

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER-V • EXAMINATION – SUMMER - 2016

Subject Code: 650005**Date: 11/05/2016****Subject Name: Parallel Programming****Time: 10:30 AM to 01:00****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) Define the Parallel Programming? Why we need parallel processing? **07**
Explain.

(b) List out the techniques to achieve parallelism in sequential machines. **07**
Explain all in brief?

Q.2 (a) What would be the desirable features of an operating system for a **07**
shared-memory multiprocessor?

(b) Briefly compare “shared memory programming” and “message passing” **07**
on the basis of data sharing and synchronization.

OR

(b) Briefly compare “explicit parallel programming” and “implicit parallel **07**
programming” on the basis of data sharing and synchronization

Q.3 (a) What is distributed memory? Explain the NUMA Distributed Memory **07**
with suitable diagram?

(b) What is Multiprocessor? Define its type in details with architecture? **07**

OR

Q.3 (a) What are major sources of performance loss? Explain each in detail. **07**

(b) “A Pipelining is the way to achieve Parallelism”,_How and why? Justify **07**
the answer with appropriate diagram and example?

Q.4 (a) What is loop interchange? How does that help parallel programming? **07**

(b) What is thread and thread based implementation? What do you mean by **07**
event and condition variables?

OR

Q.4 (a) What are the advantage and disadvantage of loop-splitting against self- **07**
scheduling?

Q.4 (b) How we can solve a Diophantine Equations in parallel processing **07**
environment? Define the process of solution.

Q.5 (a) What is parallel virtual machine? Define and draw the basic terminology **07**
and architecture of Parallel virtual machine.

(b) Write a note on histogram commutation? **07**

OR

Q.5 (a) What is mutual exclusion? What are the major primitives used in **07**
programming? Explain all of them with their syntax?

(b) Write a note on matrix chain multiplication? **07**
