CS & IT ENGINEERING

Computer Networks

Subnetting- Problem Solving

DPP 07 (Discussion notes)

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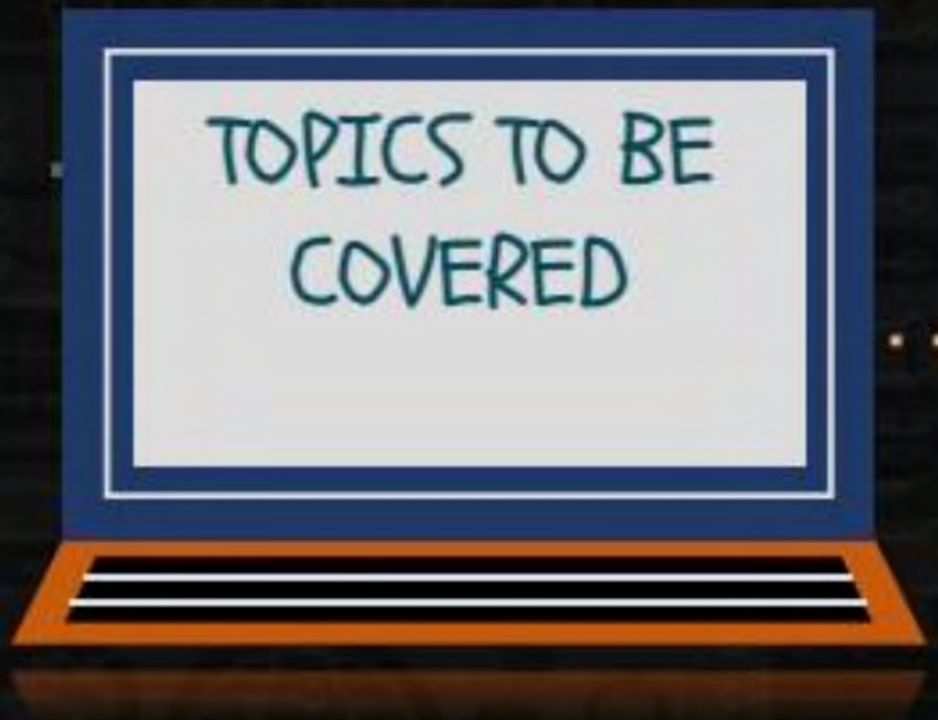


01 Question

02 Discussion

Q.1

Consider the subnet mask 255.255.224.0 then which of the following is a valid broadcast address? [MCQ]

A. 180.180.15.255 : 00001111.11111111

B. 180.180.31.0

C. 180.180.31.255 : 000 11111.11111111

D. 180.180.255.31 : 11111111.00011111

SM: 255.255.111 00000.00000000

HID = 13 bit

Q.2

Consider a subnet mask for a network is 255.255.255.252. Then, which of the following is/are possible direct broadcast address?

[MSQ]

A. 200.200.200.15 : 00001111

B. 200.200.200.31 : 00011111

C. 200.200.200.63 : 00111111

D. 200.200.200.3 : 00000011

SM = 255.255.255.111111**00**

(A, B, C, D)

HID

Q.3

Suppose, direct broadcast address of network is 210.210.210.63 then which of the following is/are always true, for subnet mask?

[MSQ]

A. In subnet mask number of ones are exactly 26.

B. In subnet mask number of ones are at most 26.

C. In subnet mask number of ones are at least 26.

D. In subnet mask Host ID bits are at most 6.

DBA : 210.210.210.00111111

(CID)

HID can be maximum 6 bit

maximum No. of 0's in the sum = 6

or

No. of 0's ≤ 6

No. of 1's ≥ 26

No. of 0's = 6

No. of 1's = 32 - 6

= 26

Q.4

[MCQ]

Two computers P_1 and P_2 configured as follows:
P1 has IP address 160.170.3.67 and Net mask 255.240.0.0 and P2 has IP address 160.169.80.59 and Net mask 255.248.0.0 which of the following statement is true?

