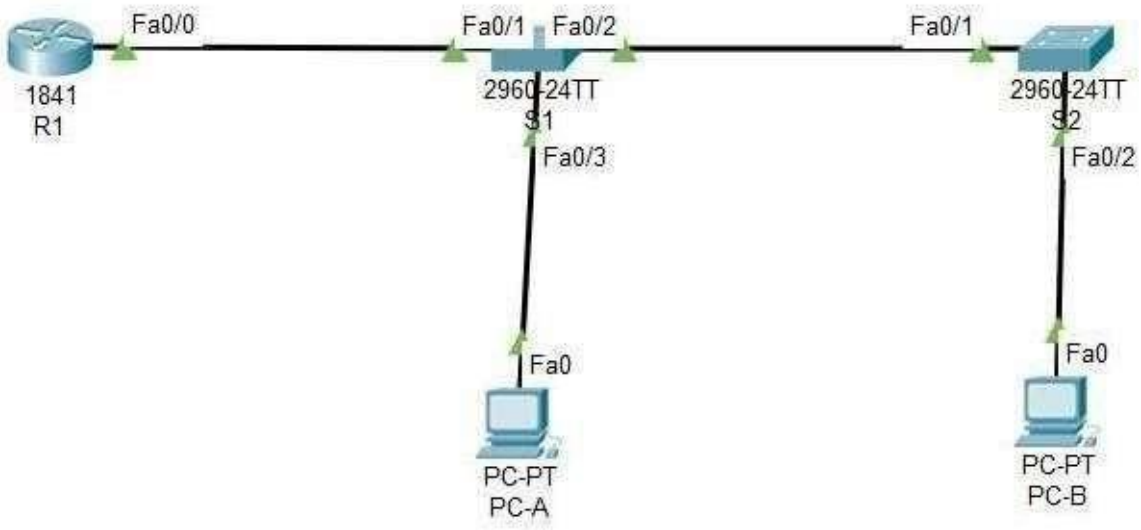
Practical :7

Aim: Configuring Inter-VLAN Routing(On Packet Tracer).



Addressing Table

Device	Interfaces	IP Address	Subnet Mask	Default Gateway
R1	F0/0.10	192.168.10.1	255.255.255.0	N/A
	F0/0.20	192.168.20.1	255.255.255.0	
	F0/0.30	192.168.30.1	255.255.255.0	
	F0/0.1000	N/A	N/A	
S1	VLAN 10	192.168.10.11	255.255.255.0	192.168.10.1
S2	VLAN 10	192.168.10.12	255.255.255.0	192.168.10.1
PC-A	NIC	192.168.20.3	255.255.255.0	192.168.20.1
PC-B	NIC	192.168.30.3	255.255.255.0	192.168.30.1

VLAN Table

VLAN	Name	Interface Assigned
10	Management	S1: VLAN 10
		S2: VLAN 10
20	Sales	S1: F0/3
30	Operations	S2: F0/2
999	Parking-Lot	S1: F0/4-24, G0/1-2
		S2: F0/3-24, G0/1-2
1000	Native	N/A

Assgining switch 1 for VLAN

Switch>en
Switch#conf t
Switch(config)#hostname S1
S1(config)#vlan 10
S1(config-vlan)#name Management
S1(config-vlan)#exit
S1(config)#vlan 20
S1(config-vlan)#name Sales
S1(config-vlan)#exit
S1(config)#vlan 30
S1(config-vlan)#name Opeartions
S1(config-vlan)#exit
S1(config)#vlan 999
S1(config-vlan)#name Parking-Lot
S1(config-vlan)#exit
S1(config)#vlan 1000
S1(config-vlan)#name Native
S1(config-vlan)#exit
S1(config)#end

Check VLAN on S1

```
S1#sh vlan br

VLAN Name                              Status    Ports
---- --------------------------------- ---------
--------------------------------
1    default                           active    Fa0/1, Fa0/2, Fa0/3,
Fa0/4
                                                 Fa0/5, Fa0/6, Fa0/7,
Fa0/8
                                                 Fa0/9, Fa0/10,
Fa0/11, Fa0/12
                                                 Fa0/13, Fa0/14,
Fa0/15, Fa0/16
                                                 Fa0/17, Fa0/18,
Fa0/19, Fa0/20
                                                 Fa0/21, Fa0/22,
Fa0/23, Fa0/24
                                                 Gig0/1, Gig0/2
10   Management                        active
20   Sales                             active
30   Opeartions                        active
999  Parking-Lot                       active
1000 Native                            active
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active
S1#
```

Configure S1 for VLAN 10

S1#conf t

S1(config)#int vlan 10

ip add 192.168.10.11 255.255.255.0

S1(config-if)#exit

S1(config)#ip default-gateway 192.168.10.1

S1(config)#int vlan 10

S1(config-if)#no shut

S1(config-if)#exit

S1(config)#end

S1#conf t

S1(config)#int range f0/4-24, g0/1-2

S1(config-if-range)#switchport mode access

S1(config-if-range)#switchport access vlan 999

S1(config-if-range)#shutdown

OUTPUT:

