CS & IT ENGINEERING

COMPUTER NETWORKS

IPv4 Addressing

Lecture No-05

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Problems in Computer Network

Q. The Dotted decimal notation (DDN) format for the given Hexadecimal notation (HDN) 172A84C8

A. 24.40.132.200

B. 23.42.132.200

C. 23.42.130.200

D. 23.42.132.198

$(17)_{16}$ $(2A)_{16}$ $(84)_{16}$ $(C8)_{16}$

1*16+7 2*16+10 8*16+4 12*16+8

23 42 132 200

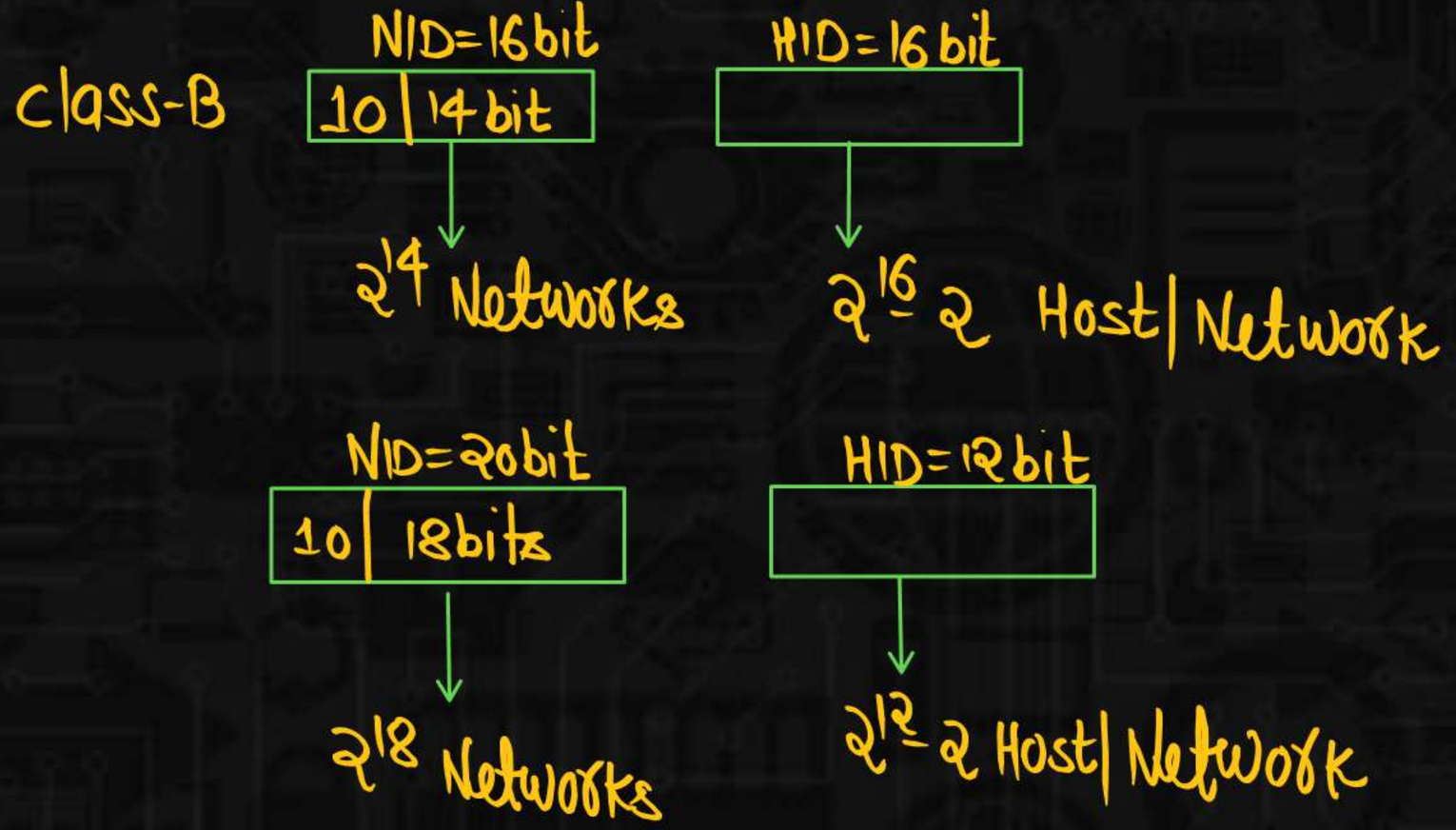
Q. Suppose, instead of using 16 bits for network part of a Class B, 20 bits had been used. Then the number of Class B networks and hosts per network are