A. P_1 and P_2 both assume they are on the same network.

B. P_2 assume P_1 is on same network, but P_1 assume P_2 is on different network.

C. P_1 assume P_2 is on same network, but P_2 assume P_1 is on different network.

D. P_1 and P_2 both assume they are on different networks.

P_1

IP_{P_1}: 160.170.3.67

SM_{P_1}: 255.240.0.0

P_2

IP_2: 160.169.80.89

SM_{P_2}: 255.248.0.0

IP_{P_1} = 160.170.3.67
AND
SM_{P_1} = 255.240.0.0
$NID_{P_1P_1}$ = 160.160.0.0

IP_{P_2} = 160.169.80.89
AND
SM_{P_1} = 255.240.0.0
NID = 160.160.0.0

P_1 Assume P_2 is on same n/w

IP_{P_2} = 160.169.80.89
AND
SM_{P_2} = 255.248.0.0
$NID_{P_2P_2}$ = 160.168.0.0

IP_{P_1} = 160.170.3.67
AND
SM_{P_2} = 255.248.0.0
$NID_{P_1P_2}$ = 160.168.0.0

P_2 assume P_1 is on same N/w

170: 128+32+8+2
248: 128+64+32+16+8

Q.5

Consider the routing table given below: [NAT]

Destination Network ID	Subnet mask	Interface
160.168.16.0	255.255.224.0	1
160.168.128.0	255.255.192.0	2
160.168.48.0	255.255.240.0	3
Default		4

On which interface will the router forward the packet? If packet bearing a destination address 160.168.63.130 __3__

AD Rule : I st start with the Longest subnet mask

Sol^{n}

DIP = 160.168.63.130

AND

SM = 255.255.240.0

NID = 160.168.48.0

63: 00111111

AND

240: 11110000

(48) 00110000

Q.6

Consider the subnet mask 255.224.0.0, then which of the following can be direct broadcast address? [MSQ]

A. 100.32.255.255

1 + 8 + 8 = 17 → 1's

B. 100.64.255.255

1 + 8 + 8 → 17 → 1's

C. 100.31.255.255 : 000 11111 . 11111111 . 11111111

D. 100.63.255.255 : 00 111111 . 11111111 . 11111111

(C, D)

SM: 255 . 111 00000 . 00000000 . 00000000

HID = 21 bit

Q.7

[MSQ]

Consider two computers C1 and C2 are configured as follows:

	IP address	Net mask
C1	192.198.2.53	255.255.224.0
C2	192.198.76.99	255.255.192.0

Which of the following statements is/are false?

A. C1 and C2 both assume they are on the same network.

B. C2 assumes C1 is on same network, but C1 assumes C2 is on different network.

C. C1 assumes C2 is on same network, but C2 assumes C1 is on a different network

D. C1 and C2 both assume they are on different network.

Sol^n

IP_{c1} = 192.198.2.53

AND

SM_{c1} = 255.255.224.0

NID_{c1c1} = 192.198.0.0

IP_{c2} = 192.198.76.99

AND

SM_{c1} = 255.255.224.0

NID_{c2c1} = 192.198.64.0

c1 assume c_2 is on different N|w

IP_{c2} = 192.198.76.99

AND

SM_{c2} = 255.255.192.0

NID_{c2c2} = 192.198.64.0

IP_{c1} = 192.198.2.53

AND

SM_{c2} = 255.255.192.0

NID_{c1c2} = 192.198.0.0

c_2 assume c_1 is on different N|w

Q.8

[MCQ]

Consider a computer C1 is configured with IP address 183.197.89.99 and netmask 255.255.192.0. The DBA of the network is _____.

