



Faculty of Economics and Business Universitas Indonesia (FEBUI)
Undergraduate Regular (S1 Regular) and
International Undergraduate Program (KKI)

Mid Term Exam

Odd Semester 2018/2019

ECEU600101-Microeconomics 1/Intermediate Microeconomics

Maximum Time Allowed: 3 hours

No	Lecturer	Tutor
A	S1 REGULER	
1	Widyono Soetjipto	Andari C. Candrika
2	Willem Makaliwe (<i>English</i>)	Auliya D. Wiratama
3	M. Shauqie Azar (<i>English</i>)	M. Anggada P. Prabowo
4	Lydia Napitupulu (<i>English</i>)	M. Agung Lazuardi
5	Iwan Jaya Aziz (<i>English</i>)	Fandy R./Nabil R. Ryandiansyah
6	Ashintya Damayati/Ninie L. Gyat	Margaretha S.K. Herin
7	Tezza Napitupulu (<i>English</i>)	Giani Raras
8	Ninasapti Triaswati (<i>English</i>)	Yeremia Natanael
9	Widyanti Soetjipto	Wildan Al Kautsar Anky
10	Teguh Dartanto/Junichiro Takahata (<i>English</i>)	Sekar S.K. Joewono
B	S1 KKI (all in English)	
1	Maddaremmeng Panennungi	Jazman Ihsanuddin
2	Surjadi/Rahmatina A. Kasri	Evita M. Maharani
3	Kenny D. Indraswari	Isti M. Wuryandita
4	Qisha Quarina/Esther SAS Agustin	Habibulloh A. Negoro
5	Shahnaz Natasya	Aidah Magfira

Please answer all questions below. It is not allowed to use programmable calculator!

1. Consumer Behavior & Market Demand (25 Points)

James is an international student at FEB UI who always eats his lunch at the campus canteen. His choice of lunch is limited to gado-gado (X) and fried rice (Y) because he doesn't like other foods in the canteen. His lunch budget is I per month, and the price of gado-gado per portion (P_X) is cheaper than fried rice per portion (P_Y). This month, however, the price of gado-gado is reduced to P'_X (sellers say, vegetables are cheap with the arrival of the rainy season).

- Explain graphically how James maximizes his utility from lunch, before and after the reduction in the price of gado-gado (other things being equal), showing clearly the substitution effect, income effect, and total effect. Graph also James' derived demand curve for gado-gado. Assume that gado-gado is a normal good. **[10 points]**
- If gado-gado is an inferior good for James, would his level of consumption after the price decrease be different than in point (a) above? Explain the change graphically, including the derived demand curve. **[5 points]**
- James' utility function for lunch is mathematically expressed as follows:

$$U(X, Y) = X^2 + Y^2$$

where, X = gado-gado; Y = fried rice; P_X = price of X; P_Y = price of Y; and I = lunch budget (James' budget constraint).

Derive mathematically James' general demand function for gado-gado (X^*) and fried rice (Y^*). What can you say about the variables/factors affecting his demand? *Hint: use the Lagrangian method.* **[10 points]**

2. Production and the Cost of Production (25 Points)

A firm that produces electronic devices utilizes both capital (K) and labor (L) as its inputs. The price of capital is rent (r) while the price of labor is wage (w). The production function is given by:

$$Q(K, L) = 5KL$$

where, Q is output (unit), K is capital (unit), and L is labor (person). Assume the firm's technology is unchanging. Given these information,

- Explain whether the firm's production function above represents a short-run or long-run production function! **[5 points]**
- Explain the type of returns to scale (increasing, constant, or decreasing) of the firm's production function above! **[5 points]**
- If the cost of labor (w) is \$10,000 and the cost of capital (r) is \$20,000, calculate the amount of inputs (labor and capital) that would minimize this firm's cost in order to produce 4,000 units of electronic devices! **[10 points]**
- Suppose a labor strike causes the price of labor to increase to \$20,000. Show graphically how this new labor price will affect the optimal level of labor and capital used by the firm! *Hint: put the quantity of labor on the x-axis and the quantity of capital on the y-axis* **[5 points]**

3. Demand and Elasticity

In the analysis of demand function, the concept of elasticity is critical to understand the day-to-day events.

