85 9

CS447- Lab Assignment 1
LAN Wiring and Physical Topology

Name: Rajnish Kumar
CIN: 304470392
Date: 07/05/2015

1. a. Using the ETC245 network diagram as reference, connect your lab computer to a Cisco Ethernet switch with an Ethernet cable. On the Cisco switch, which port number did you use? What pin numbers (not port numbers) on the RJ45 jack are used for transmitting and receiving data?

Ans.: Part 1: Port Number Used: 1, 2 & 5 → 1, 2 & 4
Part 2: Pin Number Used: For Transmitting: 1 & 2 → 1 & 2
For Receiving: 4 & 5 → 3 & 6

-1/2

b. What is the difference between a straight-through Ethernet cable, a crossover Ethernet cable, a rolled (rollover) cable, and a serial cable? Under what circumstances would you use each of the aforementioned type of cable?

Ans.: Difference between a straight-through Ethernet cable, a crossover Ethernet cable, a rolled cable, and a serial cable:

- A straight-through Ethernet cable: A straight-through Ethernet cable is used to connect two or more different devices. Example: connecting a router to a hub or connecting a computer to a switch.
- A crossover Ethernet cable: A crossover Ethernet cable is used to connect two or more similar devices except that they have pairs of wires that crisscross. Example: connecting a computer to a computer, connecting a router to a router.
- A rolled cable: A rolled cable has one end of the cable wired exactly opposite from the other. Example: used to connect a device to a router or switch console port.
- A serial cable: A serial cable is used to transfer information between two devices using a serial communication protocol. Example: RS-232 communication

2. Use the World-Wide-Web to locate 2 Ethernet hubs and 2 Ethernet switches manufactured by different manufacturers.
a. List manufacturers' name, URL of website, and model numbers of the hubs and switches.

Ans.: Hub-01:
Manufacturer name: NETGEAR
Website URL: https://www.netgear.com/
Model Number: EN106TP

Hub-02:
Manufacturer name: D-Link
Website URL: http://us.dlink.com/
Model Number: DGS-1008G

Switch-01:
Manufacturer name: D-Link
Website URL: http://us.dlink.com/
Model Number: DGS-1005G

Switch-02:
Manufacturer name: Cisco Systems, Inc
Website URL: www.cisco.com
Model Number: SG500-28P

b. What media types and what network speeds do these hubs and switches support?

Ans.: Hub-01: (NETGEAR EN106TP)
Media Type Interface: 10/100/1000Base-T
Network Speed: 10Mbps/100Mbps/1Gbps

Hub-02: (D-Link DGS-1008G)
Media Type Interface: 10/100/1000Base-T
Network Speed: 10Mbps/100Mbps/1Gbps

Switch-01: (D-Link DGS-1005G)
Media Type: Twisted Pair(10/100/1000Base-T)
Network Speed: 10Mbps/100Mbps/1Gbps

Switch-02: (Cisco SG500-28P)
Media Type: Twisted Pair (10/100/1000Base-T)
Network Speed: 10Mbps/100Mbps/1Gbps

c. What is the difference between an Ethernet switch and a shared Ethernet hub?

Ans.: Difference between an Ethernet switch and a Shared Ethernet hub:

- An Ethernet switch: It is a device which is used to connect multiple attached computers.
- A Shared Ethernet hub: It is a device which is used to connect multiple Ethernet devices and also this hub is being shared with another hub.

3. Suppose you had to design a wired Ethernet network for a 4-story office building containing 20 users per floor. Each floor is 90 meters in length and 5 meters in height. Draw a network topology of your proposed design using Cisco equipment. The access-layer switches must support 1Gbps to each user's desktop computer and have10Gbps uplink capability. Specify in the drawing

