BMIT2164 Fundamentals of Computer Networks

E-Mid Term Test

Instructions to Candidates:

Answer **ALL** questions in the requested format or template provided.

- Click "File" and select "Rename".
- Name the Google doc as "Yourname_ProgramTutorialGroup_Actual".

  E.g. "EuniceLeeJiaYee_RSD2G4_Actual".

- You must perform the originality check on your answer in Google Doc. Ensure the range is from 0% to 10%. 10.1% and above is not acceptable.
- At the end of the mid term test, download your answer as a **PDF file**. Turn in **both** copies of your answers (one in Google Doc and one in PDF format).
- This is an open book online assessment. You **MUST** answer the assessment questions on your own without any assistance from other persons.
- Read all the questions carefully and understand what you are being asked to answer.
- Marks are awarded for your own (original) analysis. Therefore, use the time and information to build well-constructed answers.
- You must submit your answers within the time frame allowed for this online assessment.

STUDENT'S DECLARATION OF ORIGINALITY

By submitting this online assessment, I declare that this submitted work is free from all forms of plagiarism and for all intents and purposes is my own properly derived work. I understand that I have to bear the consequences if I fail to do so.

Mid Term Test Submission
Course Code:
Course Title:
Signature:
Name of Student:
Student ID:
Date:

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Question 1

a) Based on Figure 1-1, identify the number of the collision domains and circle the collision domain in Figure 1-1 in your answer template.

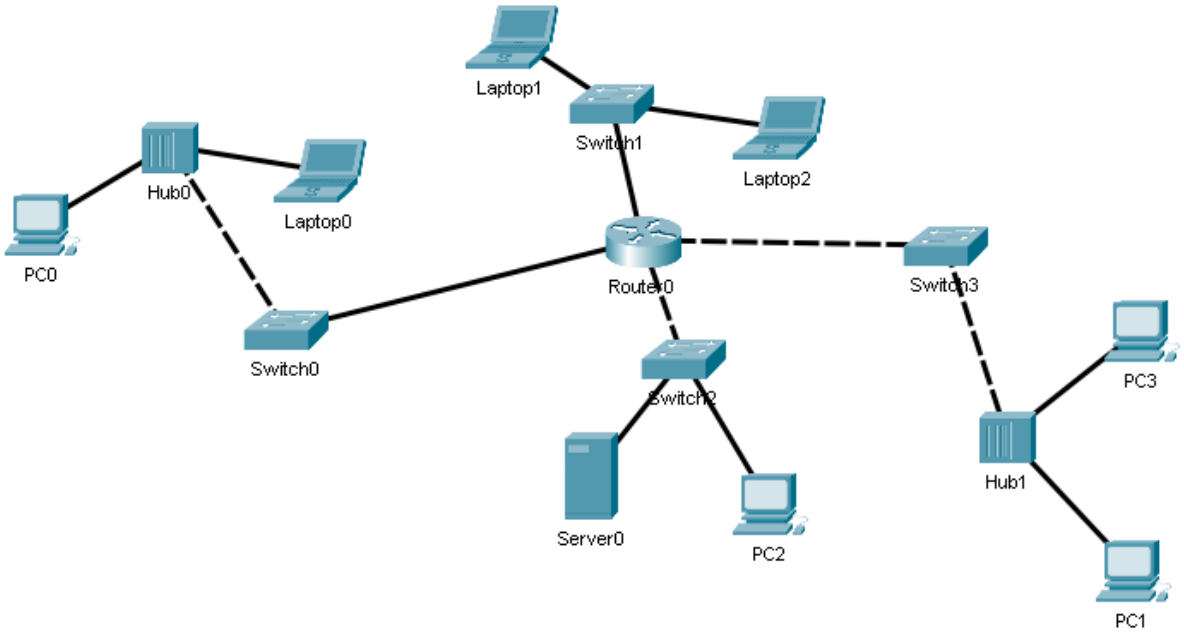

Figure 1-1: Network Topology A

(7 marks)

b) Based on Figure 1-2, identify the number of the broadcast domains and circle the broadcast domain in Figure 1-2 in your answer template.

