**AIM:**

To create scenario and study the performance of CSMA / CD protocol through simulation.

**THEORY:**

Ethernet is a LAN (Local area Network) protocol operating at the MAC (Medium Access Control) layer. Ethernet has been standardized as per IEEE 802.3. The underlying protocol in Ethernet is known as the CSMA / CD – Carrier Sense Multiple Access / Collision Detection. The working of the Ethernet protocol is as explained below, A node which has data to transmit senses the channel. If the channel is idle then, the data is transmitted. If the channel is busy then, the station defers transmission until the channel is sensed to be idle and then immediately transmitted. If more than one node starts data transmission at the same time, the data collides. This collision is heard by the transmitting nodes which enter into contention phase. The contending nodes resolve contention using an algorithm called Truncated binary exponential back off.

**ALGORITHM:**

1. Create a simulator object

2. Define different colors for different data flows

3. Open a nam trace file and define finish procedure then close the trace file, and execute nam on trace file.

4. Create six nodes that forms a network numbered from 0 to 5

5. Create duplex links between the nodes and add Orientation to the nodes for setting a LAN topology

6. Setup TCP Connection between n(0) and n(4)

7. Apply FTP Traffic over TCP

8. Setup UDP Connection between n(1) and n(5)

9. Apply CBR Traffic over UDP.

10. Apply CSMA/CA and CSMA/CD mechanisms and study their performance

11. Schedule events and run the program.

**PROGRAM:**

**CSMA/CA**

**OUTPUT:**

**PROGRAM:**

**CSMA/CD**

**OUTPUT:**