Branch : CSE & IT Batch : Hinglish

Computer Network

IPv4 Addressing

DPP 06

[MCQ]

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 valid host ID?

(a) 212.212.212. (64 + X)

(b) 212.212.212. (X – 64)

(c) 212.212.212. (64 – X)

(d) None of these

[MCQ]

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)

(a) 196.196.196.127

(b) 196.196.196.129

(c) 196.196.196.0

(d) None of these

[MCQ]

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?

(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

[MCQ]

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

(a) 192.192.193.16

(b) 192.192.193.15

(c) 192.192.193.5

(d) 192.192.193.1

[MCQ]

5. Suppose, a subnet mask contain 27 ones then how many subnets are possible in class B?

(a) $2^{11} - 2$ (b) 2^3

(c) $2^3 - 2$ (d) 2^{11}

[MSQ]

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

(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.

[MCQ]

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?

(a) 198.199.32.76

(b) 198.199.32.176

(c) 198.199.32.3

(d) None of these

[NAT]

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

[MSQ]

9. Suppose, direct broadcast address of network is 129.129.127.255 then which of the following can be possible subnet mask for given DBA?

(a) 255.255.128.0

(b) 255.255.255.192

(c) 255.254.0.0

(d) 255.254.0.0

[MCQ]

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

(a) is necessarily 255.255.128.0

(b) is necessarily 255.255.192.0

(c) is necessarily 255.255.255.128

(d) None of these.

Answer Key

1. **(b)**
2. **(b)**
3. **(d)**
4. **(c)**
5. **(d)**
6. **(a, d)**
7. **(b)**
8. **(8)**
9. **(a, b)**
10. **(c)**

Hints & Solutions

1. (b)

IP = 212.212.212.X

SID = 212.212.212.64

Host ID = IP address (last decimal) – Subnet ID (last decimal)

= X – 64

= 212.212.212.(X – 64)

Hence, option (b) is correct.

2. (b)

Host ID = 196.196.196.1

Subnet ID = 196.196.196.128

SM = 255.255.255.248

SID = SM AND IP address

SID = 255.255.255.248

x . y . z . p

196.196.196.128

x = 196

y = 196

z = 196

p = not sure

Host ID = IP address – subnet ID

1= p – 128

p = 129

IP = 196.196.196.129

Hence, option (b) is correct

3. (d)

IP = 197.197.197.117

Sm = 255.255.255.224

Subnet ID = 197.197.197.96

Host ID = 117 – 96

= 21

Host ID 197.197.197.21

Hence, option (d) is correct.

4. (c)

IP address = 192.192.193.21

Subnet mask

= 11111111.11111111.11111111.11111000

Subnet ID = 255.255.255.248

AND

192.192.193.21

192.192.193.16

Subnet ID = 192.192.193.16

Host ID = IP address – SID

= 21 – 16

= 5

Host ID = 192.192.193.5

5. (d)

Subnet mask

= 11111111.11111111.11111111.11100000

= 255 . 255 . 255 . 224

Class B = 16 bits for NID

Number of subnets = 2^{27-16}

= 2^{11}

Hence, option (d) is correct.

6. (a, d)

SM = 255.255.248.0

Number of subnets in class B = 2^5

= 32

Number of hosts per subnet = $2^{11} - 2$

= 2046

Number of IP addresses per subnet = 2^{11}

= 2048

Hence, option (a, d) are correct.

7. (b)

IP address = 198.199.32.176

Subnet mask = 255.255.255.252

255.255.255.11111100

Subnet ID = 198.199.32.10110000

255.255.32.176

Hence, option (b) is correct.

8. (8)

SM = 255.255.224.0

Number of subnets in Class B = 2^3

= 8

9. (a, b)

- Direct broadcast address

  = 129.129.0<u>1111111.11111111</u>

  Host ID bits
- In subnet mask, Host ID bits must be ≤ 15

(a) 255.255.1<u>0000000.00000000</u> **valid**

Host ID bits = 15

(b) 255.255.11111111.11<u>000000</u>

HID = 6

6 ≤ 15 **(valid)**

(c) 255.2<u>54</u>.255.224

× **(invalid)**

Class B by default SM = 255.255.0.0

(d) 255.255.000<u>11111.11111111</u> One's must be contiguous. **(Invalid)**

10. (c)

DBA = 130.32.95.255

= 10000010.00100000.010<u>11111.11111111</u>

13 bit

- In HID part, HID bits ≤ 13

(a) 255.255.1<u>0000000.00000000</u>

HID bits = 15

15 ≰ 13 **(invalid)**

(b) 255.255.11<u>000000.00000000</u>

HID bits = 14

14 ≰ 13**(invalid)**

(c) 255.255.11111111.1<u>0000000</u>

HID bits = 7

7 ≤ 13 **(valid)**

Hence, option (c) is correct.

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