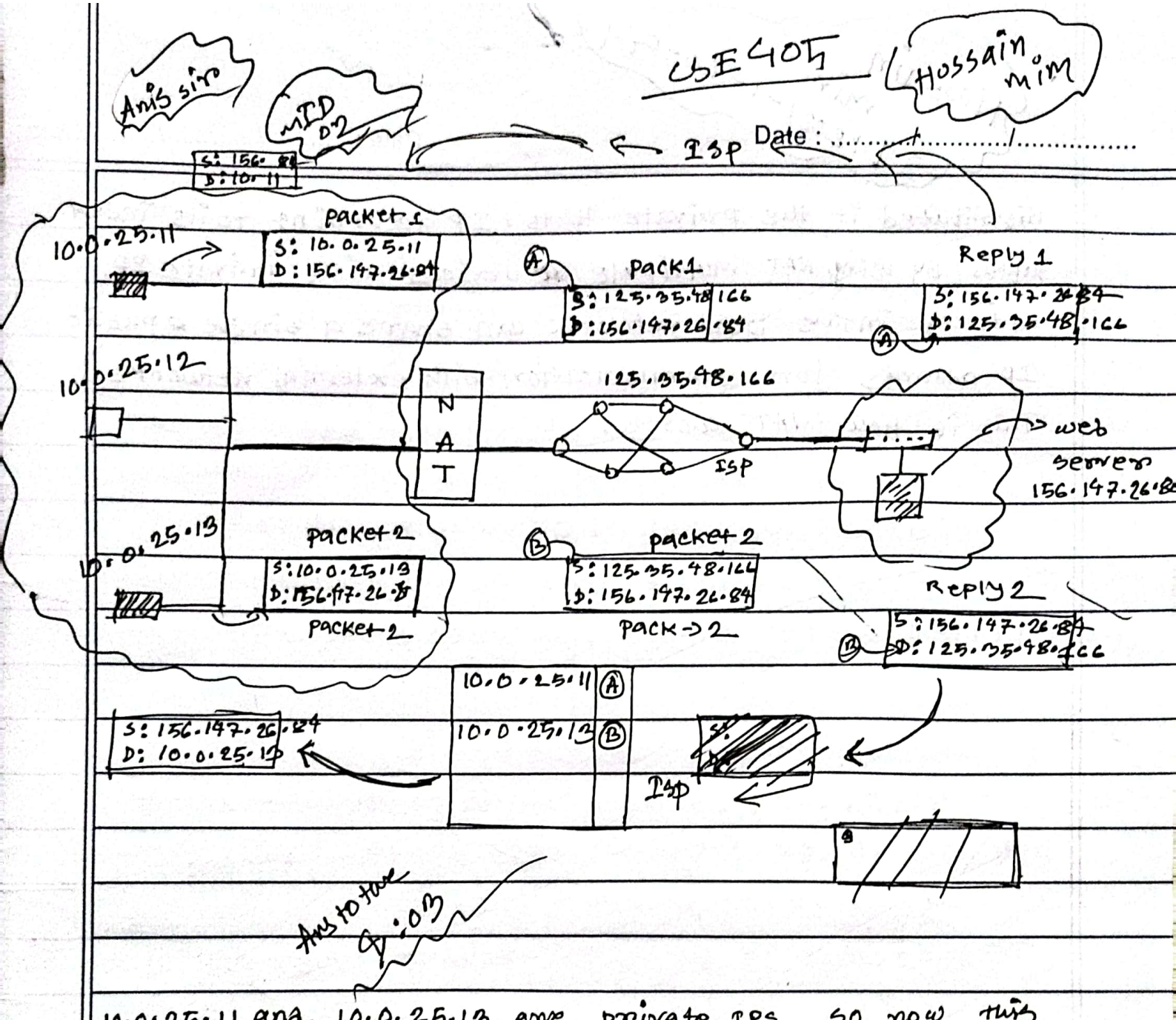
USE 405

Anis sir

MID D2

Hossain mim

Date : ...../...../.....



10.0.25.11 and 10.0.25.13 are private IPs. So now this (02) two private IPs hosts of the following network when hosts communication with web the same web server.

NAT server will replace packet-1 source IP and packet-2 source IP with ISP IP. Then it gives a index number to the source IP. Here index "A" and "B" used. Address to maintied the privat IP.

Then destination network (web server) Reply to The ISP. Now, at the time source IP = Destination IP and Destination IP = ISP IP. Then ~~IPS~~ ISP Provide it to the NAT server and NAT server

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distributed it the private hosts, IP according to its index table. By using NAT multiple devices with private IP address in the local network can share a single public IP address for communication with external networks. This is how NAT works.