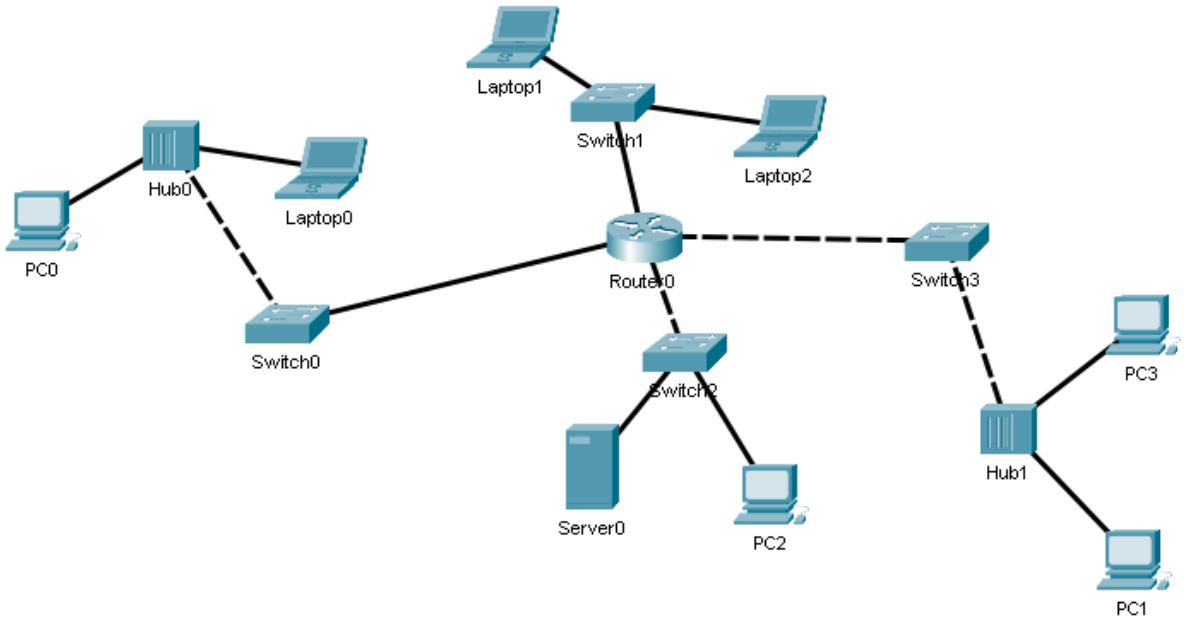

Figure 1-2: Network Topology A

(5 marks)

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Question 1 (Continued)

c) Redraw Figure 1-2 so that the number of broadcast domain become **ONE.** What are the devices you add or remove? (7 marks)

d) Explain the difference between "Cut-through" and "Store and Forward" in switch forwarding methods. (6 marks)

[Total: 25 marks]

Question 2

a) The network engineer should configure the Switch1 and Switch2 according to Figure 2-1. However, there are some configuration errors in Table 2-1 and Table 2-2 respectively. Identify the configuration errors and give correct configurations. (11 marks)

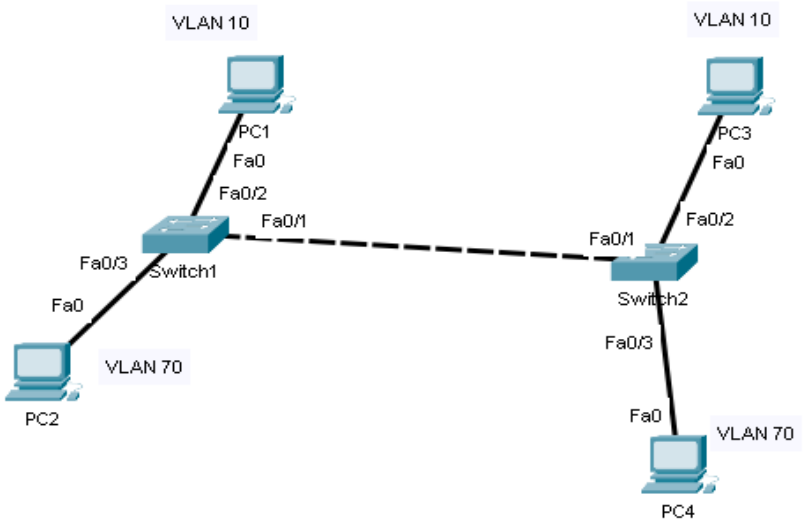

Figure 2-1: A VLAN Network

Switch1	Switch2
interface FastEthernet0/1 switchport mode access ! interface FastEthernet0/2 switchport mode dynamic auto ! interface FastEthernet0/3 ! interface FastEthernet0/4 switchport access vlan 10 switchport mode access ! interface FastEthernet0/5 !	interface FastEthernet0/1 switchport access vlan 10 switchport mode access ! interface FastEthernet0/2 switchport mode dynamic auto ! interface FastEthernet0/3 switchport access vlan 70 switchport mode access ! interface FastEthernet0/4 ! interface FastEthernet0/5 !

