DCCN ALL LABS(IT)WITH CONFIGURATIONS (2nd Year 1st Semester)

DCCN II is the 2nd step of networking in SLIIT.We have to use CISCO PACKAET TRACER to configure those scenarios. There were 12 worksheets to do. Now we will see how to do those labs.

(There may be some mistakes, if there are any mistakes please send them to this email, randipro@gmail.com)

User vs. Privileged Mode

In router, in CLI
Continue with configuration dialog? [Yes/no]: no

Router > (user mode)
Router > enable
Router # (privilege mode / enable mode)
Router# configuration terminal [enter]
Router (config) # (configuration mode)
Router (config) # hostname <any name for the router> renaming the router name

Passwords

User level
[In config mode]

Router (config) # line console 0
Router (config-line) #password 1111
Router (config-line) #login

Privilege level
[In config mode]

Router (config) #enable password 1111
Router (config) #enable secret 2222

Copy to nvram

Router # copy running-config startup-config

You can view many things by using show command in privilege mode

Router# show? [Type this, then you can see every commands related to show command]

Worksheet 2

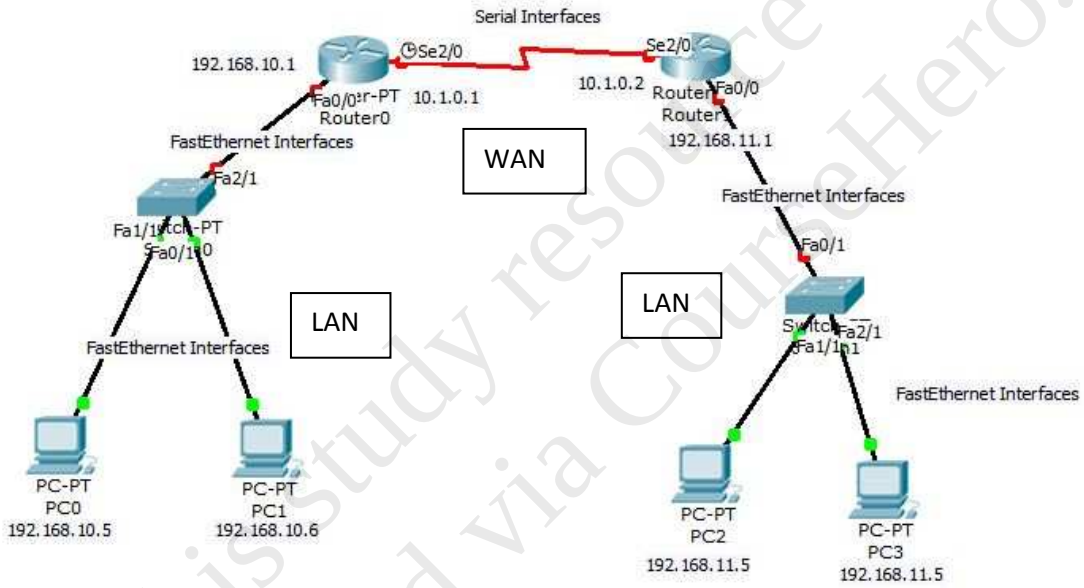
1. Five classes

   - Class A- 0-127
   - Class B- 128-191
   - Class C- 192-223
   - Class D- 224-239
   - Class E- 240-255

2.

Class A-	255.0.0.0
Class B-	255.255.0.0
Class C-	255.255.255.0

3. In here 3,4,5,6 Qs are interconnected. So have to do those together



Assigning IP Addresses and subnet masks for the interfaces in router

Assigning ip for serial interface:

Password:

Router>enable

Password:

Router#configure terminal

Router (config) #interface serial 2/0

Router (config-if) #clock rate 64000 in here we use clock rate why because that interface have a clock , you can see it on the diagram, if the clock is there only we assign clock rate

Router (config-if) #ip address 10.1.0.1 255.0.0.0
Router (config-if) #no shutdown
Assigning ip for Fastethernet interface:

