

# CS & IT ENGINEERING

## Computer Networks

### IPv4 Header & Fragmentation

DPP -01 (Discussion Notes)



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## TOPICS TO BE COVERED

01 Question

02 Discussion

**Q.1**

The protocol field enables the demultiplexing feature so that the IP protocol can be used to carry payload of more than one protocol type. Its most used values are 17 and 06 for \_\_\_\_\_.

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- A. UDP and TCP respectively
- B. TCP and UDP respectively
- C. ICMP and IAMP respectively
- D. IGMP and ICMP respectively

**[MCQ]**

ICMP - 01

IGMP - 02

UDP - 17

TCP - 06

OSPF → 89

Q.2

Which of the following will be the **maximum** size of the IPV4 header **data packet**.

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[MCQ]

- A. 65536 Bytes
- B. 65535 Bytes
- C. 65515 Bytes
- D. None of these

$$\text{IPV4 header} = 20 \text{ bytes} - 60 \text{ bytes}$$

Total length field

$$\begin{array}{r} \text{data packet} \\ 65535 \\ \hline 20 \\ \hline 65515 \end{array}$$

$$\text{In IPV4} = \underline{16 \text{ bits}}$$

$$\text{total length} = 65535 \text{ bytes}$$

$$\begin{aligned} \text{Header + datapacket(payload)} &\uparrow \\ \text{= 65535 bytes.} & \end{aligned}$$

$$20 + \text{payload} =$$

**Q.3**

What will be **incorrect** order of the following protocol.

TCP, UDP, IGMP, ICMP

In which router will eliminate the datagram from buffer?

**[MSQ]**

- A. ICMP > IGMP > TCP > UDP
- B. TCP > ICMP > IGMP > UDP
- C. IGMP > ICMP > TCP > UDP
- D. ICMP > IGMP > UDP > TCP

Icmp > IGMP > UDP > TCP

Ans [A, B, C]

**Q.4**

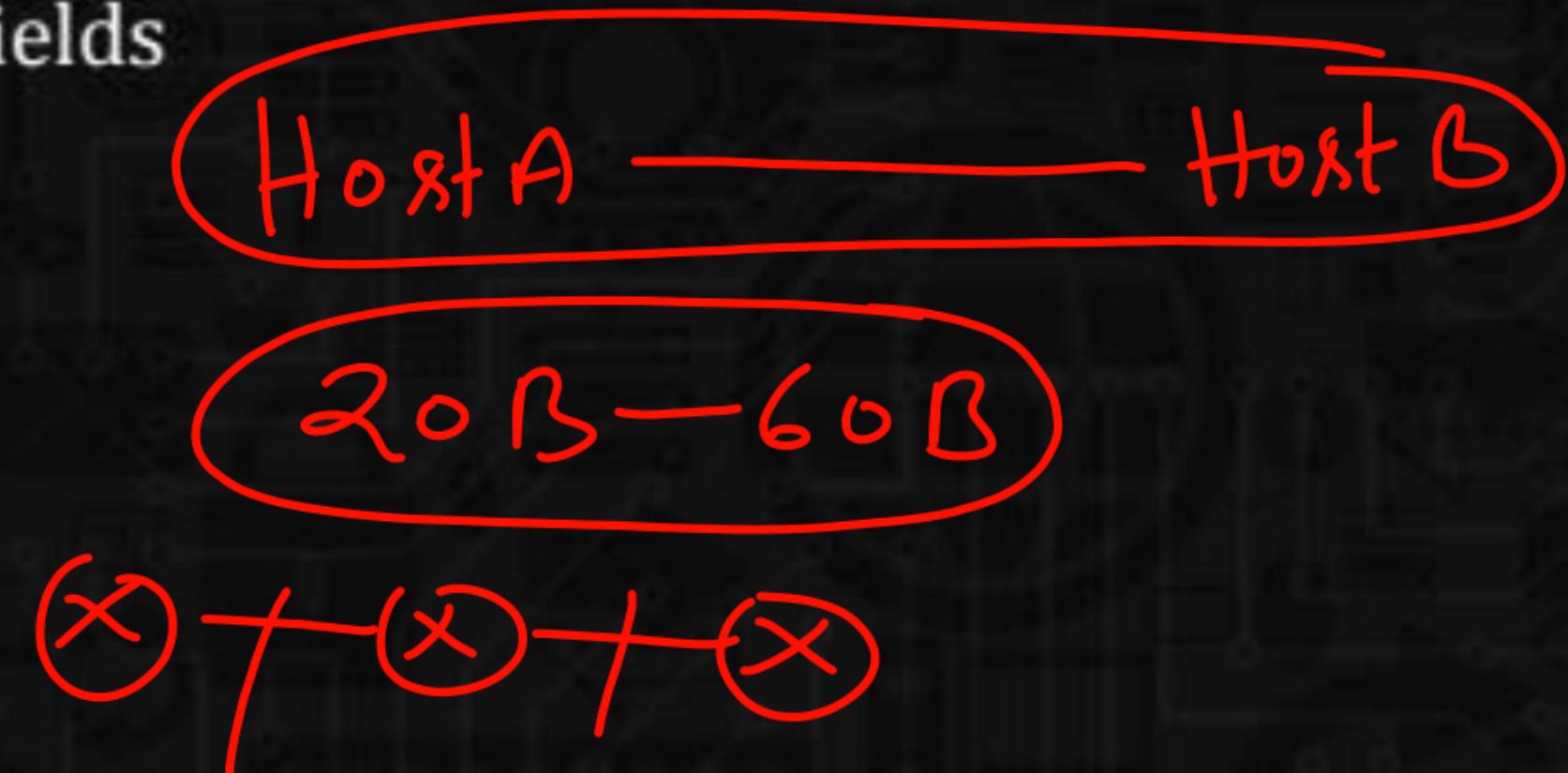
P  
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Host A sends an IP datagram to host B. Both A and B hosts uses TCP/IPV4 Network. Assume that no error occurred during the transmission of the datagram. When datagram reaches B some of the IP header field may be different from that of original datagram.

Ans (G)

Consider the following fields

- (i) VER ✓
- (ii) HLEN ~~HLEN~~
- (iii) Total length ✓
- (iv) MF
- (v) TTL ~~25~~ 25
- (vi) Checksum
- (vii) Fragment offset
- (viii) Services ~~X~~



Assume that among the number of IP header field which will have different values as compare to their original datagram when reached to the destination is x. Then what will be the value of x?

**[NAT]**

**Q.5**

An IP Packet of size 4000 byte has the header length field value as  $(1010)_2$ . Calculate the size of the payload in the IP Packet.

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$(1010)_2$

**[MCQ]**

- A. 4000 Bytes
- B. 4040 Bytes
- C. 3980 Bytes
- D. 3960 Bytes

$$HLEN = (1010)_2$$

$$= 10$$

$$\text{Header Size} = 10 \times 4$$

$$= 40 \text{ B}$$

$$\text{payload} = 4000 \text{ B} - 20 \text{ B}$$

$$= 3980 \text{ B}$$

$$(0101)_2$$

$$5 \times 4 = 20 \text{ B}$$

$$(111)_2$$

$$15 \times 4 = 60 \text{ B}$$

