No: SRT Date:

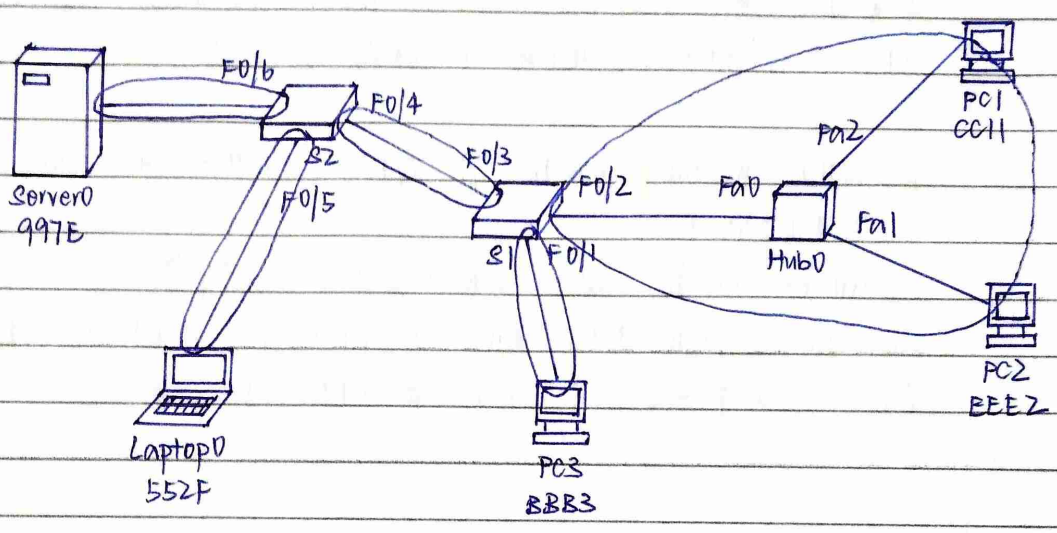
19 October 2022

Question 1

a)(i) Ingress means the frame is entering an interface. A switch forwards based on the ingress interface and the destination MAC address.

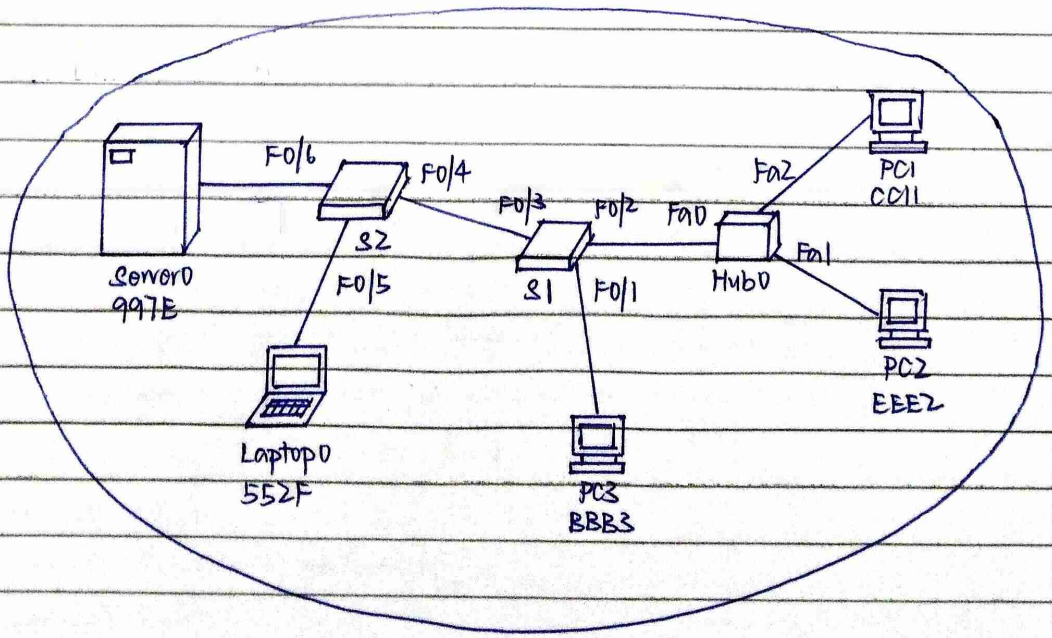
(ii) Egress means the frame is exiting the interface.

b)(i)



5 collision domains

(ii)



1 broadcast domain

No: Date:

(iii) S1: F0/2, Fa0/3

S2: F0/5, F0/6

(iv) S1 will receive the frame through F0/1 and it will add the source MAC address (PC3) to the switch CAM table.

S1 will examine the destination MAC address (S2).

Since the destination MAC address doesn't exist in CAM table, it is flooded out all the interface except the one it was received (Fa0/2, Fa0/3).