A. $2^{10}, 2^{12}$

B. $2^{18}, 2^{12}$

C. $2^{18}, 2^{12} - 2$

D. $2^{10}, 2^{12} - 2$



Q. Number of Networks and Number of Host in class B are 2^m, $(2^n - 2)$ respectively. Then the relation between m and n is

A. $3m = 2m$

B. $7m = 8n$

C. $8m = 7n$ ✓

D. $2m = 3n$

No. of Networks in class-B $= 2^{14} = 2^m$, $m = 14$

No. of Host/Network in classB $= 2^{16} - 2 = 2^n - 2$, $n = 16$

$m = 14$, $n = 16$

$$\frac{m}{n} = \frac{14}{16} \times 7$$

$$\frac{m}{n} = \frac{7}{8}$$

$$8m = 7n$$

Q. How many networks are possible in a class B addressing system ? (Assuming Classful addressing scheme is followed.)

A. 2^{16}

B. 2^{14}

C. $2^{8} - 2$

D. $2^{16} - 2$

Q. How many hosts can be present in a class C network ? (Assuming Classful addressing scheme is followed.)

A. 2^{21}

B. $2^{21} - 1$

C. 2^{16}

D. $2^{8} - 2$ ✓

Class-C

NID=24bit

HID=8bit

$2^8 - 2$ Host/Network

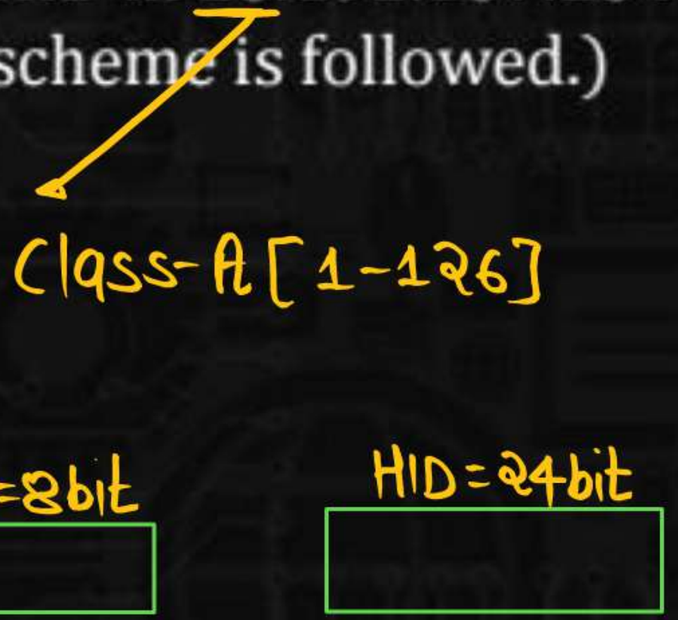
Q. How many bits are allocated for NID and HID in 23.192.157.234 address ? (Assuming Classful addressing scheme is followed.)

A. 16, 16

B. 8, 16

C. 8, 24 ✓

D. 24, 8



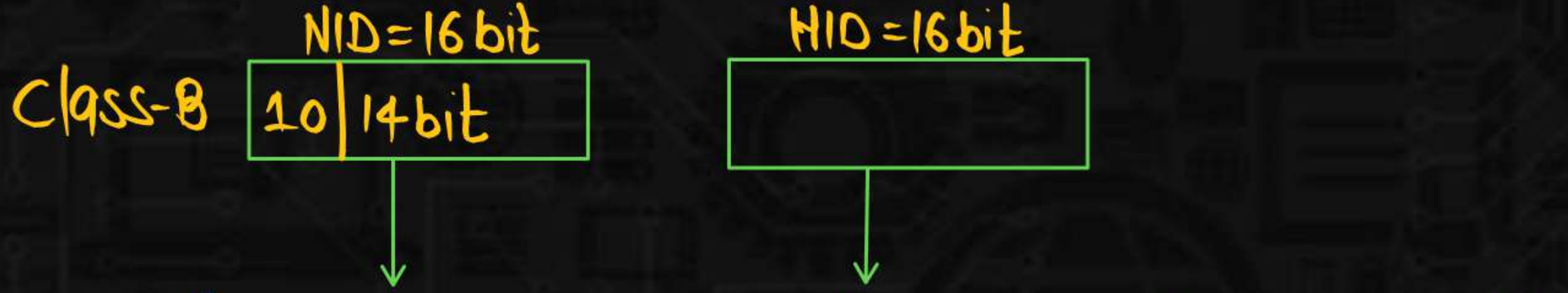
Q. What is the possible number of networks and addresses in each network under class B addresses in IPv4 addressing format.

