

John Frederiksen  
Slettevang 27  
2970 Hørsholm

Phone 45869556 private fixed  
40138845 Mobile  
66637845 Work  
e-mail [jfre@tdc.dk](mailto:jfre@tdc.dk)

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**Guidelines for the examination paper in Telecommunications Economics. Winter 2014-2015, date 18.12.2014.**

**Criteria for top performance in assessments of examination in 'Telecommunications Economics'.**

*To obtain the highest grades in the assessments of examination in 'Telecommunications Economics' the following general criteria shall be met:*

*The student shall*

- *demonstrate knowledge of all the relevant concepts and factual items regarding the questions raised and of the relationships between these*
- *be able to design an analysis to give a thoroughly description of the problem and find possible solutions to the questions raised*
- *give a survey of the relevant economic issues regarding the questions raised*
- *explain constraints and uncertainties in the presented solutions, often in the form of trade-offs between different objectives.*

*As more concrete criteria - depending on the actual questions raised in the examination - the following shall be demonstrated:*

*Knowledge of*

- *the main trends and relationships in the ICT sectors (ICT=Information and Communication Technology) regarding demand, supply, prices, market players, technical solutions, regulation etc.*
- *the main economic and technical concepts and items used in the ICT sectors, especially for telecommunication, the Internet and supply of radio and TV channels.*

**The minimum criteria for passing the examination.**

*The student shall demonstrate knowledge of*

- *the most important concepts and factual items that are relevant for answering the questions raised*
- *the most relevant trends and relationships in the ICT sectors*
- *the possibilities and limitations of the use of relevant economic analyses.*

*Acceptance of a limited amount of small and medium failures in the analysis presented, but normally no major failures can be accepted.*

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### Question A.

There are different ways to answer the question. It is important to show an understanding and overview of different relevant concepts and to organise the presentation in a well-structured way.

The answer shall include several of the following issues:

- Present the use of spectrum for mobile telephony and mobile wireless broadband access. Define spectrum as a special kind of good.
- Present the different steps in "Spectrum Management": planning, authorization, engineering and monitoring. It is not necessary to use exactly these words, but the content of Spectrum Management needs to be explained.
- Present the two allocation methods: "Beauty Contest" and "Spectrum Auction". Discuss pros et cons for both methods and the possibilities to make hybrid solutions.
- Discuss the possible role of mobile wireless broadband access in the future broadband society. Compare the possibility to obtain bandwidth and low unit cost with wireline broadband connections, based on copper, coax or fibre.

### Question B.

There are different ways to answer the question. It is important to show an understanding and overview of different relevant concepts and to organise the presentation in a well-structured way.

The answer shall include several of the following issues:

- Describe the positive feedback loop that the EU Commission wants to implement for Europe for the ICT eco system.
- Present the actions that are presented in the Digital Agenda: A single market for ICT, interoperability and standards, trust and security, the goals for penetration in 2020, R&D, education, benefits for the EU society and the international aspect. It is not necessary to know all the headlines, but a major part of the content of the actions needs to be presented.
- Present the main ideas in the recommendation from September 2013: The possibility to give positive incentives for investments in NGA and at the same time keep competition strong. Present eventually the more specific concepts in the recommendation about "Equality of Input" and "Equality of Output", "Stable prices for raw copper", "Economic Replicability Test (ERT)" etc.
- Present the different viewpoints about whether prizes for raw copper (ULL) should be decreased or increased to give incentives for investments in NGA for the incumbent and for the competitors. Present the concepts of "The replacement effect", "The business migration effect" and eventually also "The pre-emption effect" and "The wholesale revenue effect".