Branch : CSE & IT Batch : Hinglish

Computer Networks

IPv4 Header & Fragmentation

DPP 01

[MCQ]

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. It most used values are 17 and 06 for_____.

(a) UDP and TCP respectively
(b) TCP and UDP respectively
(c) ICMP and IAMP respectively
(d) IGMP and ICMP respectively

[MCQ]

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

(a) 65536 Bytes (b) 65535 Bytes
(c) 65515 Bytes (d) None of these

[MSQ]

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

TCP, UDP, IGMP, ICMP

In which router will eliminate the datagram from buffer?

(a) ICMP > IGMP > TCP > UDP
(b) TCP > ICMP > IGMP > UDP
(c) IGMP > ICMP > TCP > UDP
(d) ICMP > IGMP > UDP > TCP

[NAT]

4. 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.

Consider the following fields

(i) VER
(ii) HELN
(iii) Total length
(iv) MF
(v) TTL
(vi) Checksum
(vii) Fragment offset
(viii) Services

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?

[MCQ]

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.

(a) 4000 Bytes (b) 4040 Bytes
(c) 3980 Bytes (d) 3960 Bytes

Answer Key

1. **(a)**
2. **(c)**
3. **(a,b,c)**
4. **(6)**
5. **(d)**

Hints & Solutions

1. (a)

Protocol	Protocol No.
ICMP	(01)
IGMP	(02)
UDP	(17)
TCP	(06)
OSPF	(89)

2. (c)

IPV4 header

Total length: 16 bits max No. = $2^{16} - 1 = 65535$

Total length = header + data

$= (\text{header})_{min}$ + data

65535 bytes = 20 bytes + data

$\text{Data}_{max} = 65535 - 20$

$\boxed{\text{Data}_{max} = 65515 \text{ bytes}}$

3. (a,b,c)

The correct order is:

$\boxed{\text{ICMP} > \text{IGMP} > \text{UDP} > \text{TCP}}$

4. (6)

Not changed	May be changed	Definitely changed
1.VER	1. Total length	1.TTL
2. Services	2. MF	2. Checksum
3. Identification No.	3. Fragment offset	
4. DF	4. HELN	
5. S.I.P		
6. D.I.P		

5. (d)

IP Packet

Header	Payload

IP Packet = 4000 bytes

Header = $(1010)_2 = 10$

Header length = 10×4 = 40 bytes

Payload= total length (IP Packets) – Header

= (4000B – 40B)

= 3960 Bytes