Elec 6861 – Higher Layer Telecommunication Protocols

Quiz #1

Note: Please answer each question to the best of your understanding. No additional information will be provided during the quiz.

Question 1
Give two examples of architectural approaches to cross layer design and for each approach give an example of how it can be concretely implemented.

Question 2
Give an example of IPv4/IPv6 integration and co-existence technique, explain in a couple of sentences how the technique works, list the requirements for deploying it and give an example of situation in which the deployment is suitable.

Question 3
A simplified network is depicted by the figure below:
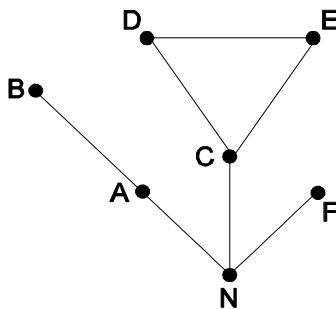
Let us assume N receives from its neighbours A, C, and F, the following tables, respectively:

To	A	B	N	F	C	D	E
A	0	1	1	2	2	3	3

To	C	N	A	F	B	D	E
C	0	1	2	2	3	1	1

To	F	N	A	B	C	D	E
F	0	1	2	3	2	3	3

Let us further assume that N measures its distance to A as 1, its distance to C as 1, and its distance to F as 1.
1. Use the distance vector routing algorithm to draw the routing table in N. The first row of the table should indicate the destination, the second which line (i.e. adjacent node) to use, and the third line the distance.
2. Examine carefully the routing tables and give an essential characteristic of the metric used to measure the distance.

3. What is the most important shortcoming of the distance vector routing algorithm and how does the link state routing algorithm address this shortcoming?

Question 4

Give two examples of differences between TCP and UDP – Take one of the examples and discuss the consequences on socket programming using the specific case of TCP server implementation and UDP server implementation. Discuss the consequences in general terms of socket creation and socket usage without showing pieces of code.

Question 5
Give two examples of transport protocols designed after UDP and TCP and for each example give two examples of features they offer more than UDP.