CS & IT ENGINEERING

Computer Networks

Subnetting Parts – 06

~~DPP 06~~ (Discussion Notes)

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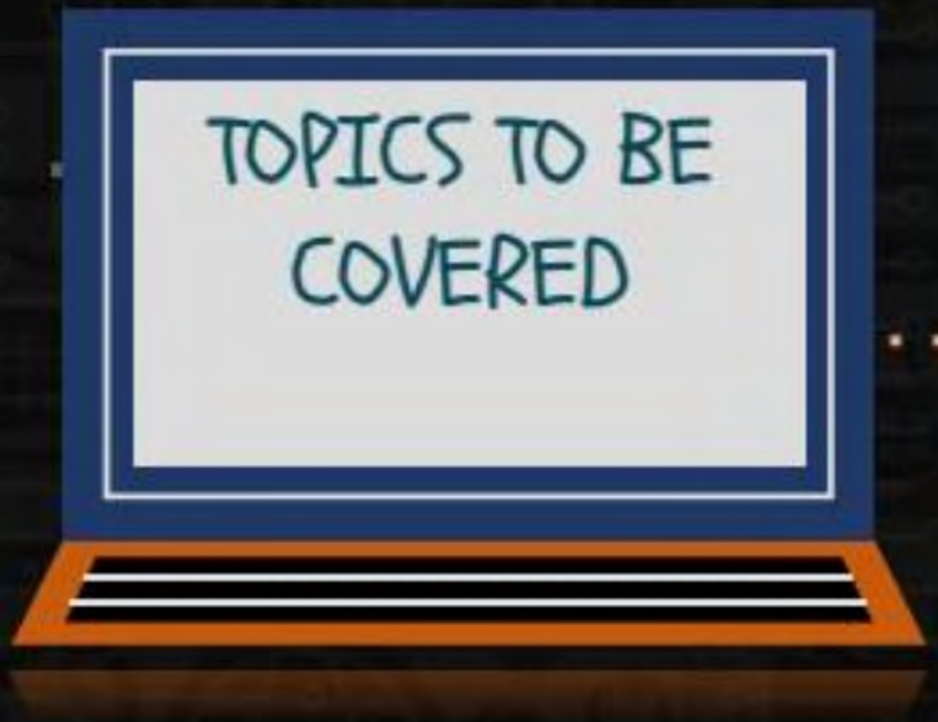


01 Question

02 Discussion

Q.1 Consider a class C IP address with decimal notation 212.212.212.X and subnet ID 212.212.212.64. Then which of the following is a valid host ID? [MCQ]

NID NID

A. 212.212.212. (64 + X)

B. 212.212.212. (X – 64) ✓

C. 212.212.212. (64 – X)

D. None of these

HID = IP Add (last octet) – SID (last octet)

= X – 64

HID = 212.212.212. (X – 64)

HID = 196.196.196.1, SID = 196.196.196.128

Q.2

Suppose, for a network, HID and subnet ID are 196.196.196.1 and 196.196.196.128 respectively. Then which of the following is a valid IP address for given host ID and subnet ID.
(Subnet mask = 255.255.255.248)

[MCQ]

A. 196.196.196.127

B. 196.196.196.129 ✓

C. 196.196.196.0

D. None of these

IP Add
AND
SM
SID

@ 196.196.196.01111111
AND
255.255.255.11111000
SID = 196.196.196.01111000
SID = 196.196.196.120

(b)

IPAdd = 196.196.196.10000001

AND AND

SM = 255.255.255.11111000

SID = 196.196.196.10000000

SID = 196.196.196.128

(c) IPAdd = 196.196.196.0

AND AND

SM = 255.255.255.248

SID = 196.196.196.0

Shortcut

HID = IPAdd - SID

IP Add = SID + HID

= 128 + 1

= 129

Q.3 If IP address of the network is 197.197.197.117 and subnet mask 255.255.255.224. Then which of the following is valid subnet ID and host ID respectively? [MCQ]

