

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**ME – SEMESTER-II(NEW)EXAMINATION – WINTER-2020**

**Subject Code:3720222****Date: 02/Feb/2021****Subject Name: Parallel Algorithms****Time: 02:00 PM To 04:00 PM****Total Marks: 56****Instructions:**

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Discuss Hyper quick sort with suitable example. **07**  
(b) List out parallel computational models. Explain any two with example. **07**
- Q.2** (a) Explain Matrix Vector Multiplication with suitable example. **07**  
(b) Discuss permutations with and without repetitions combinations with suitable example. **07**
- Q.3** (a) Discuss Searching on a sorted sequence with suitable example. **07**  
(b) Explain Enumeration sorting on the CRCW model with suitable example. **07**
- Q.4** (a) Discuss Searching on a random sequence with suitable example. **07**  
(b) Explain odd even transposition with suitable example. **07**
- Q.5** (a) Discuss Parallel selection algorithm with suitable example. **07**  
(b) Compare the speedup of the parallel implementation of Odd-Even transposition sort using MPI. **07**
- Q.6** (a) Discuss Graph coloring with suitable example. **07**  
(b) Compare the speedup of the parallel implementation of Bitonic sort using MPI. **07**
- Q.7** (a) Discuss Shortest path algorithm with suitable. **07**  
(b) Explain how to find efficiency and scalability of a parallel application. **07**
- Q.8** (a) Discuss Minimal spanning tree with suitable example. **07**  
(b) Implement parallel list ranking algorithm on MPI cluster of 5 Nodes. **07**

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