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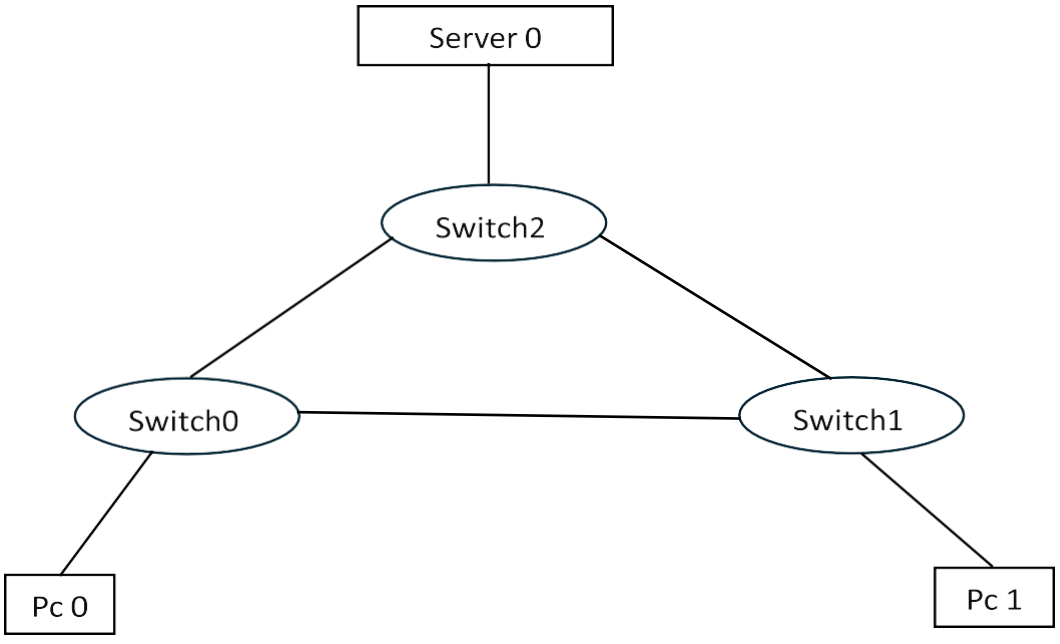
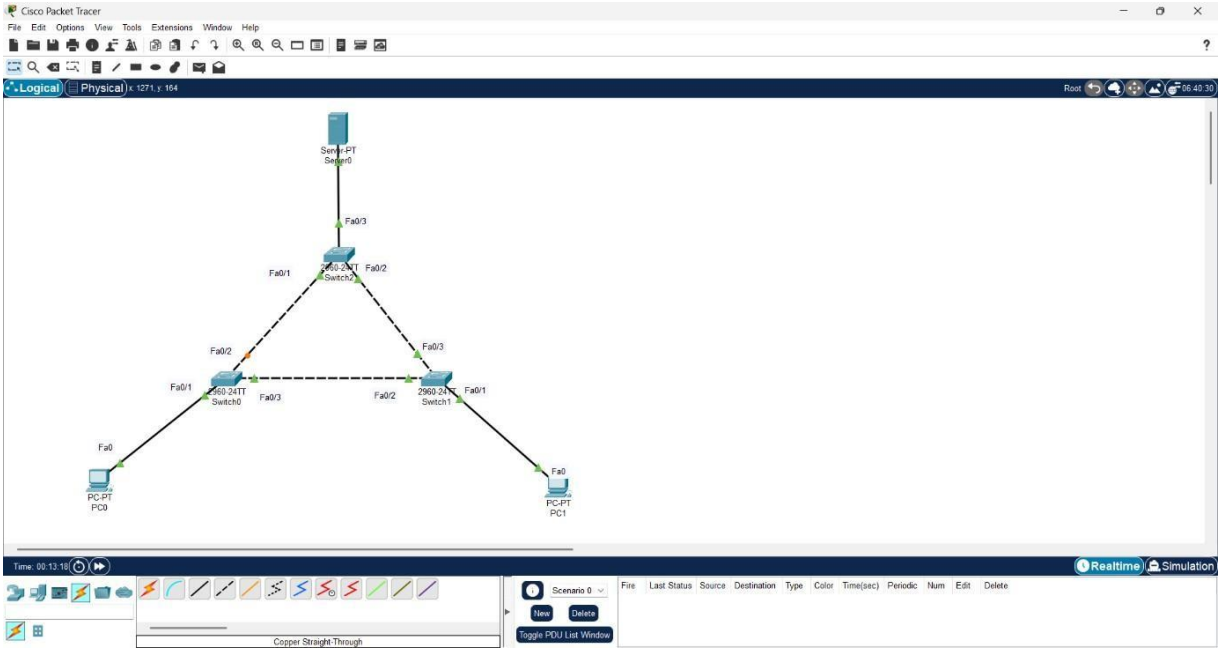
Name	**G. MADHU**
Class/Section	**8501A/S06**
Ex.No:	**6a**
Date of Submission	**06.02.2025**
Name of the Experiment	**Spanning Tree Protocol Configuration**
Google Drive link of the packet tracer file (give view permission):	https://drive.google.com/drive/folders/14eOVVhLrsHNY7zfBdvyvPDNR11Av92ob

