NPTEL Online Certification Courses

Indian Institute of Technology Kharagpur

Computer Network and Internet Protocol

(Jan 2024)

Assignment- Week 6

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

If NAT (Network Address Translation) device runs out of addresses, i.e., no address is left in the pool configured then the packets will be dropped and an Internet Control Message Protocol (ICMP) host unreachable packet is sent to the destination.

a) True
b) False

Correct Answer: (a)
Explanation: Internet Control Message Protocol (ICMP) host unreachable packet is sent to the destination and the packets will be dropped when NAT runs out of addresses.

QUESTION 2:

What is supernetting?

a) Split a large network into multiple small networks.
b) Combine multiple small networks in a single large network.
c) Enable the network to accept more hosts.
d) Connect a new network to an existing network.

Correct Answer: (b)
Explanation: In supernetting, multiple small networks are combined in a single large network.

QUESTION 3:

What is the maximum number of networks possible in class C IP addresses?

a) 2^14
b) 2^24
c) 2^21
d) 2^22

Correct Answer: (c)
Explanation: Class C IP addresses divide 32 bits into two parts: network ID (24 bits) and host ID (8 bits). In class C networks, the first 3 bits are fixed (110); thus, the remaining 21 bits are used for network ID generation. So, a total of 2^21 networks are possible.

QUESTION 4:

Which of the following is/are not a valid IPv6 address?

a) AE82::1:800:23E7:F5DB
b) FC80:2:7:1:800:23E7:A:F5DB
c) DE62:6A42:1:5AC::800:23E7:F5DB
d) FE80:2030:31:24

Correct Answer: (d)

Explanation: IPv6 addresses must adhere to specific rules and formats. The given address option (d) "FE80:2030:31:24" is not a valid IPv6 address because it does not contain the required number of groups (colon-separated hex quartets). IPv6 addresses should consist of eight groups separated by colons.

QUESTION 5:

Which is true for class E?

a) It is used for multicasting.
b) It is reserved for experimental purposes.
c) It is used for a network with numerous hosts
d) It is used for a network with less number of host

Correct Answer: (b)

Explanation: Class E IP addresses are reserved for experimental purposes.

QUESTION 6:

The header length of the ipv6 datagram is

a) 10 bytes
b) 20 bytes
c) 30 bytes
d) 40 bytes

Correct Answer: (d)

Explanation: Header length of ipv6 datagram is 40 bytes.

QUESTION 7:

By the help of NAT Protocol translation technique, the IPv4 and IPv6 networks can also communicate with each other which do not understand the address of different IP versions.

a) True
b) False

Correct Answer: (a)

Explanation: By the help of NAT Protocol Translation technique, the IPv4 and IPv6 networks can also communicate with each other which do not understand the address of different IP versions.

QUESTION 8:

We write the IP address as 191.180.83.235/12 in CIDR notation. What is the subnet mask?

a) 255.240.0.0
b) 255.255.255.0
c) 255.255.240.0
d) 255.0.0.0

Correct Answer: (a)

Explanation: The first 12 bits are the network address, and the rest (32-12)=20 bits are for the host address. For IP 191.180.83.235 binary value is 10111111.10110100.01010011.11101011. So subnet mask is 10111111.10110100.01010011.11101011 and 11111111.11110000.00000000.00000000 = 255.240.0.0

QUESTION 9:

What is the maximum number of hosts under class B addresses?

a) 254
b) 65534
c) 65535
d) 65536

Correct Answer: (b)

Explanation: In a Class B IP address, the first two octets are used to represent the network number, which leaves two octets or 16 bits to represent the host portion of the address. With 16 bits total, 2^16 combinations are possible, yielding 65,536 Class B addresses. Although two of those numbers, the lowest and highest values, are reserved for particular purposes. Therefore, each Class B address can support up to 65,534 hosts.

QUESTION 10:

If the Direct Broadcast Address of the subnet is 201.15.16.31. Which of the following will be the subnet mask ?

a) 255.255.255.240
b) 255.255.255.192
c) 255.255.255.198
d) None of the above

Correct Answer: (a)

Explanation: Direct Broadcast Address of subnet 201.15.16.00011111
201.15.16. 000 11111 Subnet Mask for this 255.255.255.224
201.15.16. 0001 1111 Subnet Mask for this 255.255.255.240
201.15.16. 00011 111 Subnet Mask for this 255.255.255.248

So, option (a) is correct.
