Chapter 1

1. The cost of communicating a message between two nodes L hops away using cut-through routing is given by

Tcomm= ts+ lth + twm

In order to optimize the cost of message transfer further what you will do? 2

1. Why associating the communication costs witha parallel program is difficult in Shared-Address-Space Machines than for message-passing? 2
2. Tree network suffer from a communication bottleneck at higher levels of the tree. How this problem can be alleviated? 2
3. Why the diameter of a complete binary tree is 2log((p+1)/2) 2
4. Define bisection bandwidth. Why the bisection bandwidth of a network can also be used as a measure of its cost? 2

Extra questions from module 1

1. Why crossbar networks are not very scalable in terms of cost? Justify your answer by taking help of switchi complexity 2

Extra question

1. Illustrate a case in which SIMD architectures yield poor resource utilization..2

Chapter 2

1. Why task –dependency and task-interaction graphs that results from a choice of decomposition play an important role in the selection of good mapping? 3
2. Is there any inherent bound on how fine-grained a decomposition a problem permits? If yes explain with example. 2
3. Enlist some prominent components of cluster computers 3
4. What is critical path length? Which is more useful indicator of a parallel program’s performance? 2