17/07/2019

Lecture 07 tutorial: Routing

During tutorials prepare a short report of your activities and show it to your tutor.

Study the following **questions** and verify the correctness of the **answers** if given.
Be aware that the exam question might be directly related to the tutorial questions

Question 1.
Read
http://www.think-like-a-computer.com/2011/08/24/the-routing-table/
and explain what you see in your own routing table.
You need to see your configuration table first.

Question 2.
What are routing tables?

A
Routing Tables are used to make routing decisions. They are kept by routing computers For each routing computer they show which path to send packets on to reach a given destination

Question 3.
Consider a network as in slide 4. Compile the routing table for nodes B and F. Mark the alternative paths.

A
Follow the example from slide 4

Question 4.
Re-write the routing table from slide 6 using the slash notation

A
Consult the last lecture regarding /x notation

Question 5.

- **a.** How does static routing differ from dynamic routing?
- **b.** When would you use static routing?

A

a. **Static routing vs Dynamic Routing**

Static routing is a form of decentralised routing where routing tables are managed by the network manager. The routing tables only get changed when there is a change to the network (eg. a computer is added or removed).

Dynamic routing is a form of decentralised routing where the routing tables are continuously updated by the computers when the network conditions change. Traffic reports are sent to notify other computers of how busy the links are.

b. **Static Routing Usage**

Static routing is used either when the network is not very busy with traffic, or if there is only one route through the network. This is analogous to driving a car in a country town with light traffic where traffic reports are not needed.

Question 6.
Explain the principles of the hierarchical routing

A
Slides 8 and 9

Question 7.
Is it necessary that every autonomous system use the same intra-AS routing algorithm? Why or why not?

A
No. Each AS has administrative autonomy for routing within an AS.

Question 8. Taxonomy

a) Name three most popular routing protocols.
b) Where are they used?
c) What routing algorithms the employ?

A
Slide 10

Question 9. DV

a) Explain the concept of the distance vector routing.
b) Explain the difference between the concept and practical implementation

A
Slides 11-14

Question 10. RIP

a) Describe fundamental features of the RIP including timers used.
b) Demonstrate how the routing table in the router C is updated

A

a) Slides 15, 18, 19
b) Slides 16, 17

Question 11. OSPF

Describe OSPF routing protocol.
Improve this question by itemizing it.

A

Slides 22-29

Question 12. BGP

Describe BGPF routing protocol.
Improve this question by itemizing it.

A

Slides 31-37