Chapter 12

How many connections are required for 30 nodes to be connected in a full mesh topology?

Sol: The formula is
Number of connections = (Nodes)(Nodes-1)/2
30*29/2 = 435

Chapter 13

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

Sol: (using Figure 13.5)
Preamble and start frame delimiter = 8
Destination and Source MAC addresses = 12
Number of data bytes = 2
Payload minimum = 46
CRC = 4

The minimum is 8 + 12 + 2 + 46 + 4= 72 bytes

Preamble and start frame delimiter = 8
Destination and Source MAC addresses = 12
Number of data bytes = 2
Payload maximum = 1500
CRC = 4

The maximum is 8 + 12 + 2 + 1500 + 4= 1526 bytes

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: The goal is to send 12MB which must be broken down into Ethernet frames holding 1500 bytes of content each.
The file is 12 x 1,048,576 bytes = 12,582,912 bytes. So, 12582912 / 1500 = 8389 (rounded up) Ethernet frames are needed.