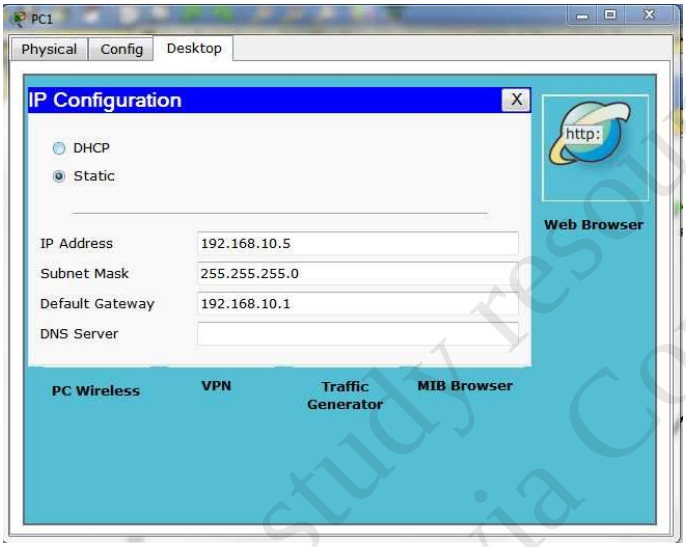
Password:
Router>enable
Password:
Router#configure terminal
Router (config) # interface fastEthernet 0/0
Router (config-if) #ip address 192.168.10.1 255.255.255.0
Router (config-if) #no shutdown

- Like that you have to assign all ip addresses for routers

Assigning IP Addresses and subnet masks for the interfaces in switch

Normally we don't assign any ip for switch, but we can assign ip addresses to switch by using VLANs.

Assigning IP Addresses and subnet masks for PCs



Default gateway means the exiting point. (From the network)

Notes:……
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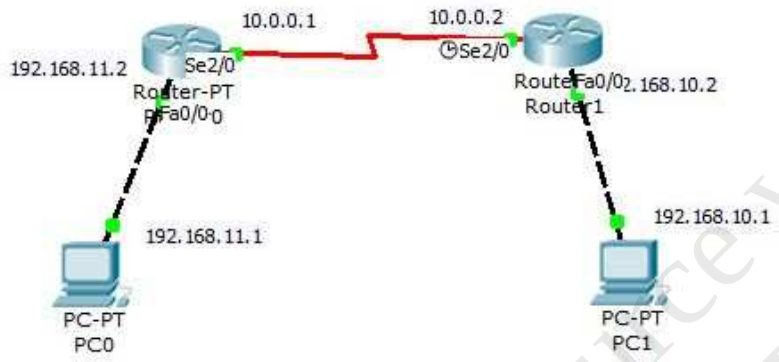
Work Sheet 3

Static Routing Configurations

In here we have to make all configurations. The new thing is Static routing and dynamic routing. We will see how to do configure it easily.

Static Routing

We will configure it, according to the worksheet diagram.



Router (config) #ip route <directly not connected network addresses> <subnet mask of that network> <next hop ip address>

Ex: Router0 (config) #ip route 192.168.10.0 255.255.255.0 10.0.0.2
Router1 (config) #ip route 192.168.11.0 255.255.255.0 10.0.0.1

Default Routing

We use default routing for public networks. But we have to learn.

Router (config) #ip route 0.0.0.0 0.0.0.0 <next hop ip address>

Ex: Router0 (config) #ip route 0.0.0.0 0.0.0.0 10.0.0.2
Router1 (config) #ip route 0.0.0.0 0.0.0.0 10.0.0.1

You have to assign these configurations for every router

Worksheet 4 also having static routing and default routing

Notes:……
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Worksheet 5

Dynamic Routing [RIP / IGRP]

In here we use to route protocols. We have only RIP & IGRP.So let's study…

RIP

After doing all basic configurations, we are going to route.

