**CISCO Packet Tracer Question [15]**

Suppose that you are the CEO of a startup which deals with network configuration for various organizations. After 100 days of struggle, you have finally received your first assignment to configure the network for three different companies in such a way that all the PCs in each company must be able to communicate with each other as well as with all the PCs of any other company.

The companies are named as **CMP X**, **CMP Y** and **CMP Z**. **CMP X** has got **5 Rooms** with **1 PC** in each room, **CMP Y** has got **3 Rooms** with **3 PCs** in each room and **CMP Z** has got **2 Rooms** having **4 PCs** in each room. The IP regulating company has assigned following IP network addresses to each of the company:

**CMP X: 144.186.96.0/19** **CMP Y: 50.152.0.0/15** **CMP Z: 210.98.169.64/26**

As the part of the agreement, all three companies have asked you to bear the expense of all the switches and routers used to interconnect all the computers in a merged network for three companies and further instructed you that all the PCs in single room must be on same sub network and all the rooms of a single company must be on a different sub-network which will be assigned after sub-netting the assigned **network address** only for the relevant company (no outside network or the network of other company will be accepted) e.g., each room for CMP X will be assigned a different subnetwork after sub netting the address of 144.186.96.0/19 only and not any other network address. The companies have further informed you that companies plan to extend the number of their PCs in each room in the future.

You, being, cleverly economical decide to install old switches (**Generic Switches** in Cisco Packet Tracer) with only **three Ethernet ports working out of four** and routers (**Generic Routers** in Cisco Packet Tracer) to configure the network for three companies in such a way that you use as much less routers and switches as possible. You have also bought the following IP network address for the serial communication between different routers which will be connecting different Inter-Company and Intra-Company subnets. You plan to form the subnets of the following address in order to cater the serial communication between all the routers:

**Routers Serial Communication: 199.210.121.160/28**

You, being very cautious, decide to simulate the topology on Cisco Packet Tracer in order to optimally design the network considering the number of devices (switches, routers etc.) used to maximize the profit margins of your company. However, you must simulate the topology strictly following rules and regulations described below:

1. Use Straight Through wires, Cross Over cables or Serial DCE wires where necessary and applicable
2. Use **Generic** Router and **Generic** PCs for your design
3. Use **Generic Switches** such that you attach **only 3 of the 4** available **Ethernet interfaces** for a single switch, however, you can attach as many switches considering optimal design
4. You have to assign IPs to the PCs using **Static IP allocation**
5. Although you have to use GUI of the router to configure its interfaces but you must use CLI of the router to configure the **RIPv2 protocol** for **Classless Subnet addressing** and attach screen shots of the CLI code (You can use snipping tool to take screen shots or you can attach a text file having the CLI code of each router).
6. Clearly mention each subnet address using comments and make your design as neat as possible to get the full credit