Assignement-1

Data Communication and Networking-Labor ory

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Answer Sheet

Assignement-1

Course Code: | CAP 276	**| Course Title: |**	**Data Communication and Networking-Laboratory**	
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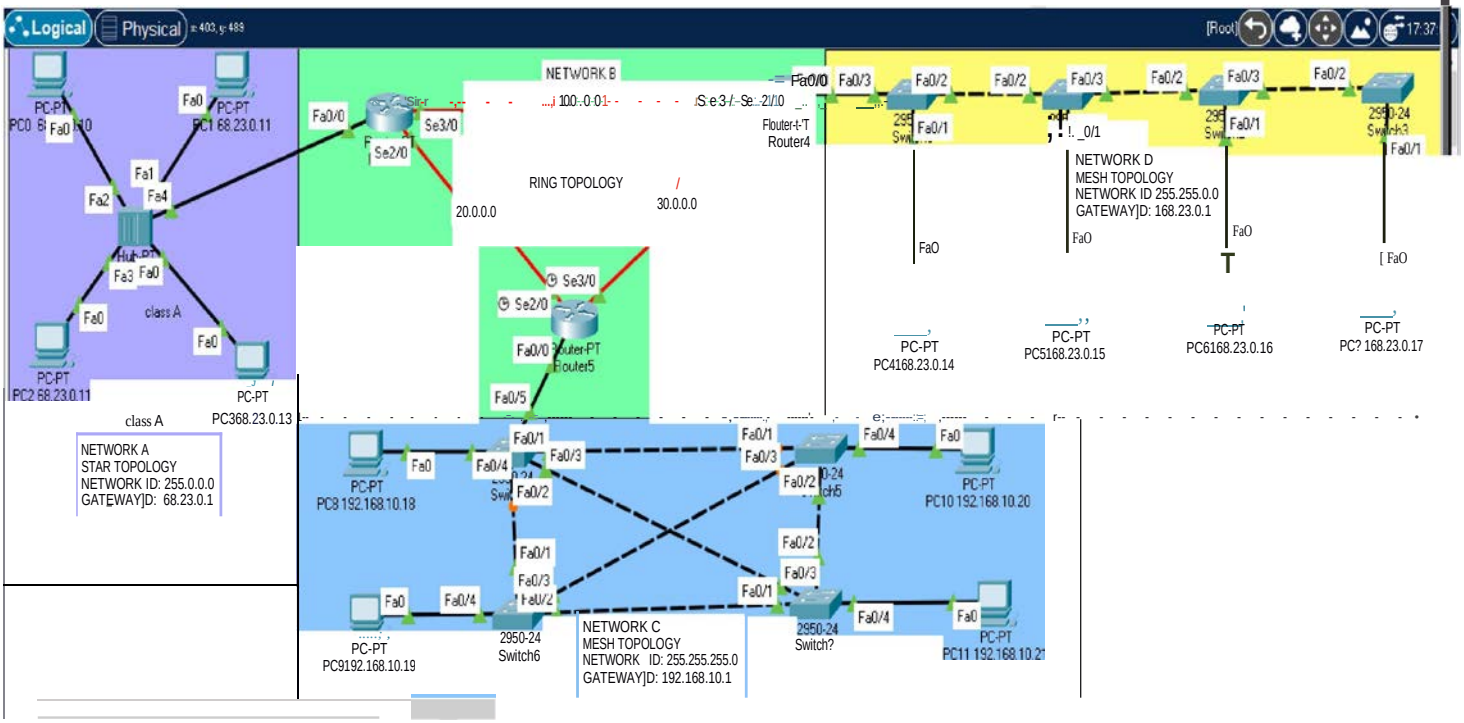
Set Assigned (Tick): |	**D**	**| Page No. | 1**	**| Total Pages | 8**

1. Objective (Description of the practical to be performed):

In this activity I made a hybrid topology with a ring backbone and connect them to star, bus and mesh topologies. Hybrid topology is an interconnection of two or more basic network topologies, each of which contains its own nodes. The resulting interconnection allows the nodes in a given basic topology to communicate with other nodes in the same basic topology as well as those in other basic topologies within the hybrid topology it includes an advantage as increasing flexibility: it can increase fault tolerance, and allows new basic topologies to be added or removed easily. The hybrid topology is more useful when you need to fulfill diversity in Computer Network.

- There are multiple advantages of Hybrid Topology
  - Reliable
  - Effective
  - Scalable
  - Flexible
- There are also some disadvantages of hybrid topology
  - Complexity
  - Expensive

