



LOCATION: **SWANSEA**

LLEOLIAD: **ABERTAWE**

LEVEL **5**

LEFEL **5**

EXAMINATION PERIOD
MAY 2020

CYFNOD ARHOLIADAU
MAI 2020

MODULE CODE: ACCA5002
ROUTING AND SWITCHING CONCEPTS PRACTICAL

TIME: **2 HOURS**

Student Name : _____

Student ID : _____

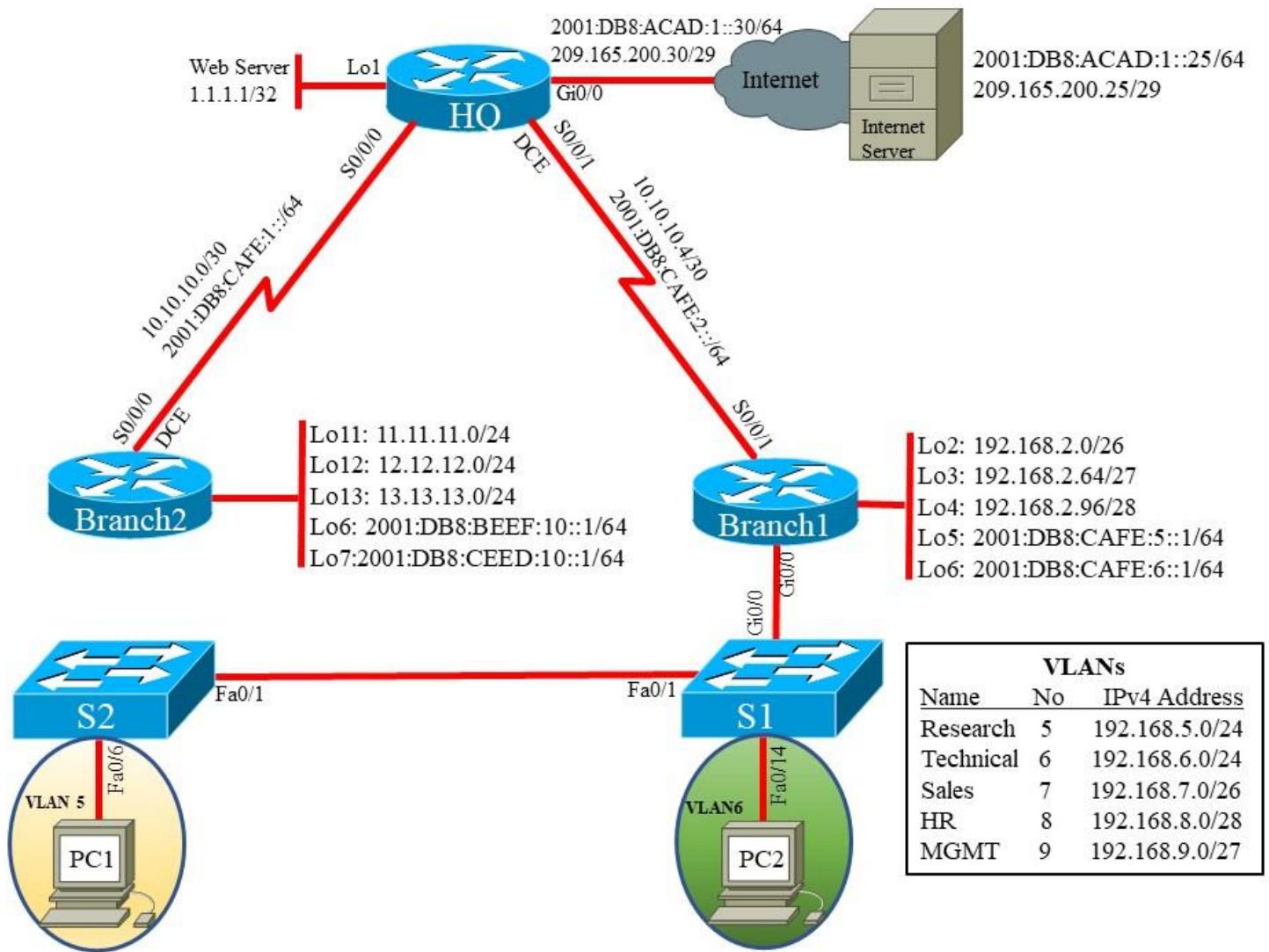
Date : _____

This is an individual practical lab-test, held under examination conditions. You will be assigned 3 Routers, 2 Switches and two PCs; you should configure these devices based on the following specifications.

This paper is marked out of 100.

