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

*Answer:*

*From the 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  
Total 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  
Total 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.**

*Answer:*

Since, we need to send 12MB 12MB in size across an Ethernet LAN 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.**

**Reference: IRV Englander**