1. **Device Requirements:**
   1. Server 0
   2. PC0
   3. PC1
   4. Switch 0
   5. Switch 1
   6. Switch 2

2. **Network Diagram for your experiment (draw the diagram either hand drawing/ms paint or any other drawing tools)**



3. Network Diagram (Packet Tracer diagram before configuration):



4. Configuration details:

Device Name	Interface Name	IP Address	Subnet mask
PC0	Fa0/1	192.168.10.1	255.255.255.0
PC1	Fa0/2	192.168.10.2	255.255.255.0
Switch 0	Fa0/3		
Switch 1	Fa0/3		
Switch 2	Fa0/3		
Server 0	Fa0	192.168.10.3	255.255.255.0

5. Describe step by step configuration steps properly (you may copy the commands used in the configuration tab and paste it.)

Switch0:

Switch>en

Switch#show spanning-tree

VLAN0001

Spanning tree enabled protocol ieee

Root ID Priority 32769

Address 000B.BECE.B890

Cost 19

Port 3(FastEthernet0/3)

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 32769 (priority 32768 sys-id-ext 1)

Address 00E0.8FB4.95A5

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Aging Time 20

Interface	Role	Sts	Cost	Prio.Nbr	Type
Fa0/1	Desg	FWD	19	128.1	P2p
Fa0/2	Altn	BLK	19	128.2	P2p
Fa0/3	Root	FWD	19	128.3	P2p

Switch#config ter

Enter configuration commands, one per line. End with CNTL/Z.

Switch(config)#interface fa0/2

Switch(config-if)#shut

Switch(config-if)#

%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to administratively down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to down

Switch(config-if)#exit

Switch(config)#exit

Switch 1:

Switch>en

Switch#show spanning-tree

VLAN0001

Spanning tree enabled protocol ieee Root

ID Priority 32769

Address 000B.BECE.B890

This bridge is the root

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 32769 (priority 32768 sys-id-ext 1)

Address 000B.BECE.B890

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Aging Time 20

Interface	Role	Sts	Cost	Prio.Nbr	Type
Fa0/1	Desg	FWD	19	128.1	P2p
Fa0/2	Desg	FWD	19	128.2	P2p Fa0/3

Desg FWD 19 128.3 P2p **Switch 2:**

Switch>en

Switch#show spanning-tree VLAN0001

Spanning tree enabled protocol ieee

Root ID Priority 32769

Address 000B.BECE.B890

Cost 19

Port 2(FastEthernet0/2)

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 32769 (priority 32768 sys-id-ext 1)

Address 0030.A3A4.A059

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Aging Time 20

Interface	Role	Sts	Cost	Prio.Nbr	Type
Fa0/1	Desg	FWD	19	128.1	P2p
Fa0/2	Desg	FWD	19	128.3	P2p

Fa0/3 Root FWD 19 128.2 P2p

Switch#config ter

Switch(config)#spanning-tree vlan 1 ?

priority Set the bridge priority for the spanning tree root

Configure switch as root

<cr>

Switch(config)#spanning-tree vlan 1?

