CSE 471 – Assignment 4

**Q1.**

IP : 200.10.80.0/24

1. Since the IP between 192.x.x.x and 223.x.x.x, it falls into class “C”.
2. Default subnet mask is 255.255.255.x.
3. Plan is creating 4 subnets for each department for 4 subnets I should borrow 2 more bits. If S1 and S2 are part of our network, there will be one more subnet for S0 to S1 and total subnets will be 5, thus 2 bits will not enough for 5 subnet and we need one more bit to represent 5 subnets.
4. If we borrow 2 more bits, it will add up to our subnet mask and new subnet mask will be “/26”. If we borrow 3 bits in scenario S1 and S2 are part of our network, our subnet mask will be “/27”.
5. 4 subnet is created. (Sales, IT, Planning and Management). If S1 and S2 are part of our network, there will be 5 subnets(Sales, IT, Planning, Management and between routers).
6. All of 4 subnets is usable.
7. Our subnet mask is /26 and we have 6 bits for hosts. This means 64 () hosts for each subnet. It will be sufficient even after growth of hosts for each subnet. If S1 and S2 are part of our network, there will be 5 bits for hosts. This means 32 hosts for each subnet but this won’t be enough because we already have more than 32 hosts in departments
8. 2 of IP addresses reserved and not usable for hosts. 62 (64-2) host are usable.
9. 200.10.80.63, 200.10.80.127, 200.10.80.191, 200.10.80.255
10. Istanbul E0 : 200.10.80.1, E1 : 200.10.80.65

Ankara E0 : 200.10.80.129, E1 : 200.10.80.192

**Q2.**

IP : 15.10.0.0

Since first part of IP is 15 it falls into class “A”.

For 2048 subnets we need at least 11 bits, and if we borrow 11 bits for subnets there will 5 bits for hosts remaining. So, our subnet mask is “/27” (15.10.xxxxxxxx.xxx00000, x’s represent borrowed bits for subnets).

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