A. 183.197.89.0

B. 183.197.89.255

C. 183.197.64.0

D. 183.197.127.255 ✓

sm: 255.255.11000000.00000000

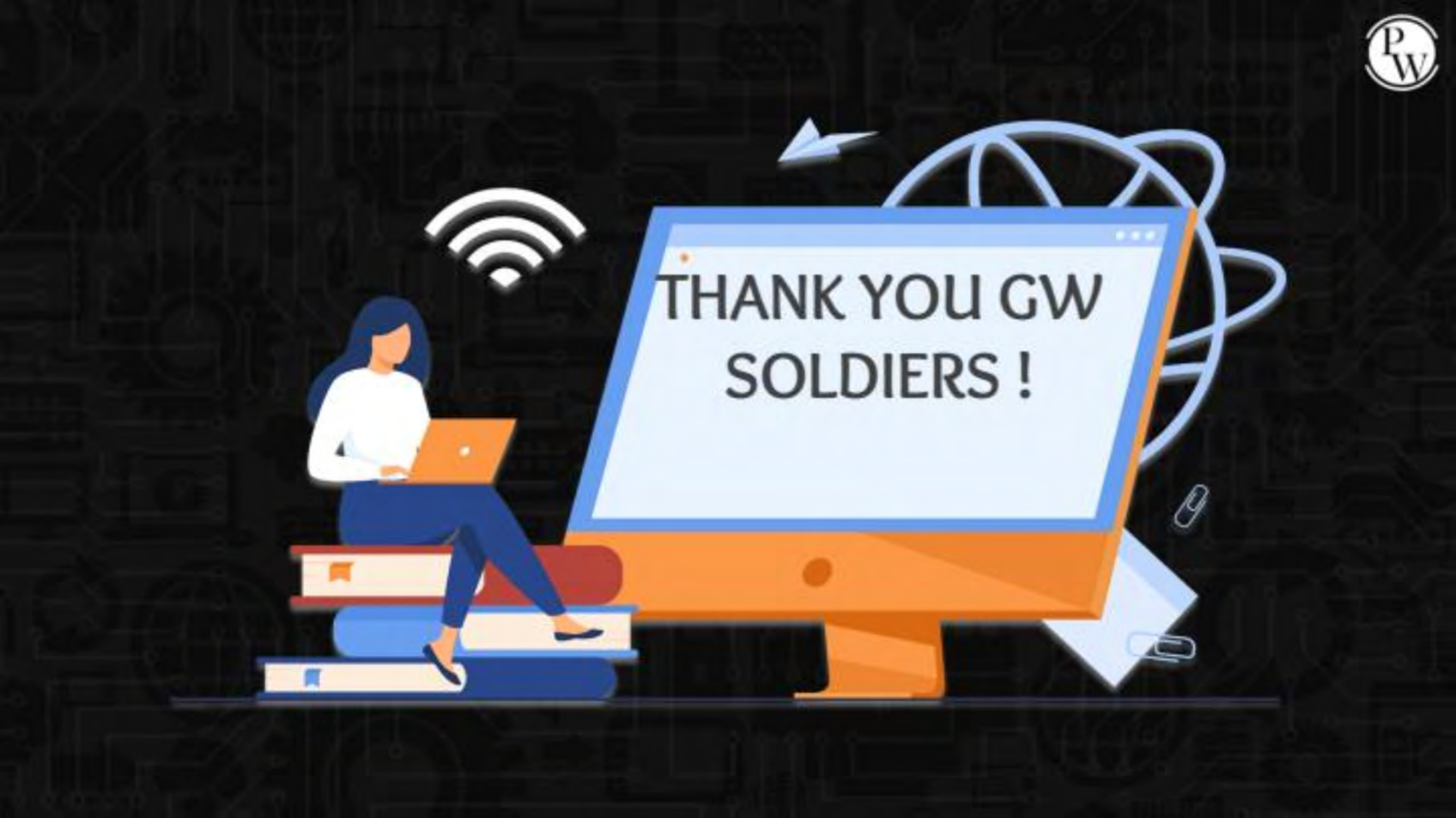
NID SID HID

183.197.01-------.----------

HID

183.197.01111111.11111111

183.197.127.255


THANK YOU GW
SOLDIERS !