A. 197.197.197.96 and 197.197.197.53

B. 197.197.197.96 and 197.197.197.31

C. 197.197.197.21 and 197.197.197.96

D. 197.197.197.96 and 197.197.197.21 ✓

Sol^{n}

IPAdd = 197.197.197.117 (64+32+16+4+1)

AND AND

SM = 255.255.255.224 (128+64+32)

SID = 197.197.197.96

HID = IPAdd − SID

= 117 − 96

= 21

HID = 197.197.197.21

Q.4 Consider IP address of network is 192.192.193.21 and subnet mask contain 29 ones then, what is the host ID? [MCQ]

A. 192.192.193.16

B. 192.192.193.15

C. 192.192.193.5 ✓

D. 192.192.193.1

SM: 11111111.11111111.11111111.11111000
255.255.255.248

IP Add = 192.192.193.00010101
AND AND
SM = 255.255.255.11111000
SID = 192.192.193.00010000

SID = 192.192.193.16

HID = IP Add − SID
= 21 − 16 = 5

Q.5

Suppose, a subnet mask contain 27 ones then, how many subnets are possible in class B? [MCQ]

A. $2^{11} - 2$

B. 2^3

C. $2^3 - 2$

D. 2^{11} ✓

Sm: 11111111.11111111.11111111.11100000

NID | SID

SID = 11 bit

No. of subnet = 2^{11}

Q.6

For subnet mask 255.255.248.0 which of the following is/are correct?

[MSQ]

A. Number of subnets in class B are 32.

B. Number of hosts per subnet are 1022.

C. Number of IP addresses per subnet are 32.

D. Number of hosts per subnet are 2046.

sm : 11111111 . 11111111 . 11111000 . 00000000

Class-B(NID) SID HID

SID = 5 bit

No. of subnet in class B = $2^5 = 32$

HID = 11 bit

No of Host/subnet = $2^{11} - 2$

$= 2048 - 2$

$= 2046$

Q.7

Consider the following IP address and subnet mask:
IP address = 198.199.32.176
Subnet mask = 255.255.255.252
Which of the following is subnet ID for given IP address and subnet mask?

[MCQ]

A. 198.199.32.76

B. 198.199.32.176

C. 198.199.32.3

D. None of these

IPAdd = 198.199.32.10110000
AND AND
SM = 255.255.255.11111100
SID = 198.199.32.10110000

SID = 198.199.32.176

Q.8

For subnet mask 255.255.224.0. How many subnets are possible for class B? 8

[NAT]

SM: 11111111.11111111.111|00000.00000000

NID | SID | HID

SID = 3 bit

No. of subnet = $2^3 = 8$

Q.9

A subneted of class B network has the following broadcast address 130.21.95.255. it's subnet mask. [MCQ]

A. is necessarily 255.255.128.0 : 255.255.10000000.00000000 — HID=16 bit (HID ≤ 13 bit) No

B. is necessarily 255.255.192.0 : 255.255.11000000.00000000 — HID=14 bit (HID ≤ 13 bit) No

C. ✓ is necessarily 255.255.255.128 : 255.255.255.10000000 — HID=7 bit (HID ≤ 13 bit) Yes

D. None of these.

DBA : 130.21.01011111.11111111

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

Q.10

Suppose, direct broadcast address of network is 129.129.127.255 then which of the following can be possible subnet mask for given DBA? **[MSQ]**

