**================ Basic Config ================**

hostname Router1 (Naming a device)

Configure Passwords

line console 0

password {password} (user password)

login

enable secret {password} (privileged password)

service password-encryption (encrypt the privileged password)

banner motd # message ja khushi #

copy running config to NV-RAM (boot time e startup-config will be copied to running-config)

copy run starup-config

**enable router port**

int g0/0

no shutdown

**Switch Virtual Interface Configuration**

int vlan1

ip address 192.168.10.11 255.255.255.0

ip default-gateway 192.168.99.1

no shutdown

**to assign gateway**

int vlan1

ip default-gateway 192.168.99.1

**enable telnet (in router or switch)**

line vty 0 15

password {pass}

login

PC er cmd prmpt theke telnet korte hoy

telnet {ip address} (oi device er access pawa jay)

**================ VLAN ================**

**VLAN creation**

vlan 10

name CSE

vlan 30

name ME

**port assignment**

int f0/1

switchport mode access

switchport access vlan 10

(Similar code for other VLANs)

**trunk mode (sob vlan er data jabe) on switch**

interface f0/3

switchport mode trunk

switchport trunk native vlan 10

switchport trunk allowed vlan 10,30,99

// switchport trunk allowed vlan add 1

**================ inter VLAN routing ================**

1. **Legacy Inter-VLAN Routing**

router (use 2901 router) e just 2ta port e 2ta ip address dibo. switch er 4ta port e thikmoto vlan assign korbo. pc gulate router er ip address hobe default gateway (router use korlei gateway deya lage)

**router codes**

int g0/0

ip address 192.168.10.20 255.255.255.0

no shutdown

int g0/1

ip address 192.168.30.20 255.255.255.0

no shutdown

end

copy running-config startup-config

1. **Router on a stick**

router er line ta trunk kore deya labe.. subinterface kora lagbe

dot1q lagbe.. switch tag kore pathale router ke untag korte hobe

* Create VLANs (VLANs 10 and 30) on the switch
* Assign the VLANs to switch ports
* Trunk the necessary switch port
* set gateways of the PCs to router IPs

**Sub interfacing**

int g0/0.**10**

encapsulation dot1q **10**

ip address 192.168.**10**.20 255.255.255.0

PC of VLAN 10 will set default gateway to 192.168.**10**.20

int g0/0.**30**

encapsulation dot1q **30**

ip address 192.168.**30**.20 255.255.255.0

PC of VLAN 30 will set default gateway to 192.168.**30**.20

end

conf t

int g0/0

no shutdown

**================ NAT ================**

Private side router# give ip to each port of the router (No need if already given subinterface IP)

int g0/0 (same for g0/1)

ip address 192.168.10.1 255.255.255.0

no shutdown

int s0/0/0

ip address 100.1.1.1 255.255.255.252 (real IP)

clock rate 64000 (clock on private side router)

no shutdown

Public ISP router#

int s0/0/0

ip address 100.1.1.2 255.255.255.252

no shutdown

int g0/0

ip address 100.100.100.1 255.255.255.0

no shutdown

Set default gateways of PCs and servers properly

**STATIC NAT (fixed one to one mapping) config (static ip bind)**

Private side router#

ip route 0.0.0.0 0.0.0.0 s0/0/0 (kono rasta na chinle serial port 0 diye just pathay dibe)

ip nat inside source {private ip} {public ip} (for individual PCs, optional)

int g0/0

ip nat inside

int g0/1

ip nat inside

int s0/0/0

ip nat outside

Public isp router#

ip route 0.0.0.0 0.0.0.0 S0/0/0

**Dynamic NAT config (dynamic one to one mapping)**

je je side e NAT translation lagbe oi router gulate similar cmd dibo

ip nat pool BUET-pool1 209.165.200.8 209.165.200.11 netmask 255.255.255.224

**permitting our 2 VLANs**

access-list 1 permit 192.168.10.0 0.0.0.255

access-list 1 permit 192.168.20.0 0.0.0.255

(the last portion is wildcard mask, used to filter out host part)

ip nat inside source list 1 pool BUET-pool1

ekhaneo inside outside chinay dite hobe (same as STATIC NAT)

sh ip nat translations (for dynamic NAT & PAT)

**PAT (same ip onekjon ke dibo)**

int g0/0

ip nat inside

int g0/1

ip nat inside

int s0/0/0

ip nat outside

access-list 2 permit 192.168.10.0 0.0.0.255

access-list 2 permit 192.168.20.0 0.0.0.255

ip nat pool BUET-pool2 209.165.200.8 209.165.200.8 netmask 255.255.255.224

ip nat inside source list 2 pool BUET-pool2 **overload**

**================ ACL ================**

ip access-list 10 permit 192.168.10.0 0.0.0.15 (10.1-10.15 allowed)

ip access-list 10 permit host 192.168.10.10 (Just allows 192.168.10.10)

access-list 10 remark PERMISSION OF CSE LAB 1 TO FTP (Note)

Standard ACL (Just source) (1-99)

**Named Access-List Syntax**

ip access-list extended FTP-FILTER

permit tcp 192.168.10.0 0.0.0.255 any eq ftp

allowing 192.168.10.0 - 192.168.10.255 ip addresses to access any ftp

int s0/0/0

ip access-group FTP-FILTER in

Example {

no access-list 1 (clear any standard ACL beforehand)

access-list 101 permit tcp host 192.168.10.5 host 192.168.50.5 eq www

access-list 101 deny tcp host 192.168.10.5 host 192.168.50.6 eq ftp

access-list 101 permit tcp host 192.168.20.5 host 192.168.50.6 eq ftp

access-list 101 deny tcp host 192.168.20.5 host 192.168.50.5 eq www

access-list 101 permit ip any any

apply ACL to ports

int s0/0/0

ip access-group 101 out

}

no ip access-list 10 (clears access list 10)

permit ip any any (to enable ping)

sh access-list