A. $2^{16}, 2^{16}$

B. $2^{16}, 2^{16} - 2$

C. $2^{14}, 2^{16} - 2$

D. $2^{14}, 2^{16}$



No. of n/w's = 2^{14}

No. of IP Add/ Network = 2^{16}

No. of Host/ Network = $2^{16} - 2$

Q. IP Address 200.198.32.65 belong to which class ?

Class-C

A. Class A

B. Class B

C. Class C ✓

D. Class D

Class-A (1-126)
Class-B (128-191)
Class-C (192-223)
Class-D (224-239)
Class-E (240-255)

Q. Percent of Addresses occupied by Class D ?

A. 50 %

B. 25 %

C. 6.25 %

D. 12.5 %

Q. In IPv4 addressing format, the number of networks all allowed under class C addresses is

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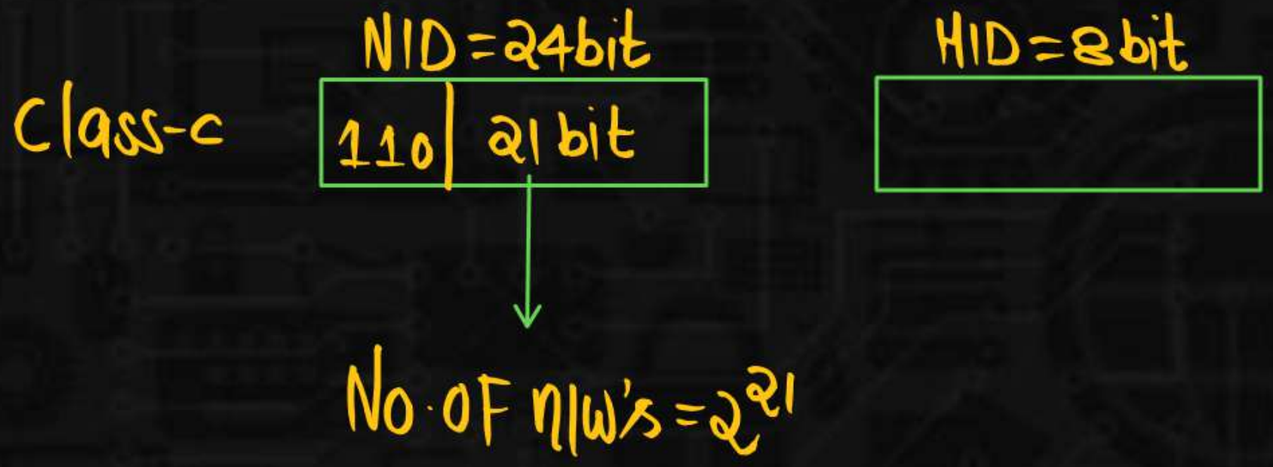
A. 2^{24}

B. 2^{7}

C. 2^{14}

D. 2^{21}



Q

A host with IP address 10.100.100.100 wants to use loopback testing. What are the source and destination addresses ? (Assuming Classful addressing scheme is followed.)