A. 255.255.128.0 : 255.255.10000000.00000000 — HID = 15 bit (HID ≤ 15 bit) Yes

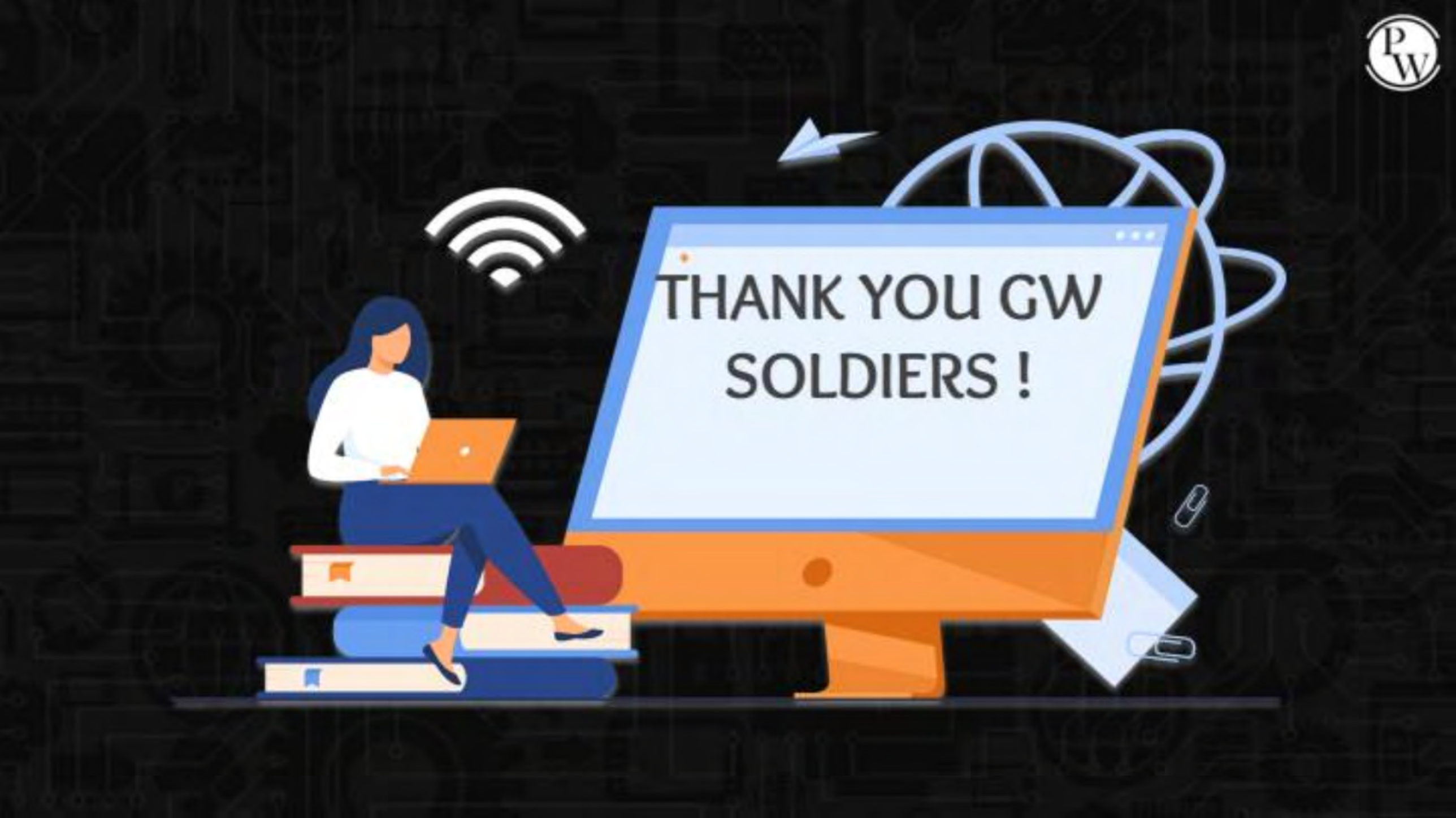
B. 255.255.255.192 : 255.255.255.11000000 — HID = 6 bit (HID ≤ 15 bit) Yes

C. 255.255.0.0 : 255.255.00000000.00000000

D. 255.254.0.0

DBA: 129.129.0.11111111.11111111

HID can be maximum 15 bit (HID ≤ 15 bit)


THANK YOU GW
SOLDIERS !