CS & IT ENGINEERING

COMPUTER NETWORKS

IPv4 Addressing

Lecture No-13

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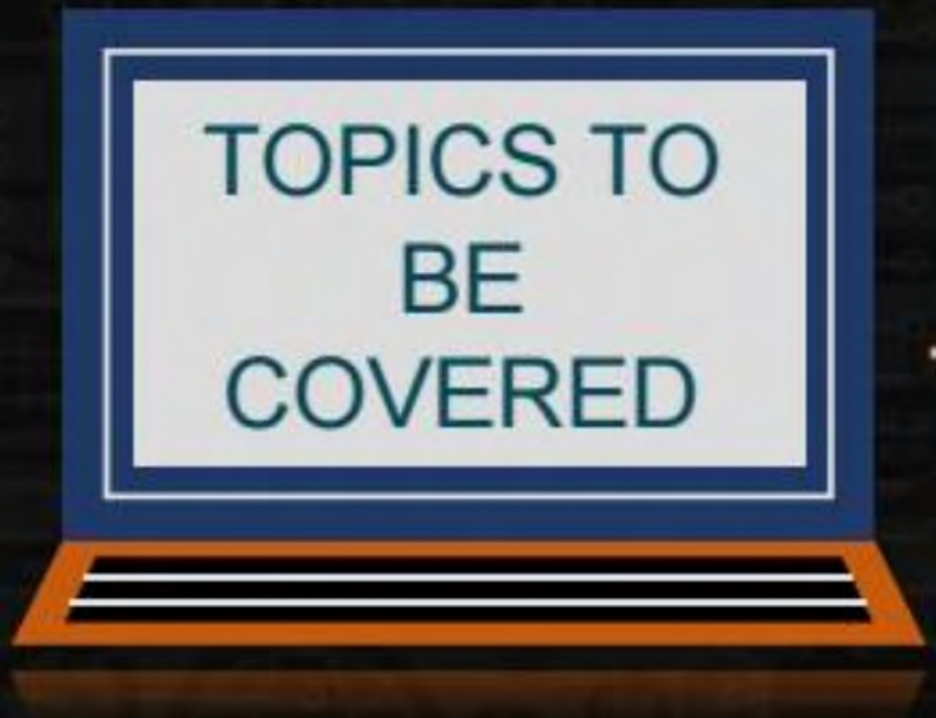

Subnetting Part-5

Subnetting Category 7

Q.1 If Direct Broadcast Address is 200.200.200.31

Which of the following can be Subnet Mask ?

MSQ

class-C

200.200.200.000 11111

NID

HID can be maximum 5 bit

or

HID ≤ 5 bit

A. 255.255.255.192

B. 255.255.255.224 ✓

C. 255.255.255.248 ✓

D. 255.255.255.128

(B,C)

255.255.255.192

255.255.255.11000000

NID | SID | HID

00	111111 → 63
01	111111 → 127
10	111111 → 191
11	111111 → 255

AD Rule

HID = 6 bit (HID ≤ 5bit) No

So option 'A' is incorrect

(b) 255.255.255.224

255.255.255.111 00000
NID SID HID

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000 11111 → 31 ✓
001 11111 → 63
010 11111 → 95
011 11111 → 127
100 11111 →
101
110
111

AD Rule

HID = 5 bit (HID ≤ 5 bit) Yes

So option 'B' is correct

255.255.255.248

255.255.255.11111000

NID SID HID

S S S S S H H H

00011 111 → 31

AD Rule

HID = 3 bit (HID ≤ 5 bit) yes

so option 'C' is correct

255.255.255.128

255.255.255.10000000

NID SID HID

0 1111111 → 127

1 1111111 → 255

HID = 7 bit (HID ≤ 5 bit) No

so option 'D' is incorrect

Q.2 If Direct Broadcast Address is 200.200.200.31

MSQ

Which of the following can be Subnet Mask?

A. 255.255.255.192 : 255.255.255.11000000 — HID ≤ 5bit (No)

B. 255.255.255.224 : 255.255.255.11100000 — HID ≤ 5bit (yes)

C. 255.255.255.248 : 255.255.255.11111000 — HID ≤ 5bit (yes)

D. 255.255.255.240 : 255.255.255.11110000 — HID ≤ 5bit (yes)

DBA: 200.200.200.00011111

NID

HID can be maximum 5 bit (HID ≤ 5bit)

Q.3 What could be the Network Mask, if DBA of a Network is 168.17.7.255?

