T-110.5111 Computer Networks II - Advanced Features

Exam 16.02.2016
No auxiliary material (books, notes, computers, etc.) allowed
Each question is worth 2 points
Justify your answers but try to keep them brief and to the point.
Duration 3h
Teacher: Matti Siekkinen

1. What does it mean that the Internet has a layered architecture? What are its pros and cons?

2. What is the problem that Software Defined Networking (SDN) is trying to solve?

3. You have to develop software for a battery-operated wireless sensor node that needs to report the ambient temperature that it measures to a server. Describe what you can do in order to maximize its battery life.

4. What can HTTP-based video streaming applications do to improve the video viewing experience? Give one example and describe its pros and cons.

5. In which situation(s) and why is it better to use delay-based congestion control over loss-based congestion control?

6. How does the Adaptive frequency hopping in Bluetooth work and what is it good for?

7. Outline the way that the basic multiple access control scheme of Wi-Fi, namely CSMA/CA, works.

8. Explain what is so called tail energy in mobile communication and how it can be mitigated (one example is enough).

9. What is the problem with large buffers in the Internet?

10. Is it possible to use DCTCP (Data Center TCP) when transmitting data over the Internet?