UNIK4750 questions (status 22May2016)

Disclaimer: The questions listed here are given out to help preparing for the exam in UNIK4750. The questions are representative, and indicate the depth of knowledge being addressed. Further questions, as well as follow-up questions, are envisaged to examine the detailed knowledge of the course participant.

L1:
What are the challenges for operational control (OT)?

What are the differences between an IT infrastructure and an operational control infrastructure with respect to connectivity, network posture, security solutions, and the response to attacks?

L2:
Which are the domains being merged in the view of Internet of Things?

And what are the specifics and challenges of these domains?

Provide an example of requirements for a multi-owner service request of "a thing"?

L3:
What is special with security of the Internet of Things?

What are the priorities for applications in IoT, seen from a security perspective?

When performing a risk analysis for IoT, what should you consider?

Comparing IT and automation equipment, what would you see as main difference?

L4:
What are the main issues in Smart Grids?

What do you see as main security problems for an automated meter reader?

L5:
Why is QoS is an important question in automation?

What considerations would you take when analysing time aspects in automation?

What is the relation of safety and security?

What is an operating envelope?
Provide examples of parameters of an operating envelope

L6:
How are QoS parameters from communication networks mapped in typical automation parameters?

Identify security risks in automation networks.

What is the main objective of control system security?

Provide at least 4 functional components of a system of system

Provide at least 4 security or privacy components

Provide the reasoning for IAC in automation

How is integrity translated into components?

L8:
Explain components of the Smart Grid (AMS) System of Systems

Explain the difference between functional, non-functional and security components

Provide examples of security challenges in IoT

What is the difference between the Web and the Semantic Web

Provide an example of attribute based access control

Discuss the shortcomings of the traditional threat-based approach

L9:
What is ment by Defence-In-Depth?

Provide examples of hardening

L10:
Provide an application example of measurable security and privacy for ….. (domain to be specified)

What are the core elements of the Multi-Metrics approach?

L11:
Provide s,p-functionalities for an application in the (home/ car / health care/ …) domain

L13:
What is an Intrusion Detection System?

Which components has an Intrusion Detection System?

Describe how to evaluate possible attacks on an automation system.

Describe the differences between a signature-based and an anomaly detection-based IDS.

L14:
Who are the actors of a smart grid infrastructure, and what are their responsibilities?

Explain the challenges with current proprietary solutions for Smart Meters.

Provide examples of future services on a smart grid infrastructure.