

UCCN2243 Internetworking Principles and Practices

UCCN2003 TCP/IP Internetworking

This group assignment consists of 2 questions. The due date of the assignment is on week 10, Wednesday, 30 March 2022 before 5pm.

This is a group assignment, **group of 3 students MINIMUM OR group of 4 students MAXIMUM.**

Group members **MUST** be from the same Practical LAB session. Marks will be **DEDUCTED** if the assignment group is **LESS** than 3 students (**UNLESS** pre-assigned by the instructor)

The report cover page should include: The group member's names, respective student ID, practical group, course and subject code.

This work should be submitted in softcopy. (Assignment submission link will be provided in WBLE)

WARNING: You are STRONGLY advised NOT to copy or allow your report to be copied by your friends. Heavy penalty will be enforced on those found to have committed this offence.

Sufficient referencing (IEEE style) are required for contents cited from other resources.

Assignment Q1 (10 marks)

Refer to the network in Q1.pkt

a) The port Fa0/2 of Switch1 connecting to Switch2 is turned off due to a particular protocol.

- Explain WHAT protocol is responsible to turn off this port.
- Describe in detail WHY this protocol would turn this port off.
- Explain (with the switch configuration diagrams) how the protocol determines which port on which switch device should be turned off.

b) Supposed you would like to enable port Fa0/2 of Switch1 to be functioning.

- Describe how this could be easily achieved while still maintaining connectivity from PC0 to all other devices (Server0, Switch0, Switch1 and Switch2)
- Show (with description) the configuration/network topology to verify the results

You may use “print screen” to present the results.

Use GNS3 to build the network as shown in the Figure Q2.



- Show (include descriptions) the relevant running configuration for the Edge Router.
- Show (include descriptions) the relevant running configuration for the Internal Router to enable PC1 to access the Internet. PC0 however could only access the internal devices (PC1, Telnet Server).

c) Use Wireshark (integrate it to GNS3) and show (include descriptions) the following:

- i) PC1 is able to Ping the Internet Gateway and all other internal devices.
- ii) PC0 is unable to Ping the Internet Gateway but able to Ping all other internal devices.
- iii) The relevant NAT occurring in the Wireshark results

d) Show the Internet Gateway is able to connect to the Telnet Server using telnet, but unable to Ping to the Telnet Server

You may use “print screen” to present the results.

Hints:

GNS3 is an opensource program which you can download for free.

The router’s image file as well as the image file for the end host (you may use the Qemu images) are made available to you. **NOTE: You may use the image files needed for GNS3 from the links provided in WBLE.**

You will need to find out how to integrate Wireshark into GNS3 in order for it to capture and observes the ping packets.