Table 2-1: Switches Configurations

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Question 2 a) (Continued)

PC Name	IP Address	Subnet Mask
PC1	192.168.10.2	255.255.255.0
PC2	192.168.70.2	255.255.255.0
PC3	192.168.10.3	255.255.255.0
PC4	192.168.7.2	255.255.255.0

Table 2-2: PCs Configurations

Device Name	Error Configuration/explanation	Correct Configuration

(Add more lines if necessary)

b) The engineer wanted to allow PCs in VLAN 10 to communicate with PCs in VLAN 70. Propose **ONE (1)** suitable device to be added to Switch1 to ensure this communication can happen. Draw a logical topology on the design that you recommend, and write the configurations to the following devices (8 marks)

Device	Configurations Needed
Switch1	
The proposed device	
All the PCs	

c) The Spanning Tree Protocol (STP) is a network protocol that builds a loop-free logical topology for an Ethernet switched-based network. Based on Figure 2-2, identify and explain how you find out

i) the root bridge

ii) root ports

iii) designated ports and

iv) blocked port.

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Question 1 c) (Continued)

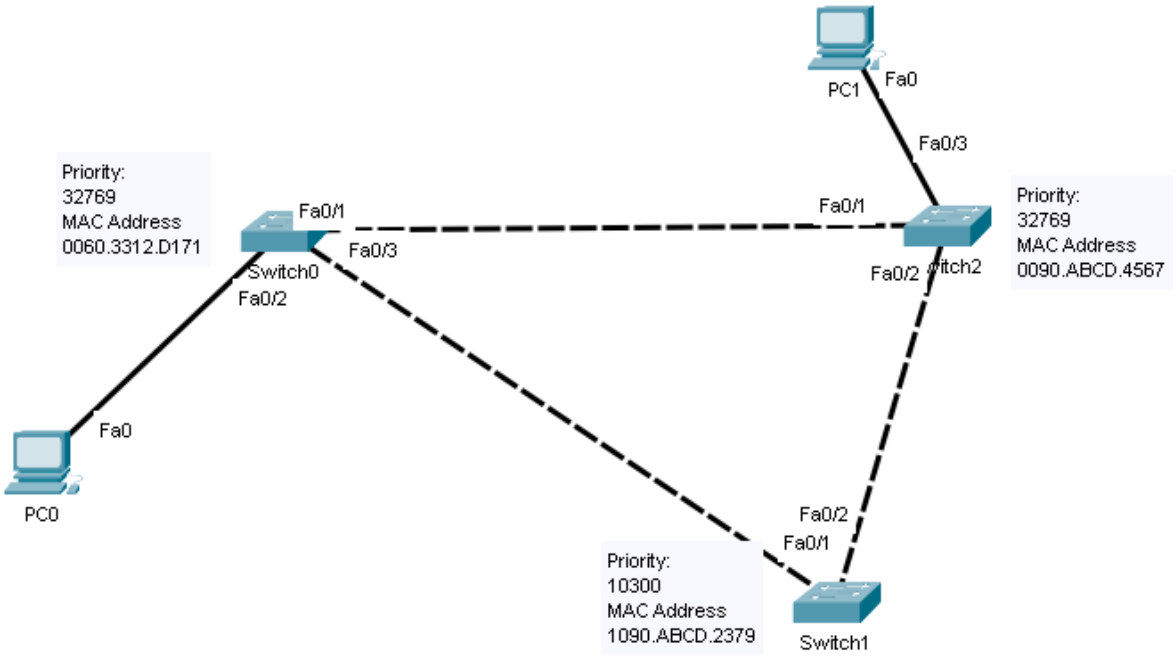

Figure 2-2: Multi-switched Topology

(6 marks)

[Total: 25 marks]