

MC 308 Computer Networks.
Assignment II

Q.1 — — — ?

Improvement in the addressing schemes has led to address depletion even as the no. of drivers on the internet is less than 2^{32} .

Class C networks supporting 254 hosts is too small while class B with 65534 are too long.

Consequently A and B class addresses networks are depleted as medium sized organisations have to opt B class proliferation. of router table entries also leads to reduced performance

Q.2 — — — ?

140.15.89.97/26

25 | 140.15.89.0 | 11 00001

255.255.255.1100000

140.15.89.01000000 to 140.15.89.01111111

block: 140.15.89.64/26 to 140.15.89.127/26

$2^{32-26} = 2^6 = 64$ IP address

Since there are 4 equal subblocks.

2 bits are used for subnet representation with 16 addresses in each subblock.

subblock 1: 140.15.89.64/28 to 140.15.89.79/28

subblock 2: 140.15.89.80/28 to 140.15.89.95/28

subblock 3: 140.15.89.96/28 to 140.15.89.111/28

subblock 4: 140.15.89.112/28 to 140.15.89.127/28

Q. — — — ?

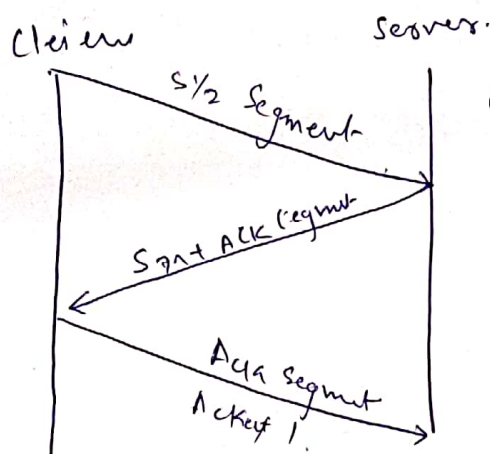
A packet may be broken into smaller chunks based on its size and deliver as smaller fragments.

Fragmented packets are rearranged at the destination to form the original packet.

fragmentation offsets enable the destination to form enable packets.
 fragmented. offset enables the destination to arrange the fragments in a proper sequence. the offset of the first fragment is zero.
 The field length is zero.
 The field length is 13 bits vary @ through 8191

Q.4 — — — ?

= 3 way handshaking is a connection oriented service employed by the transport layer of OSI model to setup/use a reliable connection.



Client requests connection establishment
 ACK responds to request
 SYN synchronises sequencing no.

Client acknowledges synchronization.
 reliable connection is established.

Q.5 — — — ?

= Datagram socket is a network socket providing connectionless packet transfer point. Every packet is individually routed and delivered. A datagram socket may also be broadcast.
 (Send/recv).

Socket address is a 48 bit combination of IP address (32 bit) and Port.

Eg = $\frac{200.23.56.56}{\text{IP address}} \frac{80}{\text{port}}$

Q.6 — — — ?

= Medium access control sublayer (MAC) is a sublayer of Data Link layer. Some functions of MAC are as follows.

- Flow control.
- multiplexing for transmission media.
- data transfer network interface card.
- MAC address is used as network address for data transmission.

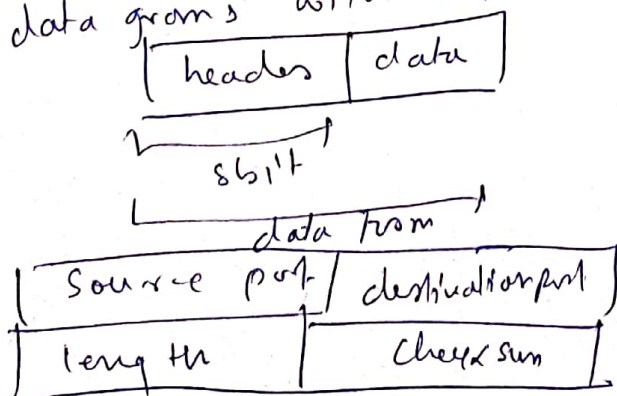
Q. — — — ?
 No. of subset = $2^3 = 8$.
 => 3 bit to whole subset.

(a) 182.270.32.102
 182.270.00100101.102
 net ID subnet host id
 Subnet mask = 255.255.11100000.0
 ∴ network ID (Subnet ID) = 182.270.32.0.

(b) 182.270.118.115
 182.270.1011101.115
 net ID subnet host ID
 Subnet ID = 182.270.160.0.

Q. — — — ?
 = ICMP is Internet group management protocol manages the membership of hosts and routing devices in multicast group.
 A host becomes a member of a group when a process running on it, asks it to join the process. may also request to leave a group. Each host keeps track of groups it's processes belong to.
 multicast routes determine which host are part of a group by periodically querying packets. About once a minute, asking hosts to report which group they belong to.

Q. — — — ?
 = User Datagram Protocol (UDP) transmits data units called data grams with a fixed size header of 8 bytes.



Source port: The port of the device send the dat. This may be zero.
 length: Specifies the no. of bytes comprising the UDP header and payload data.

destination port: The port receiving the data

The range of field is $(0-65535)_{10}$.

Check sum: allows the receiver to verify the integrity of the packet header and payload.