168.17.00000111.11111111

HID can be maximum 11 bit (HID ≤ 11 bit)

A. 255.255.248.0 : 255.255.11111000.00000000

HID = 11 bit (HID ≤ 11 bit) yes

B. 255.255.252.0 : 255.255.11111100.00000000

HID = 10 bit (HID ≤ 11 bit) yes

C. 255.255.254.0 : 255.255.11111110.00000000

HID = 9 bit (HID ≤ 11 bit) yes

D. All the above ✓

Q.4 A Subnetted Class B network has the following broadcast address : 144.16.95.255. Its subnet mask Gate

DBA : 144.16.010 11111.11111111

HID can be maximum 13 bit (HID ≤ 13 bit)

A. is necessarily 255.255.224.0

HID = 13 bit (HID ≤ 13 bit)

255.255.11100000.00000000

B. is necessarily 255.255.240.0

HID = 12 bit (HID ≤ 13 bit)

255.255.11110000.00000000

C. is necessarily 255.255.248.0

HID = 11 bit (HID ≤ 13 bit)

255.255.11111000.00000000

D. ✓ could be any one of 255.255.224.0, 255.255.240.0, 255.255.248.0

Q.5 Given broadcast address 125.25.63.255 of a subnetwork. What can be Mask of this subnetwork :

A. 255.255.128.0 : 255.11111111.10000000.00000000 — HID=15bit (HID≤14bit) No

B. 255.255.192.0 : 255.11111111.11000000.00000000 — HID=14bit (HID≤14bit) yes

C. 255.255.224.0 : 255.11111111.11100000.00000000 — HID=13bit (HID≤14bit) yes

D. Both B and C

DBA: 125.00011001.00111111.11111111

HID can be maximum 14bit (HID≤14bit)

Q.6 If Direct Broadcast address is 200.200.200.31

Which of the following can be Subnet Mask ?

A. 255.255.255.192

B. 255.255.255.224

C. 255.255.255.198

D. 255.255.255.128

DBA : 200.200.200.00011111

NID

HID can be maximum 5 bit (HID ≤ 5 bit)

~~C~~ 255.255.255.11000000

HID = 6 bit (HID ≤ 5 bit) NO

(b) 255.255.255.11100000

HID = 5 bit (HID ≤ 5 bit) yes

(c) 255.255.255.198

255.255.255.11000110

NID: S S H H H S S H

HID = 4 bit (HID ≤ 5 bit) yes (AD Rule will not work)

24 NID: S S H H H S S H

- - 1 1 1 - - 1

31 : 00011111

Subnetting Category 8

1. If subnet mask is 255.255.255.240, then which of the following can be Direct broadcast address

MSQ

A. 200.56.78.31 [00011111]

B. 200.56.78.15 [0000 1111]

C. 200.56.78.10 [0000 1010]

D. 200.56.78.47 [00101111]

Subnet Mask = 255.255.255.11110000
HID

HID = 4bit

2. If subnet mask is 255.255.255.248, then which of the following can be Direct broadcast address

MSQ

A. 200.32.64.135 [10000111]

B. 200.32.64.240 [11110000] (HID)

C. 200.32.64.207 [11001111] (HID)

D. 200.32.64.231 [11100111]

(A, C, D)

Subnet Mask: 255.255.255.11111000 (HID)

HID = 3 bit

255
255
255
248

3. If subnet mask is 255.255.240.0, then which of the following can be Direct broadcast address

A. 157.157.15.255 [00001111 · 11111111] (12 bit)

SM: 255 · 255 · 1111|0000 · 00000000

HID = 12 bit

B. 157.157.7.255 [00000111 · 11111111] (12 bit)

C. 157.157.15.250

D. 157.157.31.255 [00011111 · 11111111] (12 bit)

(A, D)

4. If subnet mask is 255.224.0.0, then which of the following can be Direct broadcast address

A. 100.31.255.255

B. 100.7.255.255

C. 100.63.255.255

D. 100.30.255.255

(A,C)

5. If subnet mask 255.255.255.224, which of the following will be Direct Broadcast address?

H.W

A. 202.15.19.127

B. 202.15.19.63

C. Both a and b

D. None of the above


THANK YOU
GW
SOLDIERS !