Module Code:	**CT4005NI**
Module Title:	**Computer Hardware and Software Architectures**
Module Leader:	**Puranjan Acharya (Islington College)**

Date:	19 September 2021
Day / Evening:	Day
Start Time:	9 AM
Duration:	12 Hours

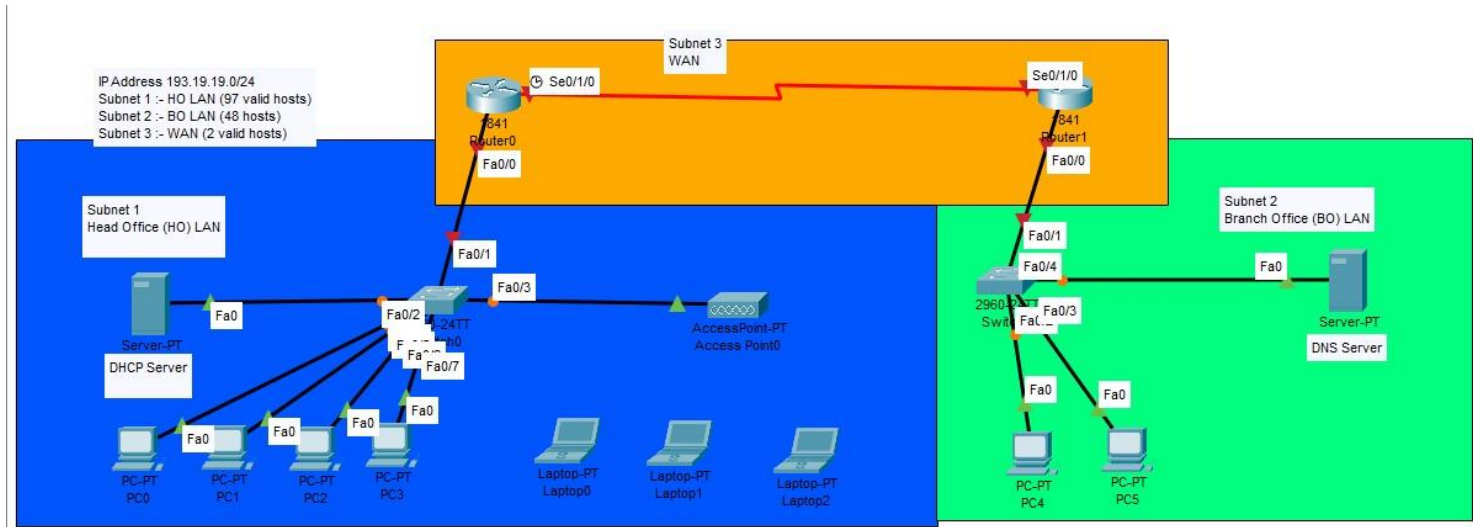| Test Type:	**Practical Examination**
Materials supplied:	None
Materials permitted:	Writing equipment only
Warning:	Candidates are warned that possession of unauthorized materials in a test is a serious assessment offence.

Instructions to candidates:	
	This test accounts for 30**%** of your total module grades.
	You are to **submit this test paper**, in the google classroom.

Topology: -

IP Address 193.19.19.0/24
Subnet 1 :- HO LAN (97 valid hosts)
Subnet 2 :- BO LAN (48 hosts)
Subnet 3 :- WAN (2 valid hosts)

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

1. Subnet the IP **193.19.19.0/24** for: - **[9 x 2 = 18]**
   a) Head Office (HO) LAN (97valid hosts)
   b) Branch Office (BO) LAN (48 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
193.19.19.0/25	193.19.19.1/25 to 193.19.19.126/25	193.19.19.127/25

b. Subnet 2 BO LAN:

Network Address	Usable IP Address Range	Broadcast Address
193.19.19.128/26	193.19.19.129/26 to 193.19.19.190/26	193.19.19.191/26

c. Subnet 3 WAN:

Network Address	Usable IP Address Range	Broadcast Address
193.19.19.192/30	193.19.19.193/30 to 193.19.19.194/30	193.19.19.195/30

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	193.19.19.1/25
Subnet Mask	255.255.255.128

3. 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	193.19.19.2/25
Subnet Mask	255.255.255.128
Default Gateway	193.19.19.1/25
DNS Server	193.19.19.130/25

4. 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	193.19.19.193/30
Subnet Mask	255.255.255.252

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	193.19.19.194/30
Subnet Mask	255.255.255.252

6. 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	193.19.19.129/26
Subnet Mask	255.255.255.192

7. 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	193.19.19.130/26
Subnet Mask	255.255.255.192
Default Gateway	193.19.19.129/26
DNS Server	193.19.19.130/26

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

8. 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	193.19.19.1/25
DNS Server	193.19.19.130/26
Start IP Address	193.19.19.0/25
Subnet Mask	255.255.255.128

9. 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.cisco.com
IP Address	193.19.19.130/26

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	home_wifi
Encryption type	WPA 2 PSK
Wi-Fi Password	1234ABCD

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	193.19.19.128/26
Destination Network Address Subnet Mask	255.255.255.192
Next hop IP address	193.19.19.194/30

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

Destination Network Address	193.19.19.0/25
Destination Network Address Subnet Mask	255.255.255.128
Next hop IP address	193.19.19.193/30

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 was successfully done from PC0 to PC5.

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

> The IP address PC5 that we found from the ping test is 193.19.19.132.

Do a ping test from Laptop0 to www.cisco.com and answer the following question:

c. Does the ping test successfully?

> Yes, the ping test was successfully done from laptop 0 to www.cisco.com.

d. What is the IP address of www.cisco.com that you found from the ping test?

> 193.19.19.130 was the IP address of www.cisco.com that we from the ping test.

END