**II)**How many connections are required for 30 nodes to be connected in a full mesh topology? (**Calculation Exercise)**

Sol: x = n \* (n - 1) / 2

X = 30 \* (30 - 1) / 2 = 415

**Exercise 1 chapter 13:**

 In the Ethernet frame described in the text (figure 13.5 page # 410), what is the minimum and maximum number of bytes?

Sol: Preamble and start frame delimiter = 8 bytes

Destination and Source MAC addresses = 12 bytes

Number of data bytes = 2 bytes

Payload minimum = 46 bytes

Payload maximum = 1500 bytes

CRC = 4 bytes

minimum byte = 72 bytes

Maximum byte = 1526 bytes

**Exercise 2 chapter 13:**

 Suppose a higher layer application wants to send a file 12MB in size across an Ethernet LAN. How many Ethernet frames are needed? Assume the largest Ethernet payload is 1500 bytes.

Sol: 12Mb = 12 \* 1048,576 = 12,582,982 bytes

12,582,982 / 1500 = 8389 (round up) ethernet frames are needed.