S2 will receive the frame through F0/4 and it will add the source MAC address (S1) to the switch CAM table.

S2 will examine the destination MAC address (Laptop0).

Since the destination MAC address doesn't exist in CAM table, it is flooded out all the interface except the one it was received (F0/5, F0/6).

No: .....

Date: .....

Question 2

a) (i) Yes. Both Laptop0 and PC1 are in the same network as they are in the 192.168.20.0/24 subnet.

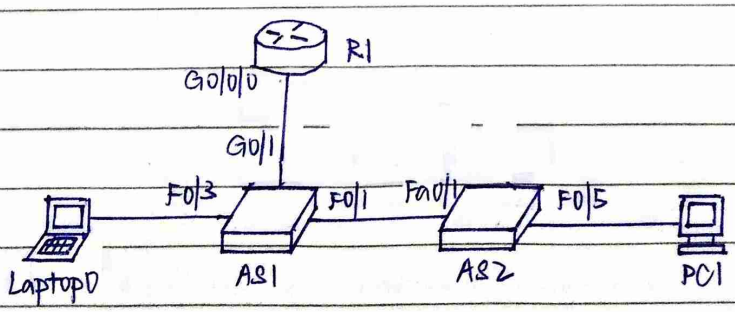
(ii) Yes. AS1 and AS2 are assigned to the same default VLAN (VLAN 1). They also in the same network which is 192.168.10.0/24 subnet.

(iii) No. PC1 and AS2 are in the different subnets, devices in different subnets do not communicate directly.

b)

Device	Errors with explanation	Proposed solution
AS2	Interface F0/5 is in the wrong vlan. It supposed in VLAN 20, but now it is in VLAN 1.	AS2(config)# f0/5 AS2(config-if)# switchport mode access AS2(config-if)# switchport access vlan 20
AS1	F0/1 does not assign to VLAN 10.	AS1(config)# f0/1 AS1(config-if)# switchport mode access AS1(config-if)# switchport access vlan 10
AS2	F0/1 does not assign to VLAN 10.	AS2(config)# f0/1 AS2(config-if)# switchport mode access AS2(config-if)# switchport access vlan 10

c)



AS1(config)# int g0/1
AS1(config-if)# switchport mode trunk
AS1(config-if)# exit

No: ..... Date: .....

R1 (config) # int g0/0/0
R1 (config-if) # ip address 192.168.10.1 255.255.255.0
R1 (config-if) # no shutdown

No: .....

Date: .....

Question 3

a) (i) AL83

(ii) AL81: F0/1 AL82: F0/4

(iii) AL81: F0/7 AL82: F0/8

(iv) - All ports on the root bridge are designated ports.
- If one end of a segment is a root port, the other end is a designated port.
- All ports attached to end devices are designated ports.

(v) AL81: F0/2 AL82: F0/3

(vi)

PCA ⟶ AL82 ⟶ AL81 ⟶ PCB

b) (i) EtherChannel technology was originally developed by Cisco as a LAN switch-to-switch technique of grouping several Fast Ethernet or Gigabit Ethernet ports into one logical channel.

(ii) No.

(iii) In switch FLOOR_1, interface g0/1 and g0/2 are configured as "on", a static or unconditional EtherChannel, while in switch FLOOR_2, interface g0/1 and g0/2 are configured EtherChannel with PAgP as the mode is "desirable". PAgP is using auto and desirable mode. Therefore, PAgP EtherChannel is not created between these two switches.

No: Date:

Question 4

a) First Hop Redundancy Protocols (FHRPs) are mechanisms that provide alternate default gateways in switched networks where two or more routers are connected to the same VLANs.

b) The best path in the routing table is also known as the longest match.
The longest match is the route in the routing table that has the greatest number of far-left matching bits with the destination IP address of the packet. The longest match is always the profered route.

c) - Determining the best path to a destination network involves the evaluation of multiple paths and selecting the optimum or shortest path to reach that network.
- The best path is selected based on the metric or value that is used by the routing protocol.
- The best path to a network is the path with the lowest metric. A metric is a value that is used to measure the distance to a given network.

d) (i) R2 is the active router. The state of R2 is Active.

(ii) 0030.0E5F.FF03

(iii) IP address : 192.168.1.20
Priority : 100

No: .....

Date: .....

e)

Configuration Errors	Solutions
The commands were entered in the wrong interface.	Enter all the commands above into interface f0/7.
VLAN 70 was not assigned to the port.	Switch (config-if)# switchport access vlan 70
The sticky command was not configured.	Switch (config-if) # switchport port-security mac-address sticky
The maximum address should be 2 instead 3.	Switch (config-if) # switchport port-security max 2
The violation mode was wrongly configured.	Switch (config-if) # switchport port-security restrict