Branch : CSE & IT   Batch : Hinglish

Computer Network
IPv4 Addressing   DPP 08

[MCQ]
1. Which of the following is an advantage of classless addressing?
   (a) Provide the more IP addresses.
   (b) Provide the less IP addresses.
   (c) Reduce the wastage of IP addresses
   (d) Both (a) and (c)

[NAT]
2. Suppose classless addressing notation of network is 160.79.171.76/20. Then, how many IP addresses is/are possible in the network? _____

[MCQ]
3. Which of the following is correct about classless addressing mode?
   (a) Network ID bits and Host bits are same.
   (b) Network ID bits are more than the Host ID bits.
   (c) Number of IP addresses are same as number of hosts.
   (d) None of these.

[NAT]
4. If valid CIDR block is
   179.180.190.16
   179.180.190.17
   179.180.190.18
   |
   |
   |
   179.180.190.143
   Total number of hosts in above block is/are _____.

[MCQ]

5. Suppose, one of the addresses of block is 19.19.19.72/28. What is the range of IP address?
   (a) 19.19.19.0   to   19.19.19.15
   (b) 19.19.19.72   to   19.19.19.87
   (c) 19.19.19.64   to   19.19.19.79
   (d) 19.19.19.64   to   19.19.19.77

[MSQ]
6. Suppose, p.q.r.s/t is valid one of the block. Then which of the following is/are correct about given CIDR notation?
   (a) Host ID bits are $\log_2(32 - t)$.
   (b) Host ID bits are $(32 - t)$.
   (c) Number of hosts are $(2^{32-t} - 2)$
   (d) Number of hosts are (2^{32-t}).

[MCQ]
7. Consider an IP address of the block is 184.175.16.16/20. What is the DBA of given IP address?
   (a) 184.175.16.31
   (b) 184.175.16.255
   (c) 184.175.255.255
   (d) 184.175.31.255

Answer Key

1. (c)
2. (4096)
3. (d)
4. (126)

5. (c)
6. (b, c)
7. (d)

Hints & Solutions

1. (c)

To reduce the wastage of IP addresses concept of classless addressing is used.

2. (4096)

- IP = 160.79.171.76/20
- Number of prefixes bits $= 20$
- The number of addresses $= 2^{32-20}$

$$= 2^{12}$$
$$= 4 \times 1024$$
$$= 4096$$

3. (d)

- Network ID bits are same as prefix.
- Host ID bits are same as suffix
- IP addresses are more compared to Hosts because in host we have to subtract 2. One is for NID and another for DBA.

4. (126)

Block size $= 143 - 16 + 1$
$$= 127 + 1$$
$$= 128$$
$$= 2^7$$
HID bits $= 7$
Number of hosts $= 2^7 - 2$
$$= 126$$

5. (c)

IP address = 19.19.19.72/28

IP address = 19.19.19.01001<u>000</u>

<div align="right">HID</div>

NID = 28 bit

HID = 4 bit

The number of addresses in block $= 2^4$

$$= 16$$

Range of IP address $= 19.19.19.0100\underline{0000}$
$$= 19.19.19.01000001$$
$$= 19.19.19.01000010$$
$$\vdots$$
$$= 19.19.19.01001111$$

Range = 19.19.19.64 to 19.19.19.79

6. (b, c)

IP address = p.q.r.s/t

NID bits = t

HID bits = 32 – t

Number of IP address $= 2^{32-t}$

Number of Hosts $= 2^{32-t} - 2$

Hence, option (b, c) are correct.

7. (d)

IP address = 184.175.0001<u>0000.00000000</u>
<div align="right">HID bits</div>

NID bits $= 20$

HID bits $= 12$

Block ID $= 184.175.00010000.00000000$
$$= 184.175.16.0$$

DBA $= 184.175.00011111.11111111$
$$= 184.175.31.255$$

Hence, option (d) is correct.