WORD

Switch(config)#spanning-tree vlan 1 ?

priority Set the bridge priority for the spanning tree root

Configure switch as root

<cr>

Switch(config)#spanning-tree vlan 1 root ? primary Configure this

switch as primary root for this spanning tree secondary Configure

switch as secondary root

Switch(config)#spanning-tree vlan 1 root primary

Switch(config)#

%LINK-3-UPDOWN: Interface FastEthernet0/1, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down

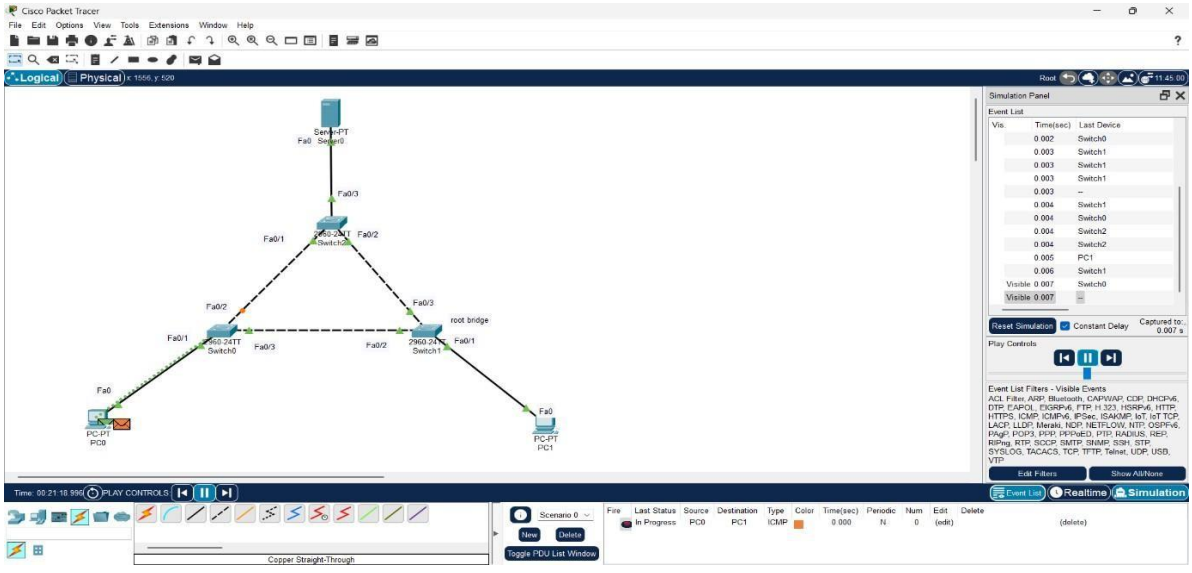
Switch(config)#exit

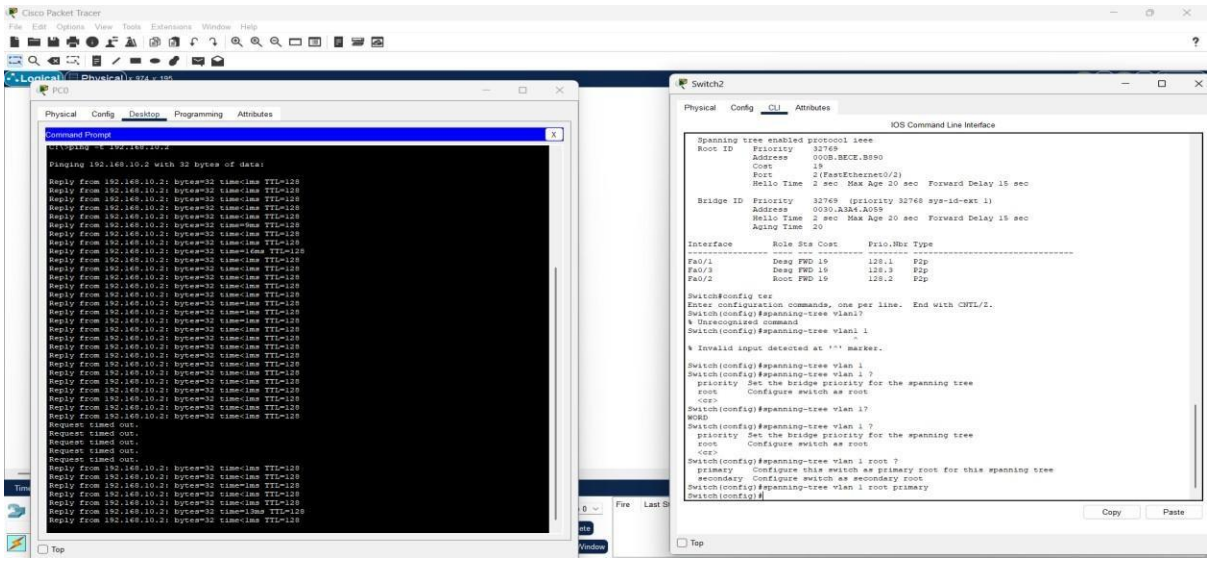
Switch#

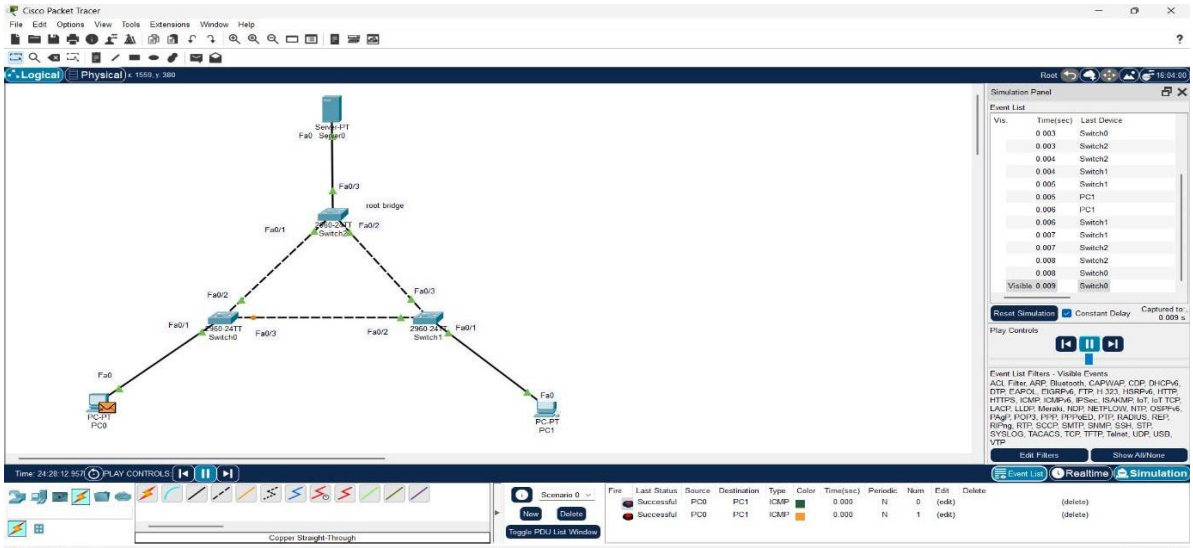
%SYS-5-CONFIG_I: Configured from console by console