%LINK-5-CHANGED: Interface FastEthernet0/4, changed state to administratively down

```
S1#sh vlan br

VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Fa0/1, Fa0/2, Fa0/3
10   Management                        active
20   Sales                             active
30   Opeartions                        active
999  Parking-Lot                       active    Fa0/4, Fa0/5, Fa0/6, Fa0/7
                                                 Fa0/8, Fa0/9, Fa0/10, Fa0/11
                                                 Fa0/12, Fa0/13, Fa0/14, Fa0/15
                                                 Fa0/16, Fa0/17, Fa0/18, Fa0/19
                                                 Fa0/20, Fa0/21, Fa0/22, Fa0/23
                                                 Fa0/24, Gig0/1, Gig0/2
1000 Native                            active
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active
S1#
```

Assign switch 2 for VLAN

Switch>en

Switch#conf t

Switch(config)#hostname S2

S2(config)#vlan 10

S2(config-vlan)#name Management

S2(config-vlan)#exit

S2(config)#vlan 20

S2(config-vlan)#name sales

S2(config-vlan)#exit

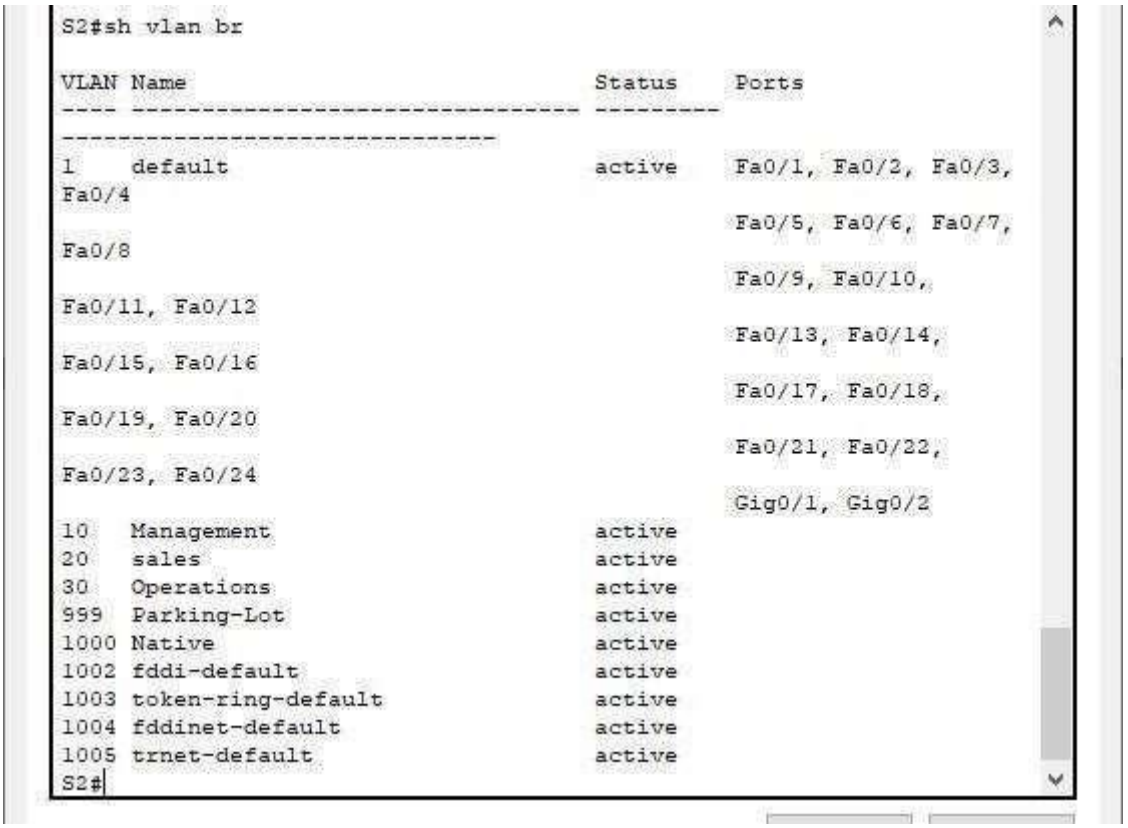
S2(config)#vlan 30

S2(config-vlan)#name Operations

S2(config-vlan)#exit

S2(config)#vlan 999
S2(config-vlan)#name Parking-Lot
S2(config-vlan)#exit
S2(config)#vlan 1000
S2(config-vlan)#name Native
S2(config-vlan)#exit
S2(config)#end

Check VLAN on S2



Configure S2 for VLAN 10

S2#conf t
S2(config-if)#ip add 192.168.10.12 255.255.255.0
S2(config-if)#int vlan 10
S2(config-if)#no shut
S2(config-if)#exit
S2(config)#int range f0/3-24,g0/1-2
S2(config-if-range)#switchport mode access
S2(config-if-range)#switchport access vlan 999
S2(config-if-range)#shutdown

OUTPUT:

