



CS3006– Parallel and Distributed Computing

Assignment No. 1

Deadline: Friday 23rd, February 2024, 11 PM.

The assignment is to be submitted as the soft-copy in one PDF file (strictly hand-written)

Evaluating static-interconnections

Question No. 1: Derive the generalized expression for link-cost, diameter, arc-connectivity, and bisection-width for the following static inter-connections: -

1. 2D-Mesh with and with and without wrap-around (20 points)
2. 3D-CUBE (30 points)
3. Hypercube (10 points)
4. Linear Array with and without wrap-around (10 points)
5. Complete Binary Tree (10 points)
6. Completely Connected interconnection network (10 points)

Question No. 2: Compare completely connected interconnection with the Mesh [without wrap-around] interconnection based on their link cost, arc-connectivity, diameter, and bisection-width. Write down your opinion regarding suitable scenarios for the applicability of these interconnections. [10]
