**Problem 1:**

Design a network in CISCO packet tracer to connect ACCOUNT and DELIVER departments through the following:

1. Each department should contain at least 2 PCs
2. Appropriate number of switch and routers should be used in the network.
3. Using the given network address 192.168.40.0, all interfaces should be configured with appropriate IP addresses, subnet mask and gateways.
4. All devices in the network should be connected using appropriate cables.
5. Test the connection between ACCOUNT and DELIVERY department PCs in DELIVERY department should be able to ping the PCs in ACCOUNT department.

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**Problem 2:**

XYZ Company is fast-growing company in Eastern Australia with more than 2 million customers globally. The company deals with selling and buying of food items, which are basically operated from the headquarters. The company is intending to open a branch near the local village Bonalbo. Thus, the company requires young IT graduates to design the network branch. The network to operate separately from the headquarter network.

Being a small network, the company has the following requirements during implementation;

1. One router and one switch to be used(all cisco products)
2. 3 departments(Admin/IT, Finance/HR and Customer Service/ Reception)
3. Each department is require to be different VLANS.
4. Each department is require to have wireless network for users.
5. Host devices in the network are required to obtain IPV4 address automatically.
6. Device in all the departments are required to communicate with each other.

Assume the ISP gave out a base network of 192.168.1.0, you as the young network engineer who has been hired, design and implement a network considering the above requirement

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**Problem 3:**

As a part of your end year networking project, you are required to design and implement Vic Modern Hotel network. The hotel has three floors; in the first floor there three departments (Reception, Store and Logistics), in the second floor there are three departments (Finance, HR and Sales/Marketing), while the third floor hosts the IT and Admin. Therefore, the following are part of the considerations during the design and implementation.

1. There should be three routers connecting each floor (all placed in the server room in IT department).
2. All routers should be connected to each other using DCE cable.
3. The network between the routers should be 10.10.10.0/30, 10.10.10.4/30, 10.10.10.8/30
4. Each floor is expected to have one switch (placed in the respective floor).
5. Each floor is expected to have WIFI networks connected to laptops and phones.
6. Each department is expected to have a printer
7. Each department is expected to be in different VLAN with the following details.

1st Floor;

* Reception – VLAN 80, Network of 192.168.8.0/24
* Store – VLAN 70, Network of 192.168.7.0/24
* Logistics – VLAN 60, Network of 192.168.6.0/24

2nd Floor;

* Finance – VLAN 50, Network of 192.168.5.0/24
* HR– VLAN 40, Network of 192.168.4.0/24
* Sales – VLAN 30, Network of 192.168.3.0/24

3rd Floor;

* Admin – VLAN 20, Network of 192.168.2.0/24
* IT – VLAN 10, Network of 192.168.1.0/24

1. Use OSPF as the routing protocol to advertise route.
2. All device in the network are expected to obtain IP address dynamically with their respective router configured as the DHCP server.
3. All the device in the network are expected to communicate with each other.
4. Configure SSH in all the routers for remote login.
5. In IT department add PC called Test-PC to port fa0/1 and use it remote login.
6. Configure port security to IT-dept. switch to allow only Test-PC to access port fa0/1 (Use sticky method to obtain mac-address with violation mode of shutdown).

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