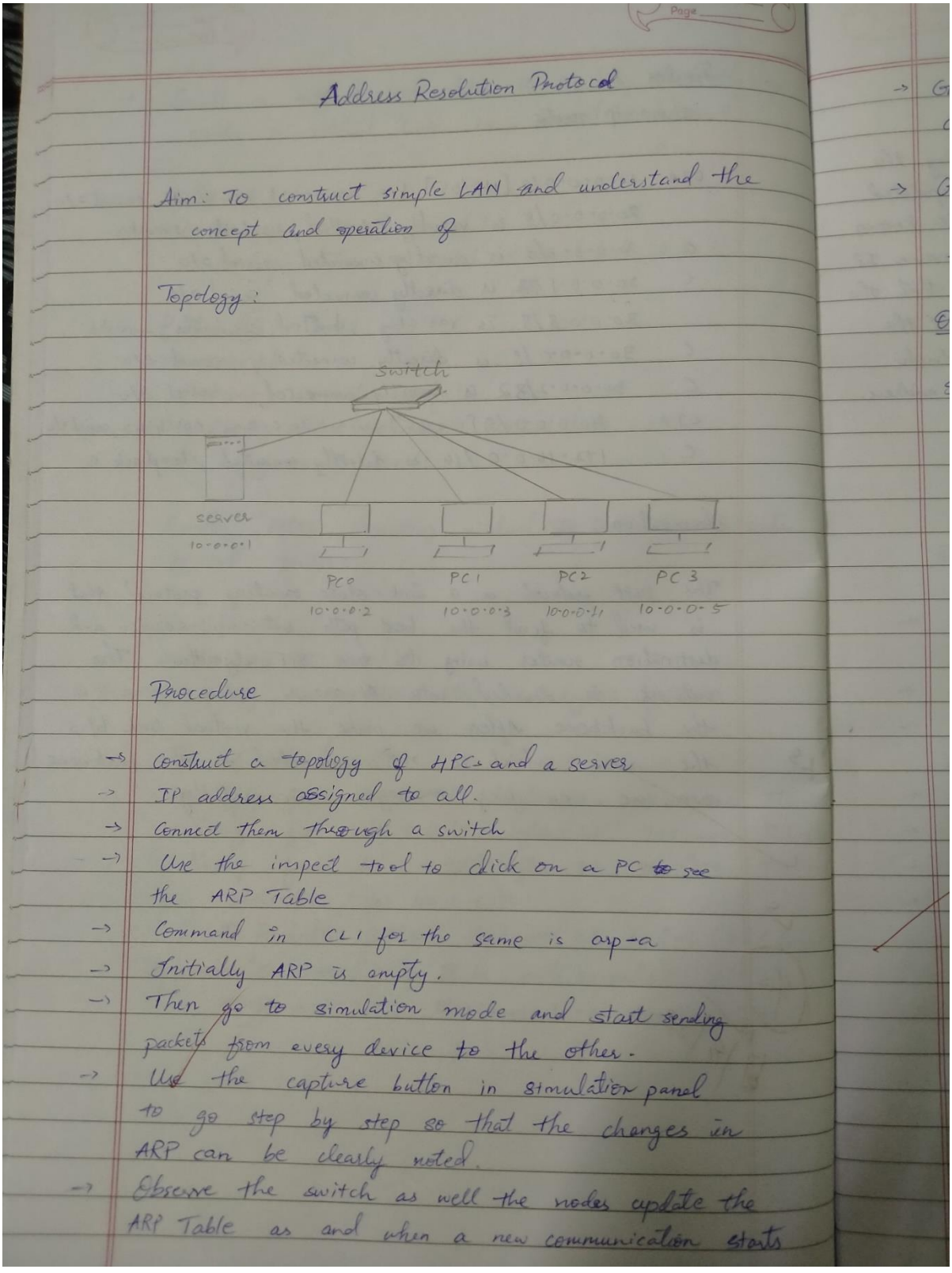
Experiment 9:

Address Resolution Protocol



Address Resolution Protocol

Aim: To construct simple LAN and understand the concept and operation of

Topology:

Procedure

-> Construct a topology of HPC's and a server
-> IP address assigned to all.
-> Connect them through a switch
-> Use the inspect tool to click on a PC to see the ARP Table
-> Command in CLI for the same is arp-a
-> Initially ARP is empty.
-> Then go to simulation mode and start sending packets from every device to the other.
-> Use the capture button in simulation panel to go step by step so that the changes in ARP can be clearly noted.
-> Observe the switch as well the nodes update the ARP Table as and when a new communication starts

→ Go to the CLI of any device and give commands to check that device's ARP table.

> arp -a

→ Go to the switch CLI and type the command

> show mac address-table

to see the address table of the entire LAN.

