TNE10005/TNE60002

Network Administration

Intermediate Sub-netting Practice Questions

1. A computer has the IP address of 139.203.115.66 with the subnet mask 255.255.255.192. If the first available address in every subnet is reserved for the default gateway, what would be the IP address of the default gateway?

   subnetID = 139.203.115.64

   IPdefaultgateway = firstIPAddress = 139.203.115.65

2. A server has the IP address of 155.62.123.132 /27. If the last available IP address in every subnet is reserved for the default gateway, what would be the address of the default gateway?

   broadcast= 155.62.123.159

   IPdfgw = lastIPAddress = 155.62.123.158

3. A printer services computers that are on a number of different subnets. Its IP address is 172.16.33.22 with a subnet mask of 255.255.240.0. In this organisation the last available IP address in each subnet is reserved for the default gateway. What will be the default gateway for this printer?

   broadcastAddress= 172.16.47.255

   lastIPAddress= IPdfgw=172.16.47.254

4. PC-A has an IP address of 123.24.63.240 /22, PC-B has and IP address of 123.24.64.50 /22. They are both connected to the same LAN. They currently cannot ping. One of the junior technicians says that it must be a firewall. However you have no problem pinging PC-A. You need to analyse the addressing to see if this could be causing the problem. What do you think is the source of the problem? Justify your answer.

   PcA cannot ping PcB because they are in different subnets. PcA: 123.24.63.0
   PcB : 123.24.64.0

5. Acme.com is opening up 6 new branches. They have obtained the network address 175.20.64.0/24. How many devices would each subnet support?

   2^3 = 8 > 6 --> 3 net bits
   /32 - /24 - 3 = 5 host bits --> 2^5 -2 = 30 devices

6. Pinnacle is planning to expand. They have obtained a network address of 180.90.32.0 /22. They expect that each future branch will need up to 100 devices. How many sub-nets of 100 devices would this network address support?

   100 < 2^7 = 128
   --> /25
   /25 - /22 = 3 bits
   --> 2^3 = 8 subnets

2.

1. 139.203.115.65, 2. 155.62.123.158, 3. 172.16.47.254, 4. PC-A has a subnet ID of 123.24.60.0, whereas PC-B has a subnet ID of 123.24.64.0, 5. 30, 6. 8