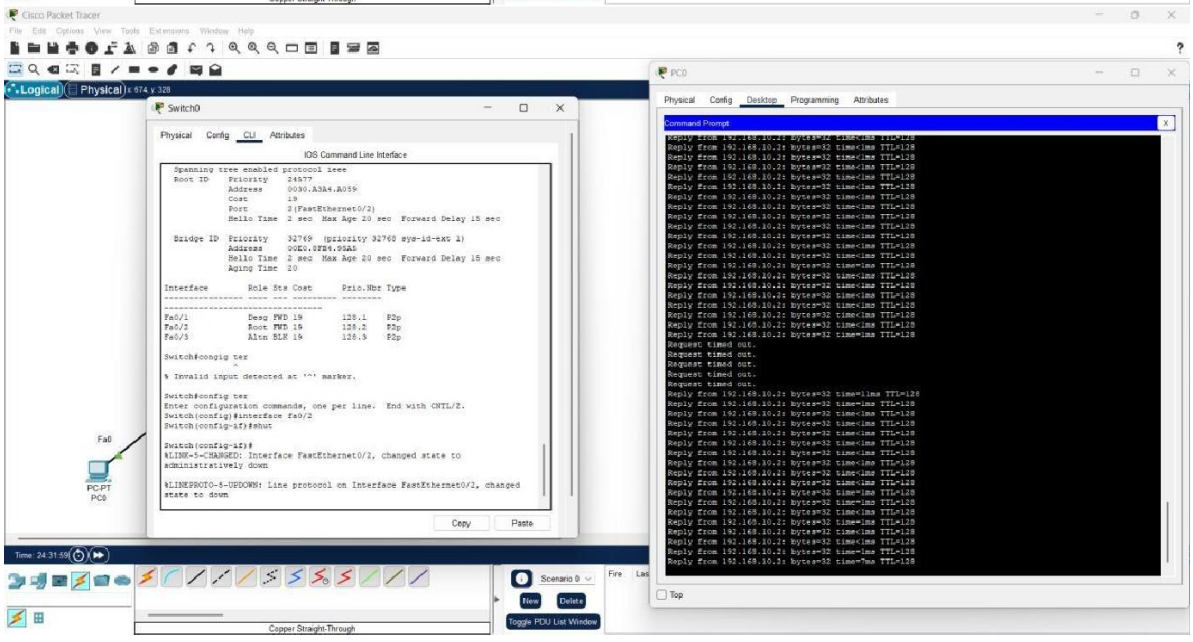
exit

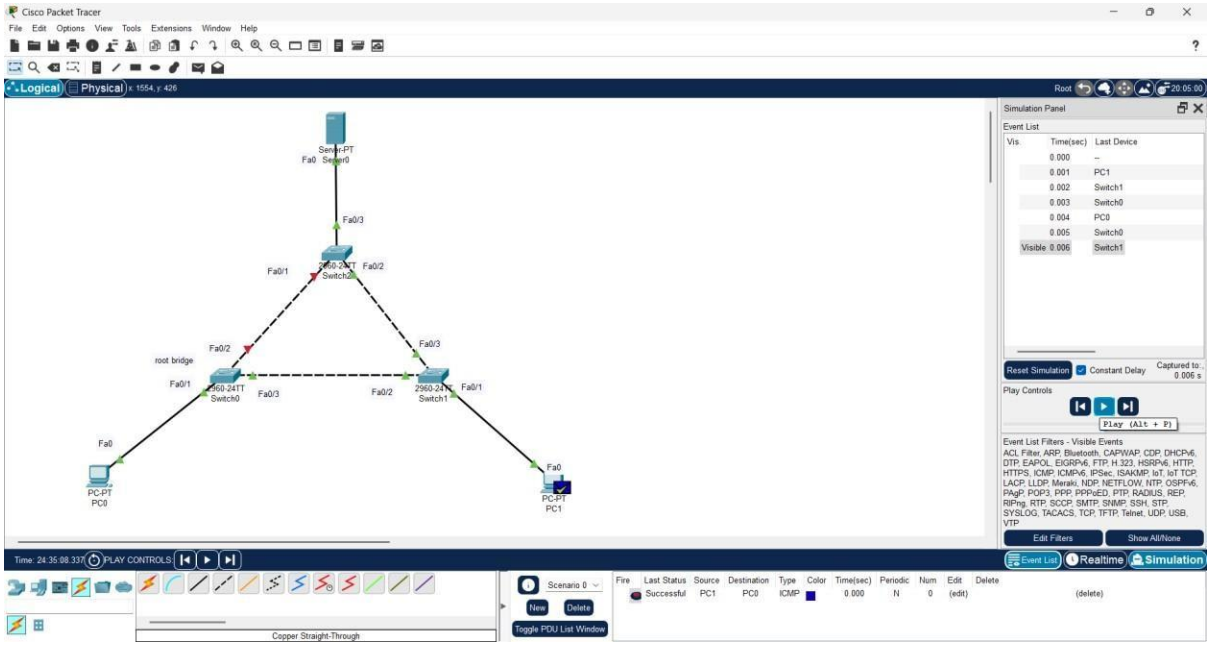
6. Output Diagram (Minimum 3 screenshot):




