Faculty of Information Technology
University of Moratuwa

BSc (Hons) in Information Technology
BSc (Hons) in Artificial Intelligence
IN 2511 – Computer Networks

Assignment 05

Read the instructions before starting the assignment.

You should upload both **Packet Tracer file** and **PDF file**.

1. **Prepare Packet Tracer File:**
    - Complete all configurations required for your assignment.
    - Save the file with your index number

2. **Create PDF Document:**

    Include the following table

Subnet Name	Network Address	First Usable IP Address	Last Usable IP Address	Broadcast Address
LAN 01				
LAN 02				
LAN 03				
LAN 04				
LAN 05				
LAN 06				

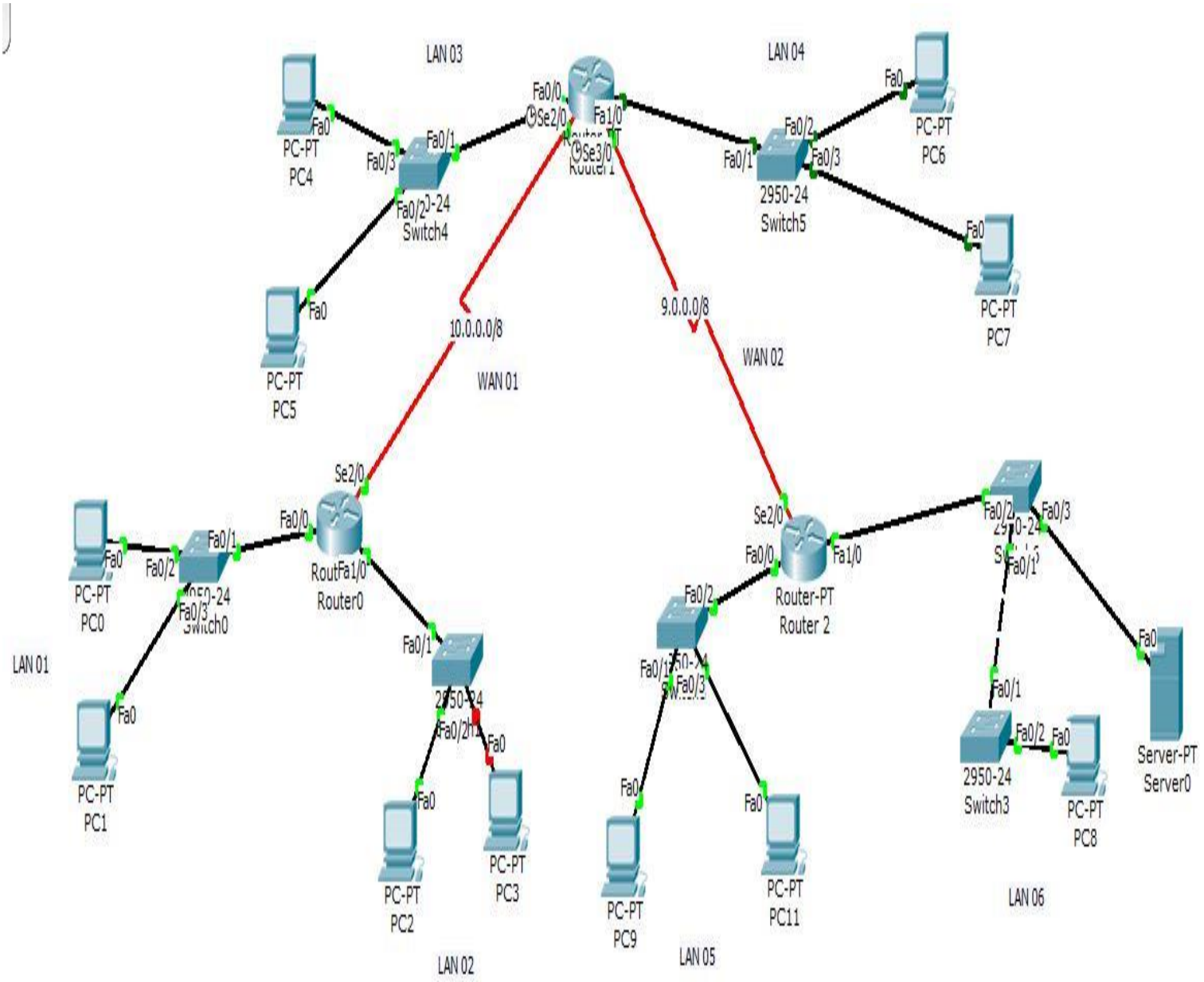
    Include the Screenshot of:

    i. Network architecture
    ii. Router configuration for each router
    iii. “show ip route “ output of each router
    iv. Ping results of the PCs.

Create 6 Local area networks. LAN 01, LAN 02, LAN 03, LAN 04, LAN 05, and LAN 06 as mentioned in the following diagram.

IP block allocated = 172.1<last two digits of your index no>.0.0/16

(Example : 204018H , IP Address = 172.118.0.0/16)



Find how many minimum numbers of Host bits taken into the Network bits for this purpose and find the subnet mask.

Assign 1st subnet to LAN 01, 2nd subnet to LAN 02, 3rd subnet to LAN 03, 4th subnet to LAN 04 and 5th subnet to LAN 05 and 6th subnet to LAN 06 respectively.

Configure the DHCP Servers for address plan of the above LANs according to the following guidelines.

1. In LAN 01 (1st subnet), configure the Router0 as DHCP Server and enable the DHCP on PCs. Take last usable IP Address of 1st subnet as default gateway. Take the IP Address of Server0 as DNS Server.
2. In LAN 2 (2nd subnet), configure the Router0 as DHCP Server and enable the DHCP on PCs. Take last usable IP Address of 2nd subnet as default gateway. Take the IP Address of Server0 as DNS Server.
3. In LAN 3 (3rd subnet), configure the Router1 as DHCP Server and enable the DHCP on PCs. Take last usable IP Address of 3rd subnet as default gateway. Take the IP Address of Server0 as DNS Server.
4. In LAN 4 (4th subnet), configure the Router1 as DHCP Server and enable the DHCP on PCs. Take last usable IP Address of 4th subnet as default gateway. Take the IP Address of Server0 as DNS Server.
5. In LAN 5 (5th subnet), configure the Router2 as DHCP Server and enable the DHCP on PCs. Take last usable IP Address of 5th subnet as default gateway. Take the IP Address of Server0 as DNS Server.
6. In LAN 6 (6th subnet), configure the Router2 as DHCP Server and enable the DHCP on PC8 only. Take last usable IP Address of 6th subnet as default gateway. Take the 1st usable IP Address to the Server0 and Exclude the 1st usable IP address from the DHCP pool. Statically configure the IP Address, subnet mask and default gateway to the Server0.
7. In WAN 01 Take the 1st usable IP Address to the Se2/0 of Router0 and 2nd usable IP Address to the Se2/0 of Router1. In WAN 02 Take the 1st usable IP Address to the Se3/0 of Router1 and 2nd usable IP Address to the Se2/0 of Router2.
8. Configure all router interfaces.

Use **dynamic routing** in all the routers as per the above scenario.