

Computer. Network.

ASSIGNMENT.

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Subject : Computer Network. (C2-311).

Q1) Consider sending IP datagram of size 1420 bytes, has MTU 842 bytes, 2nd link has 360 bytes. Find no. of frags.

=> We are sending IP 1420 bytes
 Fragment¹ for 1st Link
 (MTU) = 842 bytes
 IP header is 20 bytes
 $MTU = 842$ each frag = $842 - 20$
 822 bytes of data
 Frag 1 : 822 bytes of data
 + 20 header = 842
 Frag 2 : 822 of data 20 header
 = 842
 Frag 3 : remaining 356 byte data
 20 byte header = 376 bytes

For MTU = 360 bytes

First frags need to be fragmented as size exceeds 360

$$\therefore \text{max data} = 360 - 20 = 340$$

Frag 1 : 822 has 822 byte data
 frag 3 = 356 bytes

Total receiver rec = 4 for first 2
 and 2 for third

Final = 4 (from first 2 original) + 2
(from 3rd) = 6 frags

Q2

A datagram is carrying 1024 bytes
It there is no optⁿ-info, And value of
header length field.

⇒ Given that datagram is of 1024 bytes
carrying

IP header is 20 bytes

Header length, no. of 4 byte words in
header, hence header len is words

Total length field is

Size of entire datagram
(header + data)

So header length field = 5 and
total length = 1044 bytes

Q.3 Given an IP packet of size 1600 bytes with a 30-byte header and the MTU of 1400 bytes.

So The IP header is 30 bytes, so the data portion is 0B1 bytes.

Each fragment can have a max. size of 1400 bytes (MTU), but 30 bytes are used for the header, so the data in each fragment can be at most 0B1 bytes.

no. of fragments = 0B1 fragments

1. fragment 1:

Data Size = 1370 bytes

Header Size = 30 bytes

Total Size = $1370 + 30 = 1400$ bytes

2. fragment 2:

Data Size = $1570 - 1370 = 200$ bytes

Total Size = $200 + 30 = 230$ bytes

offset = 0B1

More fragments (MF) flag = 0 (last frag)

Q 4

The ISP is granted a block of addresses starting with $120.60.4.0/22$. The task is to distribute these addresses to 100 org., each receiving 8 addresses.

So $A/22$ block means 081 addresses

Each org. needs 8 addresses. for 8 add., we need $a/29$ block. The first block of addresses is $120.60.4.0/29$. The second block is $120.60.4.8/29$, and so on.

Each org. gets $a/29$ block, and there are 100 org.

The total block has 1024 addresses, and 800 addresses are used.