Cisco Packet Tracer
PC0
Physical Config Desktop Programming Attributes
Command Prompt
Pinging 192.168.10.2 with 32 bytes of data:
Reply from 192.168.10.2: bytes=32 time<1ms TTL=128
Request timed out.
Switch2
Physical Config CLI Attributes
IOS Command Line Interface
Spanning tree enabled protocol ieee
Root ID Priority 32769
Address 000B.BECE.B890
Cost 19
Port 2(FastEthernet0/2)
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Bridge ID Priority 32769 (priority 32768 sys-id-ext 1)
Address 0030.A3A4.A059
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Aging Time 20
Interface Role Sts Cost Prio.Nbr Type
Fa0/1 Desg FWD 19 128.1 P2p
Fa0/3 Desg FWD 19 128.3 P2p
Fa0/2 Root FWD 19 128.2 P2p
Switch#config ter
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#spanning-tree vlan1?
% Unrecognized command
Switch(config)#spanning-tree vlan1 1
% Invalid input detected at '^' marker.
Switch(config)#spanning-tree vlan 1
Switch(config)#spanning-tree vlan 1 ?
priority Set the bridge priority for the spanning tree
root Configure switch as root
Switch(config)#spanning-tree vlan 1?
WORD
Switch(config)#spanning-tree vlan 1 ?
priority Set the bridge priority for the spanning tree
root Configure switch as root
Switch(config)#spanning-tree vlan 1 root ?
primary Configure this switch as primary root for this spanning tree
secondary Configure switch as secondary root
Switch(config)#spanning-tree vlan 1 root primary
Switch(config)#
Copy
Paste
Top


Cisco Packet Tracer
Logical Physical
Server-PT Server0
Fa0/3
root bridge
Fa0/1
Fa0/2
2960-24TT Switch2
Switch0
Switch1
PC-PT PC0
PC-PT PC1
Simulation Panel
Event List
Reset Simulation
Constant Delay
Play Controls
Edit Filters
Show All/None
Event List
Realtime
Simulation
Copper Straight-Through
Toggle PDU List Window


Cisco Packet Tracer
Logical Physical
Switch0
Physical Config CLI Attributes
IOS Command Line Interface
Spanning tree enabled protocol ieee
Root ID Priority 24577
Address 0030.A3A4.A059
Cost 19
Port 2(FastEthernet0/2)
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Bridge ID Priority 32769 (priority 32768 sys-id-ext 1)
Address 00E0.8FB4.99A5
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Aging Time 20
Interface Role Sts Cost Prio.Nbr Type
Fa0/1 Desg FWD 19 128.1 P2p
Fa0/2 Root FWD 19 128.2 P2p
Fa0/3 Altn BLK 19 128.3 P2p
Switch#config ter
% Invalid input detected at '^' marker.
Switch#config ter
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface fa0/2
Switch(config-if)#shut
Switch(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to administratively down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to down
PC0
Physical Config Desktop Programming Attributes
Command Prompt
Reply from 192.168.10.2: bytes=32 time=1ms TTL=128
Request timed out.
Copy
Paste
Top
Copper Straight-Through
Toggle PDU List Window



Google Drive link of the packet tracer file (give view permission): Link:

https://drive.google.com/drive/folders/1xeF6Ry-JXDk6vymw93v_nc14-oGuO2qA?usp=sharing

CONCLUSION (provide conclusion about this experiment):

Configuring the Spanning Tree Protocol (STP) is essential to prevent network loops while maintaining redundancy. By selecting an optimal Root Bridge, network efficiency and stability are ensured. Proper STP configuration enhances network performance, minimizes downtime, and supports seamless data transmission.

Rubrics for Experiment Assessment:

Rubrics	Good	Normal	Poor	Marks
Creation of Topology (4)	Created the topology, Identify the proper devices and making the connections **(4)**	Created the topology, Identify the proper devices, making the connections But missing some features **(3)**	Created wrong topology, Failed to Identify the proper devices and making connections **(1)**	
Verify the connectivity (4)	Verified the connectivity in all the levels **(4)**	Verified the connectivity at some levels (only some nodes) **(2)**	Verified the connectivity is not done. **(1)**	
Timely Completion (2)	Completed the lab before the allotted time **(2)**	Completed the lab after the deadline **(1)**	Did not submitted before grading **(0)**	
			Total	

Result: Thus, the Design a Configuration of Spanning Tree Protocol has been done successfully