

GUJARAT TECHNOLOGICAL UNIVERSITY
ME – SEMESTER – II(New)• EXAMINATION – SUMMER - 2020

Subject Code:3720220**Date: 28/10/2020****Subject Name: HPC Architecture and ECO system****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) Discuss problem decomposition with suitable cluster computing example. **07**
 (b) What is HPC? When do we need HPC? What does HPC include? **07**
- Q.2** (a) Explain clustering. Where MPI used in clustering? **07**
 (b) What is Parallel Computing? Explain Parallel Computer Memory Architectures. **07**
- OR**
- (b) Explain Flynn's Classification of Parallel Processing System with neat diagram. **07**
- Q.3** (a) Explain MetaMPICH Architecture in detail. **07**
 (b) Difference between Cluster Computing VS. Grid Computing. **07**
- OR**
- Q.3** (a) Explain Embarrassingly parallel problems in detail. **07**
 (b) Explain Oracle Cluster ware Architecture in detail. **07**
- Q.4** (a) Explain Dynamic Mapping Schemes for Load balancing in details **07**
 (b) Explain Granularity, Concurrency and Dependency graph. **07**
- OR**
- Q.4** (a) What is Message Passing Interface? What are the principles of Message Passing Programming **07**
 (b) Write a note on: Topologies and Embedding **07**
- Q.5** (a) What is Profiling? Explain CUDA Profiling in details. **07**
 (b) Discuss Thread support within Open MPI with suitable example. **07**
- OR**
- Q.5** (a) Explain Shared-Memory Programming with OpenMP with suitable example. **07**
 (b) Discuss Calling MPI inside of OMP MASTER with suitable example. **07**
