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09.30 - 11.30am

CMPU 2014 Networking 2 (Routing)

Basement 1, Kevin Street

Programme Code: DT211C

Module Code: CMPU 2014

CRN: 22504

TECHNOLOGICAL UNIVERSITY DUBLIN
KEVIN STREET CAMPUS

BSc. (Honours) Degree in Computer Science
(Infrastructure)

Year 2

SEMESTER 1 EXAMINATIONS 2019/20

Networking-2-Routing

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Two Hours

Instructions to candidates

ANSWER *QUESTION ONE* & TWO OTHER QUESTIONS.

QUESTION ONE IS COMPULSORY & CARRIES 50 MARKS.

ALL OTHER QUESTIONS CARRY 25 MARKS.

Question One- This question is compulsory and all sections are 5 marks.

- a) Identify three basic requirements of a modern, reliable network.
- b) Explain what a collision domain is in relation to a switch port.
- c) What effect does the enabling of Secure Shell *version 2* have on the networking device in relation to telnet communications?
- d) Explain the difference between a Media Access Control (MAC) address learnt in a *dynamic* and *sticky* method on the switch port.
- e) Which protocol is used to represent private IP addresses globally on the Internet?
- f) At what layer of the OSI model is a *Router* positioned?
What is the data envelope for this layer?
- g) What does the term *convergence* describe in both a switched network and in routers?
- h) A Cisco switch allows traffic tagged with VLANs 10 and 20 across trunk port fa0/5; what is the effect of issuing the following command on fa0/5:
`switchport trunk allowed vlan 30`
- i) Name the three layers of the *Cisco hierarchical model*?
- j) How is the *Cisco Discovery Protocol* disabled on a networking device?
Why is the protocol used legitimately on the network?

Question Two

Output omitted

C 10.0.0.0/8 is directly connected, FastEthernet5/0
193.168.1.0/26 is subnetted, 3 subnets
R 193.168.1.0 [120/1] via 10.0.0.1, 00:00:11, FastEthernet5/0
R 193.168.1.64 [120/1] via 10.0.0.1, 00:00:11, FastEthernet5/0
R 193.168.1.128 [120/1] via 10.0.0.1, 00:00:11, FastEthernet5/0
C 200.10.10.0/24 is directly connected, Serial2/0
R 205.2.2.0/24 [120/1] via 200.10.10.2, 00:00:19, Serial2/0
S* 0.0.0.0/0 [1/0] via 200.10.10.2

Figure 1 Routing Table

- a) What *routing protocol* is in effect on the router from which the routing table is provided (please refer to figure 1) above?
(5 marks)
- b) What does the S* moniker mean in the routing table provided in figure 1?
(5 marks)
- c) Is there an *Ultimate Route* in the routing table shown in figure 1, how are Ultimate routes defined?
(5 marks)
- d) With reference to the routing table provided in figure 1, what happens to a packet that has a destination address of 200.10.11.1/24 when processed by the router?
(5 marks)
- e) Identify any *default static* routes seen on this router?
(5 marks)
- (Total 25 marks)

Question Three

Wired LANs are a common source of attack because so much information can be gained about the wired network using freely available tools such as *Wireshark*.

- a) Name and describe *three* security attacks on a wired network.
(6 marks)
 - b) Identify *three* primary methods of mitigating threats to the security of networking devices on a wired network.
(6 marks)
 - c) In relation to switches in the wired network what switch security feature is used to restrict the number of devices that may communicate on the link?
(2 marks)
 - d) In relation to switches in the wired network, security violation modes are configurable on each port. Outline and describe briefly the *three* violations modes available.
(6 marks)
 - e) Describe briefly three benefits of using Virtual Local Area Networks.
(5 marks)
- (Total 25 marks)

Question Four

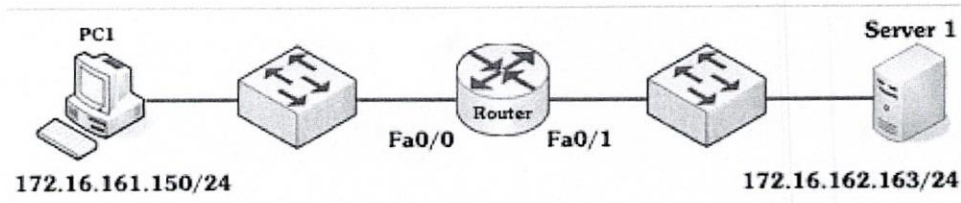


Figure 2

- a) Briefly explain how Access Control Lists (ACL) filter network traffic.
(6 marks)
- b) What is the wildcard mask for the following IP address 10.1.1.0 ?
255.255.255.240
(5 marks)
- c) What is the summary network route that matches all of the following networks?
192.168.16.0
192.168.17.0
192.168.18.0
192.168.19.0
(5 marks)
- d) In relation to the network shown in figure 2, the PC1 (172.16.161.150/24) needs to be prevented from accessing the Server (172.16.162.163/24). On which interface of which device will the ACL be placed?
(6 marks)
- e) The administrator has written the following ACL and applied it to the correct interface for blocking PC1 (172.16.161.150/24) from contacting the Server (172.16.162.163/24). What is the error in the configuration and the effect on the communication through the interface?

```
ip access-list 5 in
access-list 5 deny ip host 172.16.161.150 host
172.16.162.163
```

(3 marks)

(Total 25 marks)