%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to administratively down

S2(config-if-range)#end
S2#

```
S2#sh vlan br

VLAN Name                              Status    Ports
---- --------------------------------- ---------
-------------------------------
1    default                           active    Fa0/1, Fa0/2
10   Management                        active
20   sales                             active
30   Operations                        active
999  Parking-Lot                       active    Fa0/3, Fa0/4, Fa0/5,
Fa0/6
                                                 Fa0/7, Fa0/8, Fa0/9,
Fa0/10
                                                 Fa0/11, Fa0/12,
Fa0/13, Fa0/14
                                                 Fa0/15, Fa0/16,
Fa0/17, Fa0/18
                                                 Fa0/19, Fa0/20,
Fa0/21, Fa0/22
                                                 Fa0/23, Fa0/24,
Gig0/1, Gig0/2
1000 Native                            active
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active
S2#
```

Assign vlan 20 to f0/3on S1

S1>en
S1#conf t
S1(config-if)#switchport mode access
S1(config-if)#switchport access vlan 20
S1(config-if)#exit
S1(config)#end
S1#

```
S1#sh vlan br

VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Fa0/1, Fa0/2
10   Management                        active
20   Sales                             active    Fa0/3
30   Opeartions                        active
999  Parking-Lot                       active    Fa0/4, Fa0/5, Fa0/6, Fa0/7
                                                  Fa0/8, Fa0/9, Fa0/10, Fa0/11
                                                  Fa0/12, Fa0/13, Fa0/14, Fa0/15
                                                  Fa0/16, Fa0/17, Fa0/18, Fa0/19
                                                  Fa0/20, Fa0/21, Fa0/22, Fa0/23
                                                  Fa0/24, Gig0/1, Gig0/2
1000 Native                            active
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active
S1#
```

Assign VLAN 30 to f0/2 on S2

S2#en

S2#conf t

Enter configuration commands, one per line. End with CNTL/Z. S2(config)#int f0/2

S2(config-if)#switchport mode access

S2(config-if)#switchport access vlan 30

S2(config-if)#exit

S2(config)#end

S2#

```
S2#sh vlan br

VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Fa0/1
10   Management                        active
20   sales                             active
30   Operations                        active    Fa0/2
999  Parking-Lot                       active    Fa0/3, Fa0/4, Fa0/5,
Fa0/6
                                                  Fa0/7, Fa0/8, Fa0/9,
Fa0/10
                                                  Fa0/11, Fa0/12,
Fa0/13, Fa0/14
                                                  Fa0/15, Fa0/16,
Fa0/17, Fa0/18
                                                  Fa0/19, Fa0/20,
Fa0/21, Fa0/22
                                                  Fa0/23, Fa0/24,
Gig0/1, Gig0/2
1000 Native                            active
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active
S2#
```

S1 to S2 connection and vice-versa

S1#en S1#conft

Enter configuration commands, one per line. End with CNTL/Z. S1(config)#int
f0/2
S1(config-if)#switchport mode trunk
S1(config-if)#switchport trunk allowed vlan 10,20,30,1000
S1(config-if)#exit
S1(config)#end

OUTPUT:

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to down
S2#conf t
S2(config)#int f0/1
S2(config-if)#switchport mode trunk
S2(config-if)#switchport trunk Native vlan 1000
S2(config-if)#switchport trunk allowed vlan 10,20,30,1000
S2(config-if)#exit
S2(config)#end

Configure R1

Router>en
Router#conf t
Router(config)#int f0/0.10
Router(config-subif)#description vlan 10
Router(config-subif)#encapsulation dot1q 10
Router(config-subif)#ip add 192.168.10.1 255.255.255.0
Router(config-subif)#exit
Router(config)#int f0/0.20
Router(config-subif)#description vlan 20
Router(config-subif)#encapsulation dot1q 20
Router(config-subif)#ip add 192.168.20.1 255.255.255.0
Router(config-subif)#exit
Router(config)#int f0/0.30
Router(config-subif)#description vlan 30
Router(config-subif)#ip add 192.168.30.1 255.255.255.0
Router(config-subif)#exit
Router(config)#int f0/0.1000
Router(config-subif)#description NATIVE
Router(config-subif)#encapsulation dot1q 1000 native
Router(config-subif)#exit
Router(config)#int f0/0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config-if)#end

```
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0,
changed state to up

%LINK-5-CHANGED: Interface FastEthernet0/0.10, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.10,
changed state to up

%LINK-5-CHANGED: Interface FastEthernet0/0.20, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.20,
changed state to up

%LINK-5-CHANGED: Interface FastEthernet0/0.30, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.30,
changed state to up

%LINK-5-CHANGED: Interface FastEthernet0/0.1000, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.1000,
changed state to up
```

```
Router#sh ip int br
Interface              IP-Address      OK? Method Status
Protocol
FastEthernet0/0        unassigned      YES unset  up
up
FastEthernet0/0.10     192.168.10.1    YES manual up
up
FastEthernet0/0.20     192.168.20.1    YES manual up
up
FastEthernet0/0.30     unassigned      YES unset  up
up
FastEthernet0/0.1000   unassigned      YES unset  up
up
FastEthernet0/1        unassigned      YES unset  administratively
down down
Vlan1                  unassigned      YES unset  administratively
down down
Router#
```