A. 10.100.100.100 and 10.100.100.100

127.X.X.X
↓
loop Back testing

B. 10.100.100.100 and 255.255.255.255

C. 10.100.100.100 and 127.1.100.1

D. 127.100.100.100 and 10.100.100.100

Q. In classful addressing, a large part of the available addresses are _____.

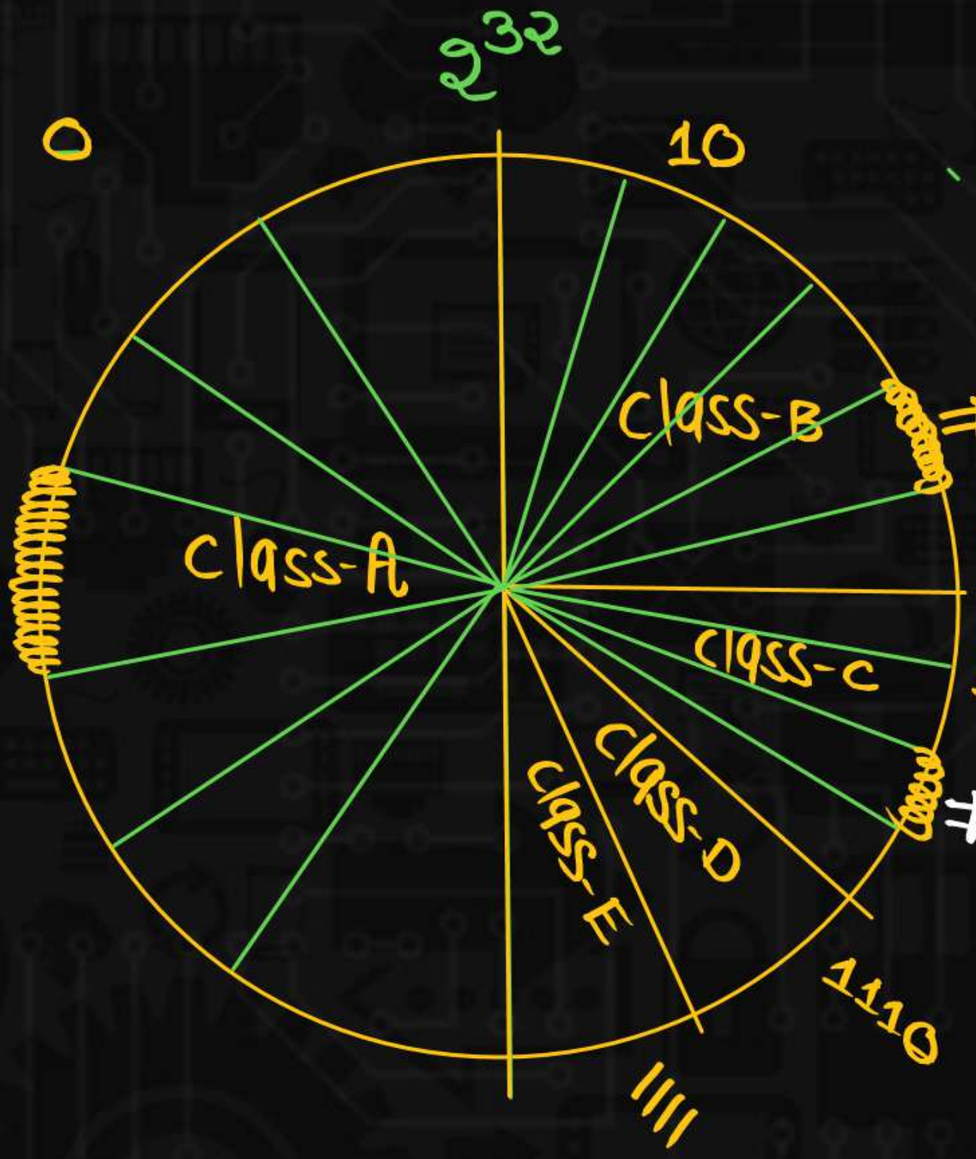
A. Dispersed

B. Blocked

C. Wasted

D. Reserved

Classful Addressing



2^{24} IP Add | Net.
or
$2^{24} - 2$ Host | Net

$\Rightarrow 2^{16}$ IP Addresses | Network
or
$2^{16} - 2$ Host | Network

$\Rightarrow 2^{8}$ IP Addresses | Network
or
$2^{8} - 2$ Host | Network

Class-A → 2^{24} IP Addresses in one N/w

Class-B → 2^{16} IP Addresses in one N/w