Ex: Router0 (config) #router rip
Router0 (config-router) #network <directly connected all network addresses>

ex: Router0 (config-router)#network 10.0.0.0
Router0 (config-router) #network 192.168.11.0 for next router also you have to configure these things

IGRP

In here we have to use **EIGRP** because in packet tracer we can't configure **IGRP.**

Ex: Router0 (config) #router eigrp [autonomous system number <1-65535>]
Router0 (config-router) # network <directly connected all network addresses>

ex: Router0(config)# router eigrp 100
Router0 (config-router) # network 10.0.0.0
Router0 (config-router) # network 192.168.11.0

Worksheet 6

1, 2, 3 Qs are same as previous configurations.

4. metro(config)#banner motd #Welcome to switch# [Welcome to switch is not a command, it's just a phrase, you can write anything you like , but it must be meaningful,]

   metro#write [copy to Nvram]

5. Previously mentioned

6. Allocate ip addresses for PCs (previously mentioned)

7. Router0(config)# interface fastEthernet 0/0
   Router0 (config-if) #duplex half

8 you can

9. From this Q we can't configure switch with packet tracer.

   mac –address-table permanent mac of PC1 fa0/1
   mac –address-table permanent mac of PC2 fa0/2

10. mac-address-table_restricted static_mac of PC4_fa0/4_fa0/1

11. Interface fa0/1
    port secure max mac count 1

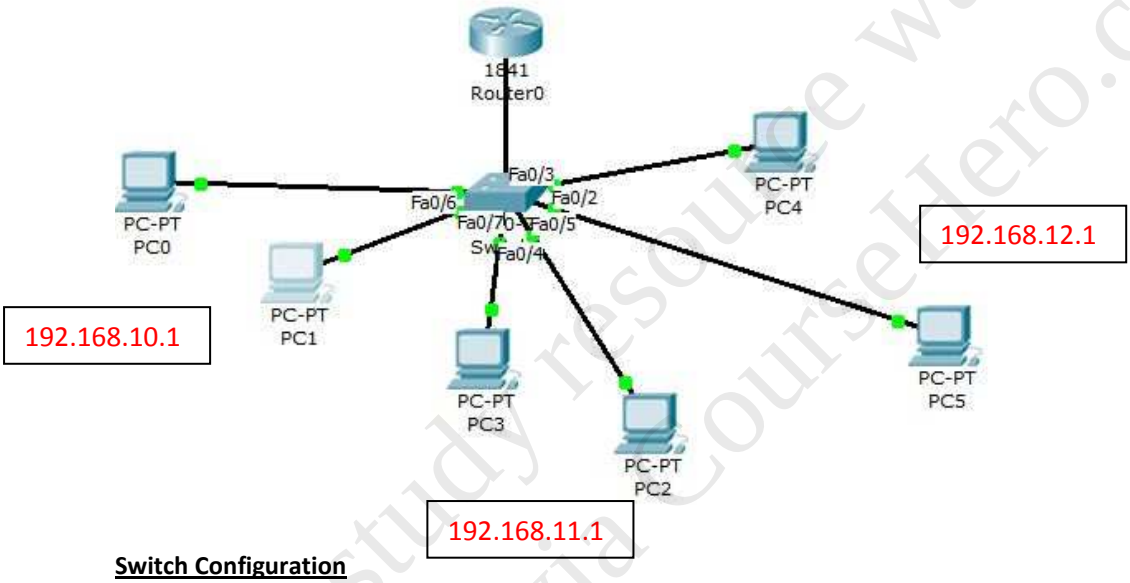
12. address violation (suspend/disable/ignore)

Worksheet 8

VLAN

1, 2, 3 Questions are previously mentioned.