2. Network Snapshot with proper labelling



3. Initial IP Configuration:
(Complẹte theta ble tor a11 the dev1ces accord"mg to

Device	Interface	IP Configuration	Connected with	Class & network
PCO	FaO	68.23.0.10	HubO	CLASS A NETWORK A STAR TOPOLOGY
PCl	FaO	68.23.0.11	HubO	
PC2	FaO	68.23.0.12	HubO	
PC3	FaO	68.23.0.13	HubO	
HubO	Fa0/4	-----	Router 3	
Router 3	Fa0/0, Se2/0, Se3/0	10.0.0.0	HubO & Routers & Router4	NETWORK B RING TOPOLOGY
Router 4	FaO	20.0.0.0	SwitchO & Router3 & Routers	
Router 5	FaO	30.0.0.0	Switch4 & Router3 & Router4	
PC4	FaO	168.23.0.14	SwitchO	CLASS B NETWORK D BUS TOPOLOGY
PCS	FaO	168.23.0.15	Switchl	
PC6	FaO	168.23.0.16	Switch2	
PC7	FaO	168.23.0.17	Switch3	
SwitchO	Fa0/3	-----	Switchl & Router3	
Switchl	Fa0/3	-----	SwitchO & Switch2	
Switch2	Fa0/3	-----	Switchl & Switch3	
Switch3	Fa0/2	-----	Switch2	CLASS C NETWORK C
PCS	FaO	192.168.0.18	Switch4	
PC9	FaO	192.168.0.19	Switch6	
PClO	FaO	192.168.0.20	SwitchS	
PCIl	FaO	192.168.0.21	Switch7	

Switch4	Fa0/4	-----	Routers &Switch5 & Switch6 & Switch7	MESH TOPOLOGY
Switch6	Fa0/5	-----	Switch4 & Switch5 & Switch7	
Switch5	Fa0/4	-----	Switch4 & Switch6 & Switch7	
Switch7	Fa0/4	-----	Switch9 Switch10&Switch8	

4. Process Description

Step of Designing:

Step 1:

I took a Ring topology as a backbone to make a hybrid topology. Through **3 Router I** made a ring topology.

Step 2:

Through Router1 , I connect **Hub.** With the help of hub I make a star topology which contain 4 PC.

Step 3:

Through Router2, I connect **SwitchO.** In switchO I connect more 3 switch to make a bus topology, all switches contain one-one PC. All switch are connected to each other.

Step 4:

Through Router3, I connect **Switch4.** In switch4 I connect more 3 switch to make a mesh topology, all switches contain one-one PC. All switch are interconnected.

Step of moving the packets:

First I move packet from one PCO to PCS:
(**Star Topology to Mesh Topology**)

Time[sec]	Last Device	At Device	Type
0.000	PCO 68.23.0.10	PCO 68.23.0.1	**ICMP**
0.001	Hub0	Hub0	**ICMP**
0.002	Hub0	PC3 68.23.0.13	**ICMP**
0.002	Hub0	PC3 68.23.0.11	**ICMP**
0.002	Router3	PC3 68.23.0.11	**ICMP**
0.002	Routers	Router3	**ICMP**
0.003	Router4	Routers	**ICMP**
0.004	Switch4	Switch4	**ICMP**
0.005	PC8 192.168.10.1	PC8192.168.1	**ICMP**
0.006	Switch4	Switch4	**ICMP**
0.007	Routers	Routers	**ICMP**
0.008	Router3	Router3	**ICMP**
0.009	Router3	Hub0	**ICMP**
0.010	Hub0	PC3 68.23.0.13	**ICMP**
0.010	Hub0	PC1 68.23.0.11	**ICMP**
0.010	Huba	PCO 68.23.0.1	**ICMP**
0.010	Hub0	PC2 68.23.0.11	**ICMP**

Second I move :uacket from one PCO to PCS:
(Star To:uology to Bus To:uology)

Time[sec]	Last Device	At Device	Type
0.000		PCl 68.23.0.11	ICMP
0.001	PCl 68.23.0.11	HubO	ICMP
0.002	HubO	PC3 68.23.0.13	ICMP
0.002	HubO	PCO 68.23.0.1	ICMP
0.002	HubO	PC2 68.23.0.11	ICMP
0.002	HubO	Router3	ICMP
0.003	Router3	Router4	ICMP
0.004	Router4	SwitchO	ICMP
0.005	SwitchO	Switchl	ICMP
0.006	Switchl	Switch2	ICMP
0.007	Switch2	PC6 168.23.0.1	ICMP
0.008	PC6 168.23.0.16	Switch2	ICMP
0.009	Switch2	Switchl	ICMP
0.0010	Switchl	SwitchO	ICMP
0.011	SwitchO	Router4	ICMP
0.012	Router4	Router3	ICMP
0.013	Router3	HubO	ICMP
0.014	HubO	PC3 68.23.0.13	ICMP
0.014	HubO	PCl 68.23.0.11	ICMP
0.014	HubO	PCO 68.23.0.1	ICMP
0.014	HubO	PC2 68.23.0.11	ICMP

Second I move packet from one PCS to PClO:
(Bus Topology to Mesh Topology)

Time[sec]	Last Device	At Device	Type
0.000		PCS	ICMP
0.001	PCS	Switchl	ICMP
0.002	Switchl	SwitchO	ICMP
0.003	SwitchO	Router4	ICMP
0.004	Router4	Routers	ICMP
0.005	Routers	Switch4	ICMP
0.006	Switch4	Switch7	ICMP
0.007	Switch7	SwitchS	ICMP
0.008	SwitchS	PClO	ICMP
0.009	PClO	SwitchS	ICMP
0.010	SwitchS	Switch7	ICMP
0.011	Switch7	Switch4	ICMP
0.012	Switch4	Routers	ICMP
0.013	Routers	Router4	ICMP
0.014	Router4	SwitchO	ICMP
0.015	SwitchO	Switchl	ICMP
0.016	Switchl	PCS	ICMP