(i) the model number of each Cisco equipment used,

(ii) the part number of 10 Gbps transceivers used,

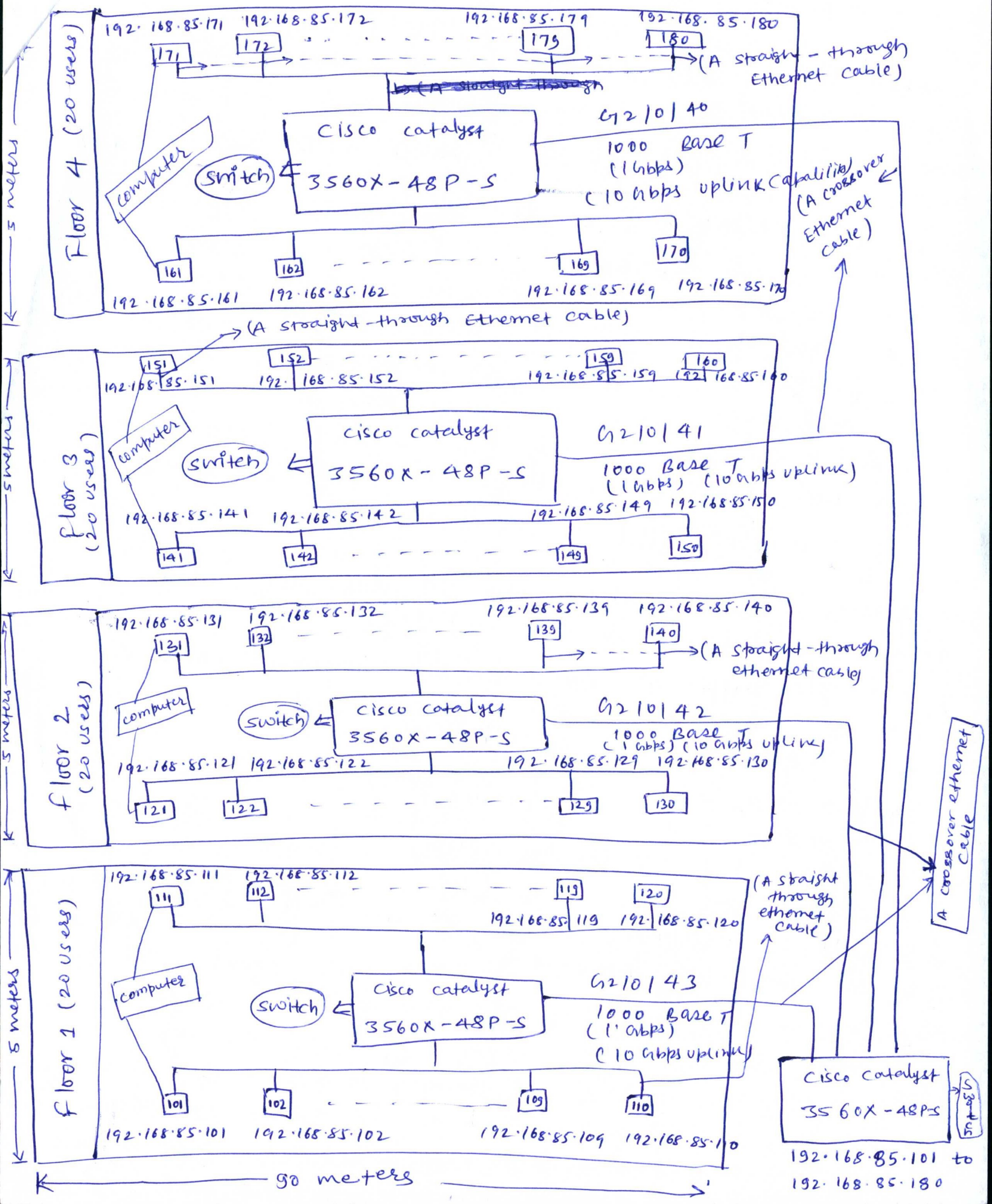
(iii) the type of cabling used for connecting the users' computers ,

(iv) the type of cabling for interconnecting the network equipment, and

(v) the location where each network equipment will be placed.

Ans.: please refer the attached page.

Ans: (3) (please see the back page answer also)



Summarily of Question 3: →

<i> the model number of each cisco equipment used: →

Ans: I used a cisco catalyst switch 3560x-48P-S which will be used to connect 80 users in four floor.

ii) the past number of 10 mbps transceiver used:

Ans:→ shown in figure ?

iii) the type of cabling used for connecting the user's computers:-

Ans:→ A straight-through Ethernet cable. (switch to computer)

iv) the type of cabling for interconnecting the network equipment.

Ans: ⇒ A crossover Ethernet cable (switch to switch)

v) the location where each network equipment will be placed.

Ans: ⇒ shown in figure.
each floor → 20 users

—x—