



Mid-term Exam 2018

Digital Economics

Instructor: Ibrahim Kholilul Rohman

Thursday, October 25, 2018

Time : 2.5 hours (*closed book*)

Instructions

- There are mandatory and optional questions in this exam.
- You might answer this exam in Bahasa Indonesia or English, but please do not mix except for technical terms.
- You might enrich your views using graphs, data and or numerical examples
- **Read through all questions first and allocate the time wisely. These questions require concise answers.**

Mandatory

1. The following concepts are distinctive, but they do have some connections; first explain what do these concepts mean and then relate them in a thorough yet concise analysis. **(20 points)** *Source: Lecture 1-6*
 - a. Electronic commerce, Information and Communication Technologies (ICTs) and digital economy.
 - b. Digital divide and digital dividend.
 - c. Research and development (R&D) and innovation.
 - d. Competition effect and network effect, in network sharing.
 - e. The waterbed effect and interconnection price (in telecommunications).
 - f. Infrastructure sharing and Herfindahl Hirschman Index (in telecommunications).
 - g. Over-the top (OTT) and Average revenue per user (in telecommunications).
2. How can the framework of the ICT ecosystem be helpful to analyze the progress of the digital economy? Can you accentuate this for the case in Indonesia? **(20 points)** *Source: Lecture 1 and 2*
3. What are the megatrend and some tipping points characterizing the industry 4.0? How can the ICT ecosystem framework be used to explain both the megatrend and these tipping points? **(20 points)** *Source: Lecture 2 and 6*



Optional (Select two from the following three questions)

4. There are at least four strategies to mitigate the problem of the digital divide, explain how these strategies work. What will be possibly the best way to solve the problem in Indonesia? **(20 points)** *Source: Lecture 5*
- Wait and see
 - Government intervention
 - Foreign capital investment
 - Leap-frog technology
5. Emerging technologies such as big data, machine learning and artificial intelligence have bi-causal relationship with economic theories and economic development. First explain how economic theories affect the emergence of these concepts and then describe how will these emerging technologies be helpful to solve socio-economic problems such as traffic, poverty, education and health? **(20 points)** *Source: Lecture 4 (Guest lecture)*
6. Select three from four issues below **(20 points)** *Source: Lecture 1-6*
- a. Why policies related to R&D and digital economics are important based on the study explaining the EU-US productivity gap?
 - b. What the concerns discussed by Middleton (in Beyond Broadband Access) in relation to the current national broadband strategies adopted in many countries? Why this concern is important? Accentuate your views in the case of Indonesia's national broadband planning.
 - c. Explain the methodology used by Röller and Waverman (2001) to estimate to contribution of ICT (telecommunications) on economic growth?
 - d. What characteristics differentiate traditional economy from modern economy according to Scherer?