Set B

Qno.2

The given network address is: 192.168.10.0/24

Given requirement in descending order is:

A: 60

B: 30

C: 10

The complete range of the address in the above provided network is:

192.168.10.0 to 192.168.10.255

Divide the given network consisting 256 hosts into 2 networks with 128 hosts each:

192.168.10.0-192.168.10.127 (192.168.1.0/25)

192.168.10.128-192.168.10.255 (192.168.1.128/25)

The largest network requirement is of 60 hosts for Sales department. For this, we need to assign

subnetwork with 64 hosts.  
192.168.10.0-192.168.10.63 (192.168.1.0/26) Assign to A  
192.168.10.64-192.168.10.127 (192.168.1.0/26)

Let us assign the first divided subnetwork 192.168.1.0/26 to A .

For B we need 30 host so divide the unused 64 into 2 halves  
192.168.10.64-192.168.10.95 (192.168.1.0/27) Assign to B  
192.168.10.96-192.168.10.127 (192.168.1.0/27)   
  
For C we need only 10 host so divide the unused 32host into 2 halves  
192.168.10.96-192.168.10.111 (192.168.1.0/28) Assign to C  
192.168.10.112-192.168.10.127 (192.168.1.0/28) un used  
192.168.10.128-192.168.10.255 (192.168.1.128/25) un used

The subnetting scheme divides 192.168.10.0/24 into three subnets (Subnet A for 60 hosts, Subnet B for 30 hosts, and Subnet C for 10 hosts). Each subnet has its own subnet ID, broadcast address, and usable IP range. Subnet masks (/26, /27, and /28) were chosen to accommodate the required number of hosts efficiently. This scheme meets the company's requirements within the allocated IP address range.

setA

qno.2

The given network address is: 172.16.0.0/20

Given requirement in descending order is:

A: 60

B: 30

C: 15  
D: 10

The complete range of the address in the above provided network is:

172.16.0.0 to 172.16.15.255 / 20  
For A we need 60 host so divide the first range   
172.16.0.0 to 172.16.0.255 / 24 into 4halves

172.16.0.0 to 172.16.0.63 / 26 First halve for a  
 172.16.0.64 to 172.16.0.127 / 26 further divide as b need only 30   
 172.16.0.128 to 172.16.0.191 / 26   
 172.16.0.192 to 172.16.0.255 / 26

172.16.0.0 to 172.16.0.63 / 26 FOR A  
  
172.16.0.64 to 172.16.0.95 / 27 FOR B  
 172.16.0.64 to 172.16.0.95 / 27 used by B  
 172.16.0.96 to 172.16.0.127 / 27 unused   
  
  
172.16.0.96 to 172.16.0.127 / 27 divide this network for C  
  
172.16.0.96 to 172.16.0.111 / 28 FOR C  
172.16.0.112 to 172.16.0.127 / 28 unused   
  
  
172.16.0.113to 172.16.0.126 / 28 FOR D  
  
Other unused (172.16.0.128 - 172.16.15.255)

Explanation and Considerations: We selected a /21 subnet mask to accommodate the required 19 bits (11 for subnets and 21 for hosts). This allows for 2048 subnets, which gives room for future growth.Each subnet's mask is selected to provide enough addresses for the required number of hosts while minimizing waste.We started subnetting from the lowest power of 2 available for each subnet size to ensure efficient use of IP addresses and accommodate future growth within the given range.