Class-C → 2^{8} IP Addresses in one N/w

I organization X need → 2^{20} IP Addresses

IP Addresses wasted = $2^{24} - 2^{20}$

$= 2^4 * 2^{20} - 2^{20}$

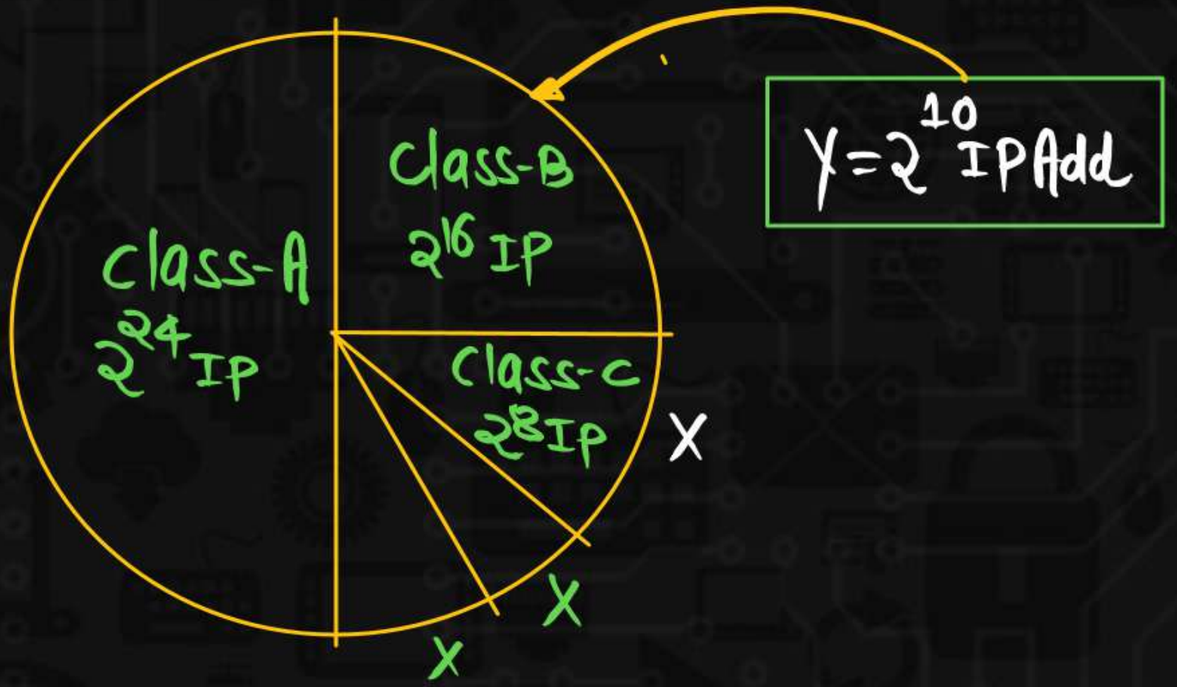
$= 16 * 2^{20} - 2^{20}$

$= 15 * 2^{20}$

$= 15M$

$= 15,728,640$

II organization Y need → 2^{10} IP Addresses



$Y = 2^{10}$ IP Add

No. of IP Addresses Wasted $= 2^{16} - 2^{10}$

$= 2^6 * 2^{10} - 2^{10}$

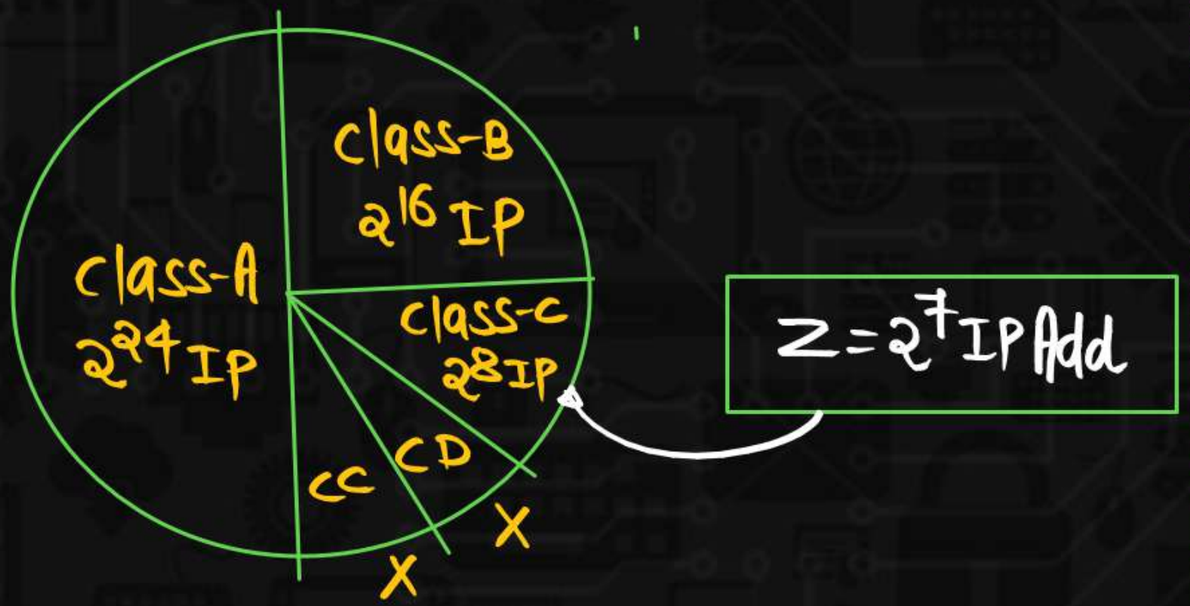
$= 64 * 2^{10} - 2^{10}$

$= 63 * 2^{10}$

$= 63K$

$= 64,512$

III organization Z need → 2^7 IP Addresses



No-of IP Addresses Wasted = $2^8 - 2^7$

$= 2 * 2^7 - 2^7$

$= 2^7 = 128$


THANK YOU
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