SSY145 Wireless Networks
Quiz A9 Answer Key
Date: May 11, 2020

The solutions are marked in **boldface**.

1. Which of the following are the current security concerns regarding 5G?
   - **(a) User identity and confidentiality**
   - **(b) New trust models**
   - **(c) Evolved threat landscape**
   - **(d) Cloud security and virtualization**

2. What can generally be noted about dynamic slicing?
   - **(a) Dynamic Slicing is a scheme to adapt resources assigned to a slice in order to match the time varying requirements.**
     Motivation: This adapting way of doing it is why it is called dynamic.
   - **(b) Dynamic Slicing can make it more profitable for infrastructure providers.**
     Motivation: Since it can help them increase their revenues due to improved VN rejection probability.
   - **(c) When using Dynamic Slicing you risk degrading some services.**
     Motivation: When implementing DS there are a lot of parameters that increase the complexity of the scheme and some degradation may happen, but if done carefully this trade-off will be quite small.
   - (d) Dynamic Slicing accepts all slices but makes sure to reduce the amount of resources to worse slices.
     Motivation: The acceptance ratio is improved but it should only accept the slices that are not likely to reduce the performance.

3. Which is/are the main challenge(s) from 5G to B5G?
   - **(a) Introduction of new services should be faster, and adapted to user needs.**
     Motivation: Lecture 11, slide 44. About automation: High Programmability and Agile Lifecycle (Rapid introduction of new services, adaptation to user needs).
   - **(b) Lower monitoring cycle time and more parameters. Thus, higher accuracy and coverage is needed.**
     Motivation: Lecture 11, slide 44. About manageability: Higher accuracy and coverage (lower monitoring cycle time and larger number of monitoring parameters)
   - **(c) Tailored for each service.**
     Motivation: Lecture 11, slide 44. About security, resiliency, trustworthiness: tailored for each service.

(d) None of the choices.

4. Which of the following is/are true about dynamic slicing?

(a) MILP method achieves both high execution time and optimality.

Motivation: MILP formulations tradeoff execution time and optimality

(b) The dynamic slicing provisioning problem comprises of mapping and reconfiguration.

Motivation: The former deals with the VN request into the physical network. And the latter manages all the currently mapped VNs when switching between day and night

(c) The objective of MILP_{map} is to minimize the (possible) degradation of each virtual link, the number of reconfigured lightpaths, and the wavelength resource usage in the network.

Motivation: This is the objective of $\text{MILP}_{\text{reconf}}$, while MILP_{map} only considers minimization of the wavelength resource usage in the network.

(d) VN degradation is the reduction in the amount of service time.

Motivation: VN degradation is related to the difference between capacity required and the capacity provided.