You will have 3 hours to complete all the tasks and upload the files on Moodle.

TOPOLOGY DIAGRAM



Switch 1 Ports to VLAN

Fa0/2 to 0/7 - VLAN 5
 Fa0/8 to 0/14 - VLAN 6
 Fa0/15 to 0/20 - VLAN 7
 Fa0/21 to 0/24 - VLAN 8

Switch 2 Ports to VLAN

Fa0/2 to 0/7 - VLAN 5
 Fa0/8 to 0/14 - VLAN 6
 Fa0/15 to 0/20 - VLAN 7
 Fa0/21 to 0/24 - VLAN 8.

Task 1: IP addressing scheme (5 marks)

Device	Interface	IP Address	Subnet Mask	IPv6 Address
HQ	Ge0/0			
				Link-local:
	S0/0/0			
				Link-local:
	S0/0/1			Link-local:
	Lo1			
Branch 1	S0/0/1			
				Link-local:
	Lo2			
	Lo3			
	Lo4			
	Lo5			
	L06			Link-local:
	Gi0/0			
Branch 2	S0/0/0			
				Link-local:
	Lo11			
	Lo12			
	Lo13			
	Lo6			
	Lo7			
S1	VLAN 9			
S2	VLAN 9			
Internet Server				
				Link-local:

Task 2: Network Connection (5 Marks)

Create the topology using Cisco Packet Tracer and complete the tasks below.

Task 3: Configure the basic configuration (10 Marks)

1. Configure all devices with hostname
2. Disable DNS lookup
3. Configure all devices with interfaces as shown in the topology.
4. Configure Internet PC with IPv4 and IPv6 address.

Task 4: Configure Routers and Switches (65 marks)

1. Configure RIPv2 on all routers and advertise networks shown in the topology. Disable auto summary.
2. Configure IPv6 static route with exit interface on all routers.
3. On HQ, configure IPV4 and IPv6 default route out Gi0/0
4. On S1 and S2, configure VLANs
5. Assign the IPv4 address to Management VLAN on S1 and S2.
6. Assign default gateway on switches
7. On S1, force trunking on Gi0/0 and Fa0/1. Use VLAN1 as the Native VLAN
8. on S2, force trunking on Fa0/1. Use VLAN1 as the Native VLAN.
9. On S1, assign Fa0/6 to VLAN21 and on S2, assign Fa0/18 to VLAN23.
10. On both switches, shutdown all unused ports.
11. Configure Router-on-Stick inter-VLAN routing.
12. On all Routers, configure all Loopback and Ethernet interfaces as passive.
13. Configure Branch1 as the DHCP server for VLANs 5 to 8. Reserve first 10 IP addresses for static configurations.

VLAN 5	VLAN 6	VLAN 7	VLAN 8
Name: Research	Name: Technical	Name: Sales	Name: HR
DNS-Server: 1.1.1.1	DNS-Server: 1.1.1.1	DNS-Server: 1.1.1.1	DNS-Server: 1.1.1.1
Domain-Name:	Domain-Name:	Domain-Name:	Domain-Name:
SoAC.com	SoAC.com	SoAC.com	SoAC.com
Set the default gateway	Set the default gateway	Set the default gateway	Set the default gateway

14. Create a local database with 1 user account: username: webuser, password: soac1234, privilege: 15.
15. On HQ, configure a static NAT to the Web Server. Use the inside global address 209.165.200.25. Assign the inside and outside interface for static NAT.
16. Configure the dynamic NAT. Allow VLAN 5 and 6 networks on Branch 1 to be translated.
17. Define the pool of usable public IP addresses, 209.165.200.225 to 209.165.200.228.
18. Define the dynamic NAT translation.

Task 5: Verify connectivity (15 marks)

After configuring each host computer, record the host network settings with the **ipconfig /all** command.

Host PC-A Network Configuration	
Description	
Physical Address	
IP Address	
Subnet Mask	
Default Gateway	

Host PC-B Network Configuration	
Description	
Physical Address	
IP Address	
Subnet Mask	
Default Gateway	

Verify PC-A can ping PC-B. Is it successful? _____

Use a Web browser on the Internet PC to access the Web Server (209.165.200.25). Login with Username: webuser and password: soac1234.

Is the Web server accessible? _____

Submission Requirement

The packet tracer file should be saved as “**studentname_id**” and uploaded on Moodle. In addition to packet tracer file, you must also submit

- The output of show running-configuration command in a text file for all devices configured.
- This document with **Task 1** and **Task 5** completed

All documentation for your solution should be submitted electronically on Moodle.

It is your responsibility that you submit all the outputs and files correctly.