for MST with example.	**07**
	(b)	Explain graph coloring with suitable example.	**07**
		OR	
Q.5	**(a)**	Explain parallel formulations of Dijkstra's algorithm.	**07**
	(b)	Explain how to find efficiency and scalability of a parallel application.	**07**

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