Ans to the Q no. 01 Date : ...../...../.....

Given,

78.0.0.0

It is A class IP Address.

Network IP: 78.0.0.0

→ Network →	→ sub →	→ Host →	
78 .	00000000	00000000	00000000
subnet MASK:	11111111	11111111	00000000
10th sub broadcast:	00001010	11111111	11111111
5th subnet :	00001 01	00000000	00000001 → 1st Host
5th subnet :	0000101	11111111	11111110 → least Host

a) subnet mask in decimal notation : 255.254.0.0

subnet mask in CIDR notation : 78.0.0.0/15

b) 10th subnet broadcast IP : 78.21.255.255

c) 5th subnet 1st Host : 78.10.0.1

5th subnet least Host: 78.11.255.254

Mim Bin Hossain

Assignment

Ans to the 4th no: 2 Date : ...../...../.....

Given,

152.140.132.173/22

It is a B class IP Address.

Network IP: 152.140.0.0/22

→ Network ←	→ subnet →	→ Host ←
152 . 140 .	000000	00 00000000
1st subnet Broadcast:	000001	11 11111111
least subnet Broadcast:	111110	11 11111111
8th sub least Host:	001000	11 11111110

a) Number of subnet (22 - 16)

= 6 bits

Number of the usable subnets possible $(2^6 - 2)$

$= 64 - 2$

$= 62$

b) 1st subnet broadcast IP: 152.140.7.255

least subnet broadcast IP : 152.140.251.255

c) 8th subnet least Host IP : 152.140.35.254

Ans to true/false no: 5 Date : ...../...../.....

Given,

Router IP: 142.163.200.254/22 (class B)

Network IP: 142.163.0.0/22

	→ Network ←	→ subnet ←	→ Host ←
	142 . 163 . 0 0000000	0	00000000
subnet MASK:	11111111 11111111 1 111111	00	00000000
Dest IP:	10001110 10100011 1 00001	11	11111010
(AND):	10001110 10100011 1 00001	00	00000000

we can see,

subnet IP: 142.163.132.0

The subnet is 33th number.

part of subnet (22-16)

= 6 Bits

The possible usable subnet (2^6-2)

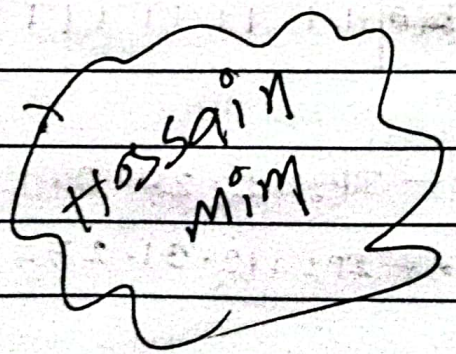
= 62

part of Host (32-22)

= 10 Bits

The possible usable Hosts $(2^{10}-2)$

= 1022



Date : ...../...../.....

Quiz question 03 Ans

167.150.12.90

It is class B IP Address.

Network IP: 167.150.0.0

→ Network ←	→ subnet ←	→ Hosts ←
167 . 150 .	00000000	00000000
subnet mask: 11111111 11111111	11111111	00000000
least subnet last Host :	1111110	1 11111110

subnet mask in decimal notation : 255.255.254.0

Least subnet last Host IP: 167.150.253.254

Quiz question 02 Ans

112.155.180.46/14 (A class)

Network IP: 112.0.0.0

→ Network →	subnet ←	→ Host ←
112 .	000000	00 00000000 00000000
7th subnet:	000111	00 00000000 00000000
7th sub 1st Host:	000111	00 00000000 00000001
7th sub last Host:	000111	11 11111111 11111110

7th subnet — 1st Host IP: 112.28.0.1

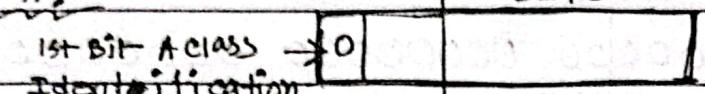
7th subnet — last Host IP: 112.31.255.254

Date : ...../...../.....