4. When we are starting to configure VLANs, we start from VLAN 2, because VLAN 1 is default VLAN



Switch Configuration

Switch#vlan database
Switch(vlan)#vlan 2 name V2
Switch(vlan)#vlan 3 name V3 Making VLANs
Switch(vlan)#vlan 4 name V4
Switch(vlan)#exit
Switch#configure terminal
Switch(config)#interface fastEthernet 0/6
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 2
Switch(config-if)#interface fastEthernet 0/7
Switch(config-if)#switchport mode access Assigning interfaces to VLANs
Switch(config-if)#switchport access vlan 2
Switch(config-if)#interface fastEthernet 0/4
Switch(config-if)#switchport mode access

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Switch(config-if)#switchport access vlan 3
Switch(config-if)#interface fastEthernet 0/5
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 3
Switch(config-if)#interface fastEthernet 0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 4
Switch(config-if)#interface fastEthernet 0/3
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 4
Switch(config-if)#end
Switch(config)#interface fastEthernet 0/1
Switch(config-if)#switchport mode trunk
Switch(config-if)#end
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Router Configurations

```
Router(config)#interface fastEthernet 0/0
Router(config-if)#no shutdown
Router(config-if)#interface fastEthernet 0/0.1
Router(config-subif)#encapsulation dot1Q 1
Router(config-subif)#ip address 192.168.1.1 255.255.255.0
Router(config-subif)#interface fastEthernet 0/0.2                [sub interfaces]
Router(config-subif)#encapsulation dot1Q 2
Router(config-subif)#ip address 255.255.255.0
Router(config-subif)#interface fastEthernet 0/0.3
Router(config-subif)#ip address 192.168.11.1 255.255.255.0
Router(config-subif)#interface fastEthernet 0/0.4
Router(config-subif)#ip address 192.168.12.1 255.255.255.0
Router(config-subif)#end
```

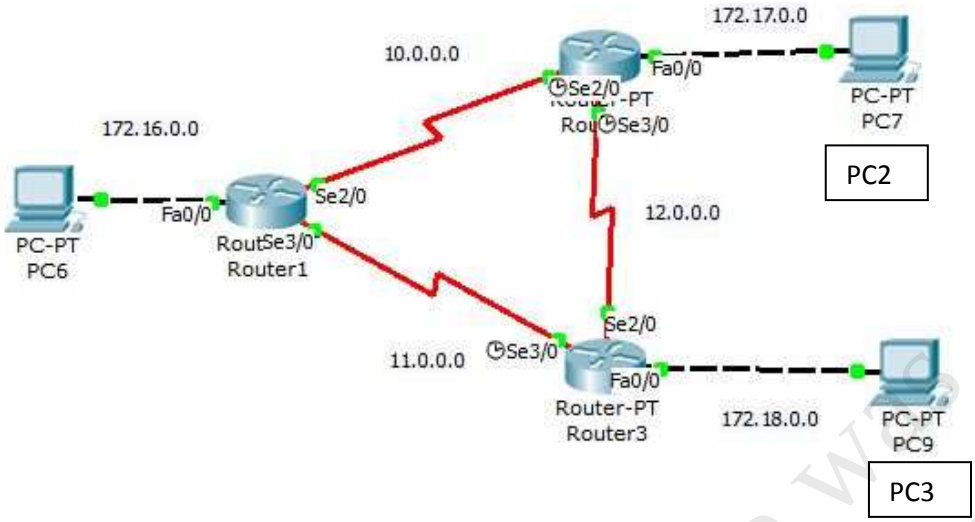
In here we have to give these IP addresses as gateways in PCs.
Ex: 192.168.12.1 to the PC4 & PC5

Worksheet 9 also same as Worksheet 8

Worksheet 10 (Standard Access Control List) (source IP)

In here first of all we have to configure all basic steps,

- Configure IPs for all PCs and Routers.
- Routing (RIP / EIGRP)
- Check the connectivity by pinging.



