



## Examination

Kurssi: E7310 Routing and SDN

Vastaa tiiviisti neljään (4) kysymykseen. Kirjoita spesifisesti, mikäli mahdollista. Voit vastata suomeksi tai englanniksi. You may answer in English or in Finnish. Give compact answers to the four (4) questions. Be specific, if you can.

1. Kysymys/Question

When is *connection* or *flow state* needed in network nodes? Explain how the connection state, in principle, can be established and removed and how is it used. How can you avoid having connection state in network nodes? What are the advantages of having connection state and what are the drawbacks?

2. Kysymys/Question

Give an example of address masking with  $*/17$  and  $*/23$  masks using decimal notation. How many hosts can be connected to the respective networks without NATs?

3. Kysymys/Question

How can loops be avoided in networks with distance vector routing? Recall also how better mechanisms have been proposed in MANET routing

4. Kysymys/Question

Give the flooding algorithm used in link state routing. Does it guarantee reception only once in a node? Does it guarantee sending/receiving only once on any given link?

5. Kysymys/Question

In graphs, define terms: degree of a node, network, self loop, cycle, simple cycle, path, tree and spanning tree. Describe the properties of different spanning trees in graphs.