Ans to the q-01

structure of A, B and C type of IP Address :—

Class A :—

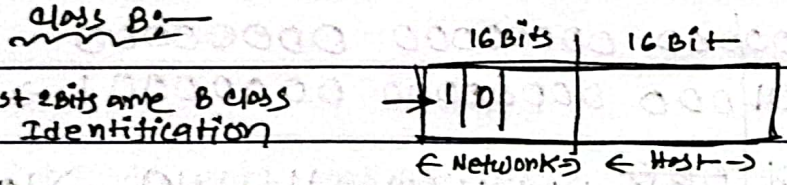


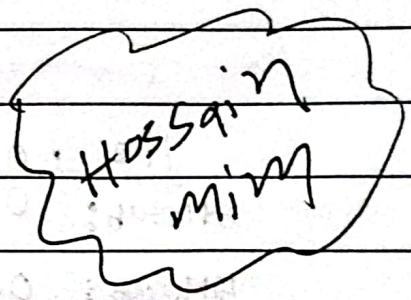
0 0000000	00000000	00000000	00000000
⋮	⋮	⋮	⋮
0 1111111	11111111	11111111	11111111

Rang : 0.0.0.0 — 127.255.255.255

possible Number of Hosts : $(2^{24}-2)$

Class B :—





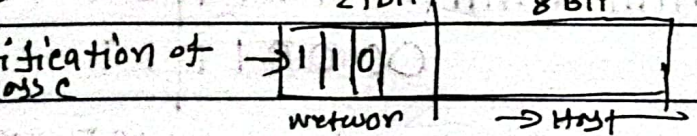
1 0 000000	00000000	00000000	00000000
⋮	⋮	⋮	⋮
1 0 111111	11111111	11111111	11111111

Rang : 128.0.0.0 — 191.255.255.255

Host of each network 2^{16}

∴ possible number of Host in network $2^{16}-2$

Class C :—



110 00000	00000000	00000000	00000000
⋮	⋮	⋮	⋮
110 11111	11111111	11111111	11111111

Rang: 192.0.0.0 — 223.255.255.255

Host : 2^8-2

Ans to the question no: 07 Date : ...../...../.....

121.155.180.46/14 (A class IP)

Network IP : 121.0.0.0

121.	00000000	00000000	00000000
4th sub:	000100	11	11111111
last sub:	111110	11	11111111

4th subnet Boradcast IP : 121.19.255.255

last subnet Boradcast IP 121.251.255.255

112.155.180.46/13

112.	00000000	00000000	00000000
5th sub:	00101	000	00000000	00000001 → 1st Host
5th sub:	00101	111	11111111	11111110 → last Host

5th subnet 1st Host : 112.40.0.1

5th subnet last Host : 112.47.255.254

145.135.0.0

	145.135.	000000	00 00000000
subnet mask	11111111	11111111	111111	00 00000000
3th sub :			000011	11 11111111

3th subnet broadcast IP: 145.135.15.255

CIAD:- 145.135.0.0/22

subnet mask decimal: 255.255.252.0

Ans to the question: 4 Date : ...../...../.....

Given,

JA = 12 ms
JI = 14 ms
JH = 6 ms
JK = 18 ms
JN = 16 ms

From the table :—

AM = 14 ms
IM = 6 ms
HM = 21 ms
KM = 6 ms
NM = 12 ms

we can see that Five(05) paths to go J to M takes :—

JA + AM = (12+14) = 26 ms
JI + IM = (14+6) = 20 ms
JH + HM = (6+21) = 27 ms
JK + KM = (18+6) = 24 ms
JN + NM = (16+12) = 28 ms

(JI + IM) path takes takes the lowest times.
So, following distance vector routing algorithm.
J is going to choose the path to I and then M

J → I → M

Ans

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Assignment question no: 7 Date : ...../...../.....

Given,

Router IP : 112.160.100.254/20

Network IP : 112.0.0.0/20

network → subnet ← → host ←

112 . 00000000 00000000 00000000

subnet mask: 11111111 11111111 11110000 00000000

Dest IP : 01110000 10000010 10000111 11111010

AND : 01110000 10000010 10000000 00000000

→ 8th

∴ Subnet IP : 112.160.128.0

And subnet is 8th subnet.

subnet part — (20 − 8) Bits

= 12

The possible usable subnet — $(2^{12} - 2)$

= 4094

And

Host part — (32 − 20) Bits

= 12 Bits

The possible usable hosts $(2^{12} - 2)$

= 4094 Bits

The total number of hosts 4094 × 4094

(Ans)

Date : ..../..../.....

Given,

Router IP : 142.163.200.254/22

Network IP : 142.163.0.0 /22

	→ Network ←	→ subnet ←	→ Host ←
	142 . 163 .	00000000	00000000
subnet mask:	11111111 11111111	111111	00 00000000
Dest IP:	10001110 10100011	100001	11 11111010
AND :	10001110 10100011	100001	00 00000000
		33rd	

subnet IP: 142.163.132.0

subnet 33rd

subnet part (22-16)

= 6 Bit

The possible usable subnet (2^6-2)

$= 62$

Host part (32-22)

= 10 Bit

The possible usable Hosts $(2^{10}-2)$

$= 1022$

The total host (1022 × 62)

Ans

Date : ...../...../.....