Output:

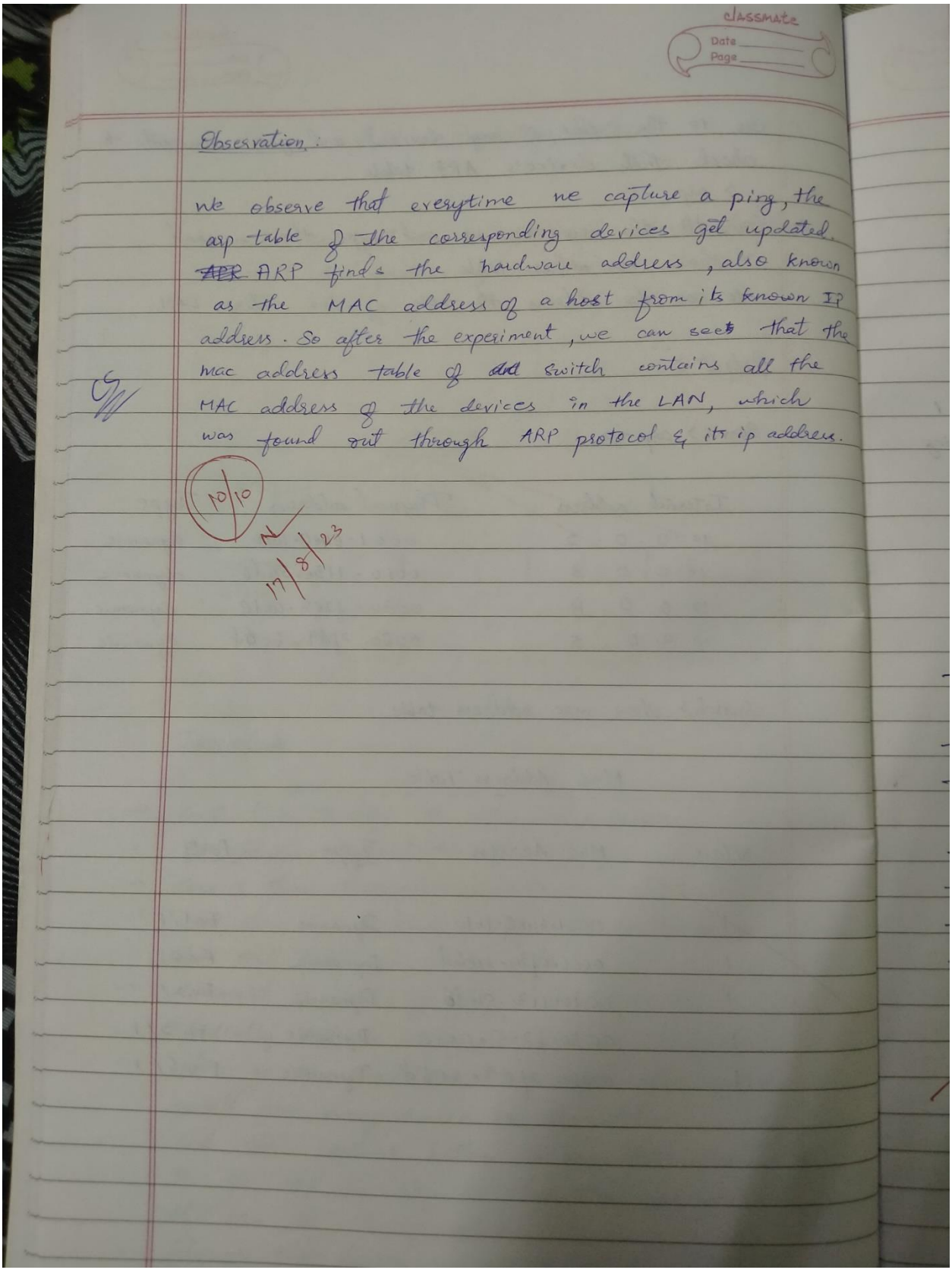
Server> arp -a

Internet address	Physical address	Type
10.0.0.2	0001.64e0.1610	dynamic
10.0.0.3	0010.113e.54d6	dynamic
10.0.0.4	0030.f2e5.ae1e	dynamic
10.0.0.5	0060.2fd9.6c6d	dynamic

Switch> show mac address-table

Mac Address Table

Vlan	Mac Address	Type	Ports
1	0001.64e0.1610	Dynamic	Fa1/1
1	000c.cf3a.4e6d	Dynamic	Fa0/1
1	0010.113e.54d6	Dynamic	Fa2/1
1	0030.f2e5.ae1e	Dynamic	Fa3/1
1	0060.2fd9.6c6d	Dynamic	Fa6/1



Observation:

We observe that everytime we capture a ping, the arp table of the corresponding devices get updated. ~~ARR~~ ARP finds the hardware address, also known as the MAC address of a host from its known IP address. So after the experiment, we can see that the mac address table of ~~dd~~ switch contains all the MAC address of the devices in the LAN, which was found out through ARP protocol & its ip address.

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Topology and output screenshots: