FIRST SIT COURSEWORK **Year Long 2019/20**

Module Code:	**CT4005NA**
Module Title:	**Computer Hardware and Software Architectures**
Module Leader:	**Puranjan Acharya (Islington College)**

Date:	10th June
Day / Evening:	Wednesday
Start Time:	12:05
Duration:	3:12

Test Type:	**Coursework**
Materials supplied:	None
Materials permitted:	Writing equipment only
Warning:	Candidates are warned that possession of unauthorized materials in a test is a serious assessment offence.

Instructions to candidates:	This test accounts for **60%** of your total module grades. You are to **submit this test paper**, in the google classroom.

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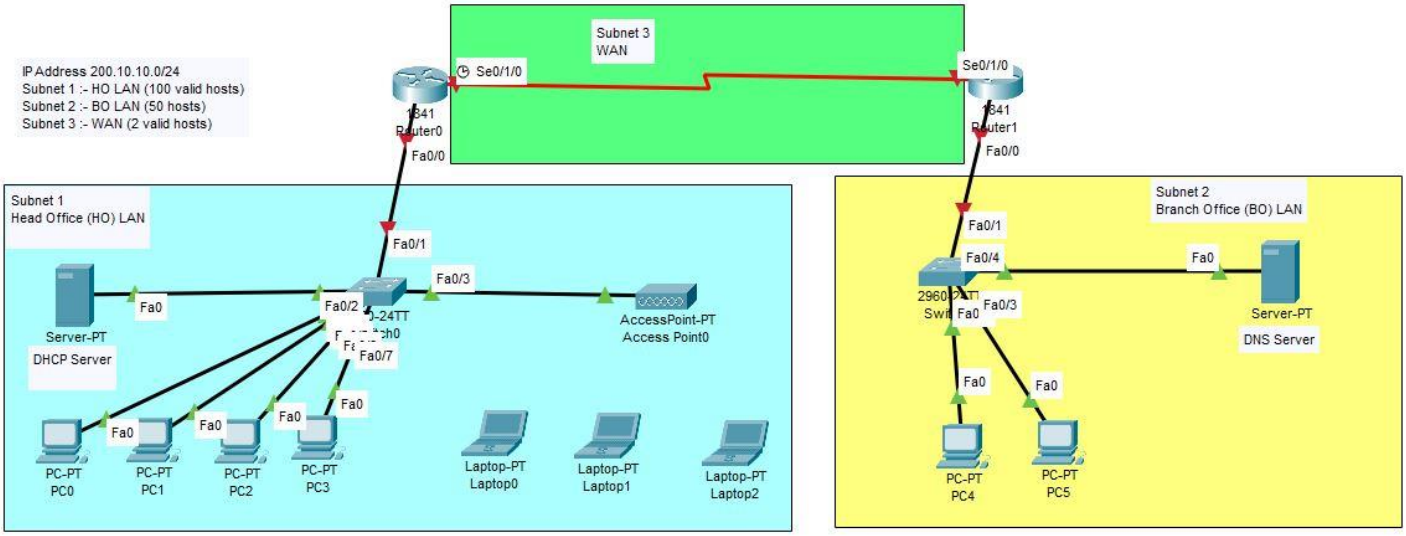
Topology: -



Task 1 (Subnetting) **[18]**

1. Subnet the IP **200.10.10.0/24** for: - **[9 x 2 = 18]**
    a) Head Office (HO) LAN (100 valid hosts)
    b) Branch Office (BO) LAN (50 valid hosts)
    c) WAN (2 valid hosts)

Fill in the Following Information (Write the address with the subnet mask included in CIDR Notation)

a. Subnet 1 HO LAN:

Network Address	Usable IP Address Range	Broadcast Address
200.10.10.0/25	200.10.10.1/25 to 200.10.10.126/25	200.10.10.127/25

b. Subnet 2 BO LAN:

Network Address	Usable IP Address Range	Broadcast Address
200.10.10.128/26	200.10.10.129/26 to 200.10.10.190/26	200.10.10.191/26

c. Subnet 3 WAN:

Network Address	Usable IP Address Range	Broadcast Address
200.10.10.192/30	200.10.10.193/30 to 200.10.10.194/30	200.10.10.195/30

Task 2 (Configure Static IP) **[32]**

2. HO Router0 LAN interface (fa0/0) ➔ First usable IP address of Subnet 1 HO LAN

   Fill in the following information for Router fa0/0 interface: **[2 X 2 = 4]**

IP Address	200.10.10.1
Subnet Mask	255.255.255.128

3. HO Router0 WAN interface S0/1/0 ➔ First usable IP of WAN subnet3

   Fill in the following information for HO Router WAN interface S0/1/0 **[2 X 2 = 4]**

IP Address	200.10.10.193
Subnet Mask	255.255.255.252

4. BO Router1 LAN interface (fa0/0) ➔ First usable IP address of Subnet 2 BO LAN

   Fill in the following information for Router fa0/0 interface: **[2 X 2 = 4]**

IP Address	200.10.10.129
Subnet Mask	255.255.255.192

5. BO Router1 WAN interface S0/1/0 ➔ Second usable IP of WAN subnet3

   Fill in the following information for BO Router1 WAN interface S0/1/0 **[2 X 2 = 4]**

IP Address	200.10.10.194
Subnet Mask	255.255.255.252

6. DNS Server ➔ Second usable IP address of Subnet 2 BO LAN

   Fill in the following information for DNS Network Interface Card interface: **[4 X 2 = 8]**

IP Address	200.10.10.130
Subnet Mask	255.255.255.192
Default Gateway	200.10.10.129
DNS Server	200.10.10.130

7. DHCP Server ➔ Second usable IP address of Subnet1 HO LAN

   Fill in the following information for DHCP Network Interface Card interface: **[4 x 2 = 8]**

IP Address	200.10.10.2
Subnet Mask	255.255.255.128
Default Gateway	200.10.10.1
DNS Server	200.10.10.130

Task 3: Configure DNS and DHCP Service. **[14]**

8. Configure DNS service in DNS Server as instructed in the packet tracer activity file.

Fill in the following information for DNS Server **[2 X 2 = 4]**

Domain Name	www.islington.edu.np
IP Address	200.10.10.130

9. Configure DHCP Service in DHCP Server as instructed in the packet tracer activity file.

Fill in the following information for DHCP Service **[5 X 2 = 10]**

Pool name	serverPool
Default Gateway	200.10.10.1
DNS Server	200.10.10.130
Start IP Address	200.10.10.3
Subnet Mask	255.255.255.128

Task 4: Configure Wireless Access point **[6]**

10. Configure Wireless Access Point as instructed in the packet tracer activity file.

Fill in the following information for Wireless Access point: **[3 X 2 = 6]**

Wi-Fi SSID Name	Islington College
Encryption type	WPA2 PSK
Wi-Fi Password	Abcd1234

Task 5: Configure Static Routing **[18]**

11. Configure Static Routing in both HO Router0 and BO Router1

a. Fill in the following information for Static routing in Router0: **[3 X 3 = 9]**

Destination Network Address	200.10.10.128
Destination Network Address Subnet Mask	255.255.255.192
Next hop IP address	200.10.10.194

b. Fill in the following information for Static routing in Router1: **[3 X 3 = 9]**

Destination Network Address	200.10.10.0
Destination Network Address Subnet Mask	255.255.255.128
Next hop IP address	200.10.10.193

Task 6: Verify Connectivity **[12]**

12. Verify connectivity **[4 X 3 = 12]**

Do a ping test from PC0 to PC5 and answer the following question.

a. Does the ping test successfully?

Yes, the ping test is successfully done from PC0 to PC5.

The ping statistics for 200.10.10.132 includes packets sent 4, received 4 and lost 0. The approximate round trip times in milli-seconds are minimum 17ms, maximum 24ms and average 19ms.

b. What is the IP address PC5 that you found from the ping test?

The IP address obtains from the ping test is 200.10.10.132.

The ping statistics for 200.10.10.132 includes packets sent 4, received 4 and lost 0. The approximate round trip times in milli-seconds are minimum 17ms, maximum 24ms and average 19ms.

Do a ping test from Laptop0 to www.islington.edu.np and answer the following question:

c. Does the ping test successfully?

Yes, the ping test is successfully done from Laptop0 to www.islington.edu.np.

The ping statistics for 200.10.10.130 includes packets sent 4, received 4 and lost 0. The approximate round trip times in milli-seconds are minimum 27ms, maximum 62ms and average 44ms.

d. What is the IP address of www.islington.edu.np that you found from the ping test?

The IP address obtains from the ping test is 200.10.10.130.

The ping statistics for 200.10.10.130 includes packets sent 4, received 4 and lost 0. The approximate round trip times in milli-seconds are minimum 27ms, maximum 62ms and average 44ms.

THE END