Fragment :- It is the process of breaking large data packets into smaller fragments to fit the networks MTU.

DF (Don't Fragment) :- The DF is the flag in the IP header indicates whether the packet should not be fragmented.

MF (more fragment) :- The MF is used to indicate whether there are more fragments of the packet to follow.

why fragment is used in the packet header ?

Ans: It ensure data can pass though different network without ~~be~~ being too big for network capacity. It may introduce inefficiencies and minimized by techniques like path MTU discovery.

TTL (Time to live) :- It serves a vital role in preventing packets from circulating indefinitely on a network and helps manage network congestion It's called hop count.

Fagment offset :- It is a field in the IP header of the fragmented packets. It shows where each fragment fits in the orginal data packet.

Date : ...../...../.....

options:— It is an additional fields in the IP header of IP_{v4} packets that provide extra functionality. That include features likes

① security

② Strict source routing

③ loose source routing

④ record time

loose source routing is a technique used in the networking where the sender specifies a list of intermediate nodes that a packet should ~~traverse on its way~~ to the destination.

Not correct Ans

Let's say P, Q, R, S and x network and want to send a packet from node P to x using the loose source algorithm :—

1) sender (Node P) specifies the loose source rout : P → Q → R →

2) The packet is sent from P to Q.

3) Node Q checks the loose source route and forwards the packet to R.

4) Node R receives the packet and forwards it to x

5) The nod x (destination) recives the packet.

we can see that the sender specifies the intermediate nodes the packet should go though without specifying the exact sequence. The packet reaches the distination by following the intermediated nodes in the order of Q, R, and x.

Ans to the Q①

Date : ...../...../.....

Thoda sa mera

19.0.0.0 A class IP Address

9 bits are taken subnet

	Network	subnet	Host
19.	00000000	0	00000000 00000000
Subnet mask:	11111111	1	00000000 00000000
1st host address:	00000101	1	00000000 00000001
last host address:	00000101	1	11111111 11111110
last subnet:	11111111	0	000 000 00000000
0th subnet:	00001010	0	000 000 00000000

a) subnet mask CIDR notation: 19.0.0.0/17

subnet mask decimal notation: 255.255.128.0

(Ans)

100%

b) If 1st numbers used for subnet for given IP address which is collision with network IP address that's why can't used here 1st number of subnet

other hand last numbers for subnet for given IP address which is collision with broadcast IP address that's why can't used for here last number of subnet

Example:-

19.0.0.0

	Network	subnet	Host
19.	0000 0000	00000000	00000000
1st number subnet:	00000000	00000000	00000000
last number subnet:	1111 1111	111 1111	11111111

Date : ...../...../.....

c) 1st host within subnet : 10.5.128.1

last host within subnet : 10.5.255.254

(Ans)

d) possible last subnet IP : 191.255.0.0

possible 2nd subnet IP : 10.10.0.0

(Ans)

Ans to the question no: 02.

112.190.192.170/22

It is a class IP Address

	network	→ subnet ←		→ Host ←
	112.	00000000	00000000	00000000
1st sub broadcast:		00000000	000001 11	11111111
last sub broadcast:		11111111	111110 11	11111111
9th sub last host:		00000000	001001 11	11111110

a) ~~subnet part (22-8)~~ 14

~~possible subnets~~ is 2^{14}

~~usable subnets~~ possible within network $(2^{14}-2)$

(Ans)

b) 1st subnet ~~broadcast~~ IP: 112.0.7.255

last subnet ~~broadcast~~ IP: 112.255.251.255

c) 9th sub ~~last~~ Host ~~IP~~ : 112.0.32.254

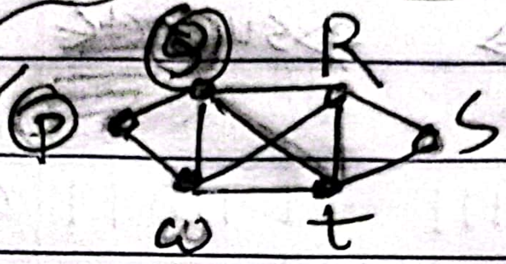
(Ans)

JN + NM (16 + 12) = 28 ms

(JI + IM) to takes path because the lowest time cons

so, J to M going the choose is J→I→M

Lose source Algo use:—



Prossible 4 Paths (P to S):—

1) P → Q → R → S

11) P → Q → W → R → S

111) P → Q → T → S

IV) P → Q → W → T → S

New 4
আগের কোন 2 টাই এ
এখন তাতে IV

100% (New)