ACL (Standard) Configurations

Router1 (config)#access-list 1 permit host 172.17.0.1
Router1 (config)#access-list 1 deny any
Router1 (config)#access-list 1 deny host 172.18.0.2
Router1 (config)#interface serial 2/0
Router1 (config-if)#ip access-group 10 in grouping
Router1 (config-if)#exit
Router1 (config)#interface serial 3/0
Router1 (config-if)#ip access-group 10 in

Notes:.....
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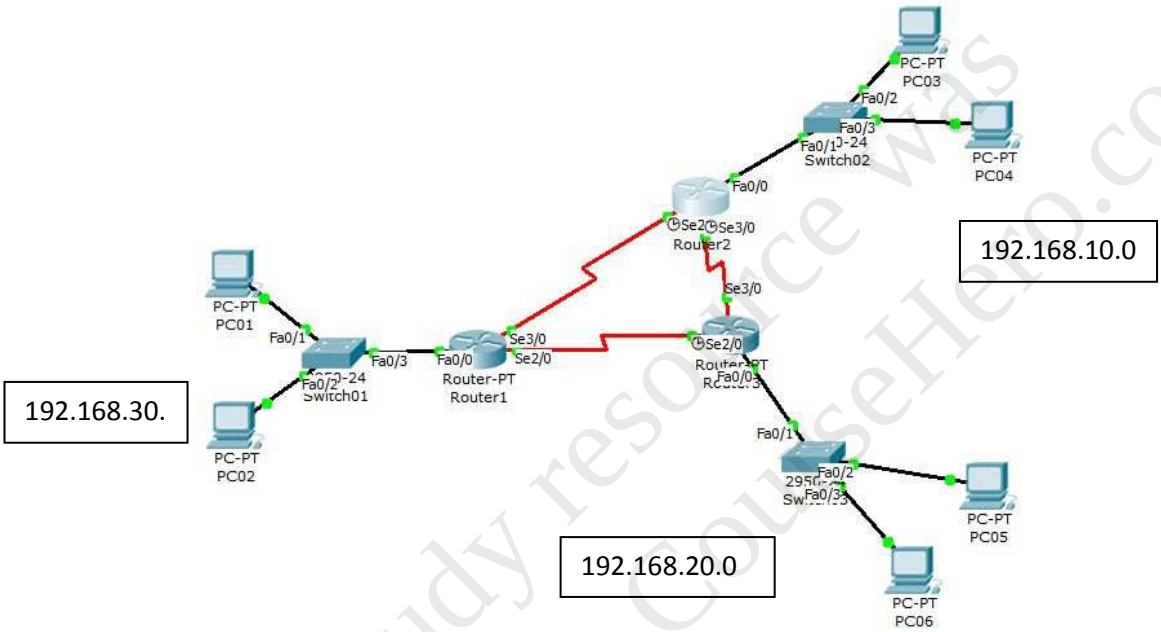
Worksheet 11

(Extended Access Control List) (Source ip, destination ip, protocol) (As close as possible to the source)

access-list <ACL no.> <permit/deny> <protocol> <Source IP><Source mask><operator><Sourceport> <Destination IP><Destination mask> <operator> <destination port>

In here first of all we have to configure all basic steps,

- Configure IPs for all PCs and Routers.
- Routing (RIP / EIGRP)
- Check the connectivity by pinging.



Configurations (Extended ACL)

Router2>enable
Router2#configure terminal
Router2 (config) #access-list 101 deny tcp host 192.168.10.1 host 192.168.30.2 eq www
Router2 (config) #access-list 101 deny tcp host 192.168.10.2 host 192.168.30.2 eq ftp
Route2 (config) #access-list 101 permit tcp any any
Router2 (config) #interface fastEthernet 0/0
Router2 (config-if) #ip access-group 101 in
Router2 (config-if) #end

Router3 (config) #access-list 102 deny tcp host 192.168.20.1 host 192.168.30.2 eq ftp
Route2 (config) #access-list 102 permit tcp any any
Router2 (config) #interface fastEthernet 0/0
Router2 (config-if) #ip access-group 102 in
Router2 (config-if) #end if you want copy to NVRAM.