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Guidelines for the examination paper in Telecommunications Economics. Winter 2015-201, date 18.12.2015.

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 different networks: physical and virtual networks.
- Present the main parameters that describe a network: Nodes, links, lengths, capacity etc. and different types of topology. Capacity of a network depends on the interplay of all parameters and the network design.
- Describe different economic considerations regarding networks: The value of services that use the network, the cost function for networks, communication between end-users etc.
- Describe network effects and bandwagon effects (externalities) and economies of scale and scope.
- Present the need for regulatory determined prices for access. Bottlenecks and duplication of infrastructure. Characteristics of natural monopolies.
- The monopoly situation for termination of a call in a network and eventually different ways to regulate that.

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:

- Define the concept of Universal Service Obligation – USO: Mandatory requests for an operator to supply telecommunication services to market segments, which otherwise not will be served on a commercial basis. That is mainly rural districts (high cost areas, including mountains) and customer segments with poverty or special problems (disabled).
- Old times: the public owned national telecom operator provided fixed voice telephony to all customers at equal prices => a cross subsidy took place from urban customers/high spenders to customers in rural districts/low spenders.
- Liberalization => prices needed to be in line with costs. Entrants made cream skimming among high profitable customers.
- The problem might be solved by help of an USO fund and a reverse auction.
- Looking ahead: In the broadband society all citizens need to be able to use the Internet => should broadband access then be defined as an USO service? EU considerations about this issue. Emphasis on the market or on policy objectives regarding distributional policy.
- Present the concept of "Digital Divide".