CENG393 Computer Networks
Lab Homework

Due Date: Dec 31, 2019 05:00 PM

1. Assume that for constructing the network infrastructure of a campus, you will require approximately 1500 IP addresses. Which IP blocks below can you use? Which IP blocks below can't be used? Why? Explain.

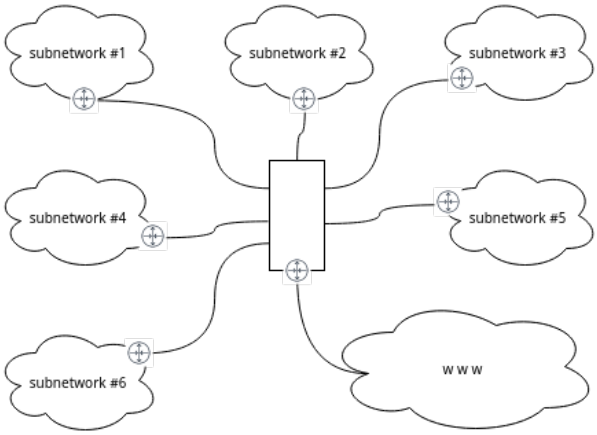
   (a) 111.17.240.0/21
   (b) 19.221.128.0/19
   (c) 13.159.36.0/22
   (d) 112.114.232.0/21
   (e) 95.165.124.0/22
   (f) 61.17.224.0/19
   (g) 122.220.64.0/18
   (h) 38.228.96.0/21
   (i) 33.158.80.0/20
   (j) 102.1.144.0/22
   (k) 19.51.72.0/23
   (l) 18.39.160.0/21

2. Choose one IP block from Question 1 that you have found usable. Using the chosen block, design subnetworks for the following requirements:

   - Subnetwork 1: 150 devices
   - Subnetwork 2: 210 devices
   - Subnetwork 3: 190 devices
   - Subnetwork 4: 200 devices
   - Subnetwork 5: 240 devices
   - Subnetwork 6: 230 devices

   For each subnetwork, write their network id's, their subnet masks and the range of IP addresses you have assigned to devices. Don't forget that each subnetwork has its own router, therefore you have to assign IP addresses to routers too.

3. The subnetworks are connected to each other and the world as shown in the following figure:



   Write down static routing table for each router in the figure. Do note that the routers build an additional network between themselves, therefore each router actually has two IP addresses: one IP from the subnetwork it has been assigned to, and one IP from the network between themselves.

Prepare your homework using any word processor software (LibreOffice Writer, Microsoft Word, LaTeX, etc) and deliver a printed copy of your homework by hand until due date.