

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII (Old) EXAMINATION – WINTER 2019****Subject Code: 180702****Date: 21/11/2019****Subject Name: Parallel Processing****Time: 02:30 PM TO 05:00 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) Explain pipelining and super scalar execution with suitable examples. 07
(b) What is meaning of memory latency? How memory latency can be improved by the cache ? 07
- Q.2** (a) Explain Recursive and Data Decomposition Techniques in detail. 07
(b) Discuss various Parallel Algorithm models. 07
- OR**
- (b) Explain One-to-All Broadcast and All-to-One Reductions operations. 07
- Q.3** (a) Explain the effect of granularity on performance for addition of n numbers using p processing element. 07
(b) What is isoefficiency function ? derive equation of isoefficiency function. 07
- OR**
- Q.3** (a) Explain Dijkstra's Algorithm for single - source Shortest paths. 07
(b) Explain the following function of MPI: 07
MPI_Send (), MPI_Comm_size (), MPI_Comm_rank ().
- Q.4** (a) Discuss buffered non-blocking and non-buffered non-blocking send/receive message passing operations with neat sketches. 07
(b) Explain Odd-Even Transposition sort algorithm with example. 07
- OR**
- Q.4** (a) What are Threads? Draw and explain Logical memory model of thread. 07
(b) Write a note on Synchronization primitives in POSIX. 07
- Q.5** (a) Explain Canon's Algorithm for Matrix-Matrix Multiplication. 07
(b) Explain bitonic sort with example. 07
- OR**
- Q.5** (a) Discuss Prim's Algorithm for minimum spanning tree. 07
(b) Explain bubble sort with example. 07
