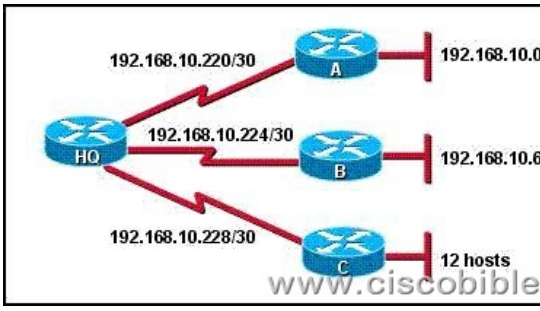
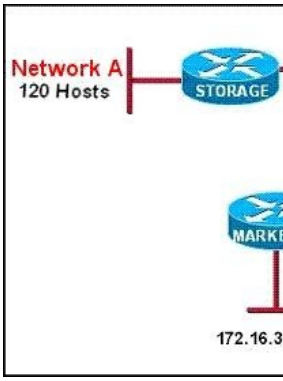
CCNA 640-802 Bible - Calculate and Apply VLSM IP Addressing Scheme

1. In the implementation of VLSM techniques on a network using a single Class C IP address, which subnet mask is the most efficient for point-to-point serial links? A: 255.255.255.0 B: 255.255.255.240 C: 255.255.255.248 D: 255.255.255.252 E: 255.255.255.254 **Correct Answers: D** Explanation: For a single point to point link, only 2 IP addresses are required, one for the serial interface of the router at each end. Therefore, the 255.255.255.252 subnet mask is often used for these types of links, as no IP addresses are wasted. 2. If an ethernet port on a router was assigned an IP address of 172.16.112.1/20, what is the maximum number of hosts allowed on this subnet? A: 1024 B: 2046 C: 4094 D: 4096 E: 8190 **Correct Answers: C** Explanation: The maximum IP subnets and maximum hosts are determined by subnet mask bit-count, the current assigned IP address is 172.16.112.1/20?the subnet bit-count is 20,so the maximum number of hosts allowed on this LAN subnet is (32-20=12) maximum number?2 12-2=4096-2=4094 3. Refer to the exhibit. A new subnet with 12 hosts has been added to the network. Which subnet address should this network use to provide enough useable addresses while wasting the fewest addresses?



A: 192.168.10.80/28 B: 192.168.10.80/29 C: 192.168.10.96/28 D: 192.168.10.96/29 **Correct Answers: C** Explanation: This question is to examine the VLSM knowledge. VLSM can increase the bits of network number by borrowing part of the host number based on the classes of IP address. 1.How many subnets will be produced by the subnet mask you select? 2X-2: (subnet masks are often represented in dot-decimal form, usually a block of ones (1) followed by a block of 0s) x represents the mask bit, that is the block of ones (1). 2.How many hosts are available for each subnet? 2y-2 : y represents the host bit, that is the block of 0s. 1.The valid subnets: the valid subnet number=256-10 decimal subnet mask(block size or base number) 4. The broadcast address for each subnet is broadcast address=next subnet number-1 5. The valid hosts for each subnet are addresses except all zeros and all ones. The last valid host address=next subnet number-2 (broadcast address-1) In order to satisfy the needs of this question, the mask is 32-4=28 to accommodate 12 hosts (that is 24 =16). Because the address range used by 192.168.10.64/27 is 32-27=5, 25 =32 till 192.16.10.96/27, the new subnet must begin from 96. 4. Refer to the exhibit. All of the routers in the network are configured with the ip subnet-zero command. Which network addresses should be used for Link A and Network A? (Choose two.)



A:Network A - 172.16.3.48/26 B:Network A - 172.16.3.128/25 C:Network A - 172.16.3.192/26 D:Link A - 172.16.3.0/30 E:Link A - 172.16.3.40/30 F:Link A - 172.16.3.112/30 **Correct Answers: B, D** 5. Which two subnetworks would be included in the summarized address of 172.31.80.0 /20? (Choose two.) A:172.31.17.4 /30 B:172.31.51.16 /30 C:172.31.64.0 /18 D:172.31.80.0 /22 E:172.31.92.0 /22 F:172.31.192.0 /18 **Correct Answers: D, E** 6. How many subnets can be gained by subnetting 172.17.32.0/23 into a /27 mask, and how many usable host addresses will there be per subnet? A: 8 subnets, 31 hosts B: 8 subnets, 32 hosts C: 16 subnets, 30 hosts D: A Class B address can't be subnetted into the fourth octet. **Correct Answers: C** Explanation: Subnets: 1) New Subnet Mask - Original Subnet Mask 2) 27 - 23 = 4 3) 24 = 16 So is 16 subnets. Hosts: 1) 32 - New Subnet Mask 2) 32 - 27 = 5 3) 25-2 = 30 So is 30 hosts per subnet.