- a) For each of the following pairs of goods, identify which one has more own-price elastic demand for a typical middle-income person in Indonesia, and explain your reasoning. (1) Reasonably inexpensive hand-phones vs. more expensive I-phone; (2) Prescription glasses that the person needs to wear vs. regular stereo headphones
- b) Similar to question a) above, for each of the following goods, identify and explain your reasoning whether the demand is more (own-price) elastic in the short run or in the long run: (1) Retail gasoline (e.g., in the gas station); and (2) Air conditioning (A/C) units in hot weather Jakarta.
- c) Suppose we have a Cobb Douglas utility function for n goods of the following form:
$$U = (q_1, q_2, \dots, q_n) = TECH \prod_{i=1}^n q_i^{a_i}$$
 where $TECH > 0, a_1 > 0, \dots, a_n > 0$ and $\sum_{i=1}^n a_i = 1$ and the budget constraint is: $B = \sum_{i=1}^n p_i q_i$. You are asked to derive the Marshallian and the Hicksian demand functions from the above utility maximization

4. Uncertainty, information, and digital economy

In many real-life situations, consumers or producers behave without full knowledge of the consequences of their actions, and often some have better knowledge of the situation than others. To the extent the basic microeconomics concepts implicitly assume a world of certainty, this deviates from reality where uncertainties abound. Information economics helps us understand how economists think about these problems. The consequences for the functioning of markets can be quite dramatic, leading to behavior different from what is expected in the analysis of standard microeconomics. This is the reason why topics of uncertainty, asymmetric information and information economics as part of behavioral economics, and the concepts of probability and expected value, should be given a more prominent treatment in microeconomics.

- a) Explain the relation between uncertainty and the treatment of information as a commodity.
- b) Suppose you own an apartment worth Rp200 million (assume this is your only wealth), and your utility function is specified as $U(W) = \sqrt{W}$. There is 30% chance that your apartment unit burns down in which case its scrap value will be Rp60 million. While you are about to make a decision whether to buy a home insurance or not, one insurance company approaches you and offers an apartment insurance with a premium worth of Rp45 million. Before John von Neumann and Oscar Morgenstern's (VNM) utility theorem was known, this case would be difficult to resolve. But now, using VNM theorem it should be relatively easy for you to decide. Explain what is the essence of VNM utility theorem, and given the offer will you buy the insurance or not? Explain why
- c) In the agricultural sector, wages (w) received by farmers ("pemilik tanah") and workers ("buruh tani") is often related to the size of harvested output (q). Suppose the relation is $w = a + bq$. Since the crop depends not only on the labor but also on other factors such as weather, there is obviously some uncertainty in q . If the labor work of "buruh tani" can be observed, the sharing of risk is independent of the uncertainty; instead, it depends solely on the relative risk aversion of "pemilik tanah" and "buruh tani". The problem is when the labor work cannot be observed, in which case "pemilik tanah" have to decide what kind of arrangement (contract) would be most appropriate to them. In Indonesia and many other countries, three types of contracts are observed: (1) wage labor contract, in which "pemilik tanah" pays a fixed wage (w) to "buruh tani" in exchange for their labor; (2) land rental contract, in

which “buruh tani” pays a fixed rent to “pemilik tanah” in exchange for the opportunity to work on land and harvest it; and (3) sharecropping contract in which “pemilik tanah” and “buruh tani” share the harvest. Suppose the crop risks are high. If “pemilik tanah” are of the risk averse type and the labor work cannot be observed, in this principal-agent setting what would be the most preferred contract for the “pemilik tanah”.

- d) In the current era of digital economy, many insurance companies have worked collaboratively with digital and high-tech companies to improve their business performance and profitability. Explain by using an example how such a move can bring improvements in the insurance companies’ performance. Make sure you make the concept of asymmetric information central in your explanation

