NAME: WILLIAM-YOBO PRAISE

MATRIC NUMBER: 17/SCI01/082

COURSE CODE: CSC310

COURSE TITLE: Computer Architecture and Organization 2

ASSIGNMENT

**Question**

Briefly explain the following interconnection networks:

1. The Crossbar Network

2. Cube Interconnection Network

3.  Fat Tree Connection

ANS:

1. THE CROSSBAR NETWORK

A crossbar can be defined as a switching network with N inputs and M outputs, which interconnections without contention. It allows any processor on the system to connect to any other processor or memory unit so that many processors can communicate simultaneously without contention. A new connection can be established at any time as long as the requested input and output ports are free.

2. CUBE INTERCONNECTION NETWORK

The minimum distance between a pair of nodes is the minimum number of communication links (hops) that data from one of the nodes must traverse in order to reach the other node. It s a 3 dimensional interconnection network

3. FAT TREE CONNECTION

In a tree data structure, every branch has the same thickness, regardless of their place in the hierarchy. In a fat tree , branches nearer to the top of the hierarchy are fatter than branches further down the hierarchy .This network connection was particularly well suited to Fast Fourier transform computations, which makes customers used for such signal processing tasks as radar, sonar , and medical imaging.