

Midterm Exam
Odd Semester 2018/2019
Undergraduate International Program in Economics

Course : Microeconomics 2 (Advanced Microeconomics)
Instructor : Teguh Dartanto
Time : 180 Minutes
Type : Closed Book

There are three compulsory problem sets and one of bonus problem sets. Maximum point of three problem sets is 105.

1. AACSB problem set (35 points)

Jennie likes to watch tv shows and she needs help to decide how she should allocate her money to buy streaming passes. Jennie loves to watch Korean drama as much as American TV shows. Therefore, her preference on streaming sites (*Viu, Netflix*) = (x_1, x_2) can be represented by this following utility function:

$$U(x_1, x_2) = x_1^{0.5} x_2^{0.5}$$

Consumer has a given income/ wealth (I) and faces p_1 as price of Viu streaming pass and p_2 as a price of Netflix streaming pass.

- a. Find Walrasian/**Marshallian demand function** of both goods! (6 points)
- b. Find **Indirect Utility Function!** (5 points)
- c. Using Duality Theorem, find the **expenditure function!** (5 points)
- d. Using Shepard's Lemma, find the **Hicksian demand function** of both goods! (6 points)
- e. Initially, Viu stream pass price is $p_1 = \$25$ and Netflix stream pass price is $p_2 = \$100$ while Jennie's budget per semester for movie streaming is $I = \$600$. However, in order to get new customers Netflix is giving discounts. Thus, Netflix price decreases from \$100 to \$64 ($p_2^0 = \$100 \rightarrow p_2^1 = \64). Find the substitution and income effect for Viu (x_1)! **Use both figure/graph and math/equation! (13 points)**

2. [35 point] Explain clearly and concisely the following concepts:

- a. Explain what is the difference between Weak Axiom Revealed Preference (WARP) and Strong Axiom Revealed Preference (SARP)! Why SARP is so important in the consumer theory? (6)
- b. What is the implication of monotonicity axiom in the consumer maximization behavior? What happen if there is no monotonicity axiom in the consumer behavior? (6)
- c. What is the difference between the UMP (Utility Maximization Problem) and the EMP (Expenditure Minimization Problem)? Give a real example of daily life to explain the difference! (6)
- d. If the utility function of a consumer is $U(X_1, X_2) = 2X_1 + 2X_2$ and a consumer faces a budget constraint $p_1x_1 + p_2x_2 = y$, where $p_1=1, p_2=1, y=10$, then calculate the walrasian/marshallian demand function! Is the solution is unique? If there is a price increase in p_1 from $p_1=1$ to from $p_1=2$, find the new Walrasian Demand Function! Is the solution unique and/or corner solution? (8)
- e. If the utility function of a consumer is $U(X_1, X_2) = \min(4X_1, 2X_2)$, and a consumer faces a budget constraint $p_1x_1 + p_2x_2 = y$, where $p_1=1, p_2=2, y=20$. Find the

Walrasian Demand Function! If there is an increase in the price of good-1 ($p_1=4$), then calculate of substitution effect and income effect of good-1! And then draw the demand curve!(9)

3. **[35 point]** if the consumer of the expenditure function is the following:

$$e(P_1, P_2, U) = \sqrt{U(P_1^2 + P_2^2)}$$

where P_1 is price of good-1; P_2 is price of good-2; U is utility function; e is expenditure. Following the duality between the Utility Maximization Problem and the Expenditure Minimization Problem, answer the following question!

- Find the indirect utility function! (4)
- Find the Walrasian/Marshallian Demand Function! (11)
- Find the Hicksian Demand Function! (6)
- Find the Original Utility Function! (9)

4. **[10 Point] additional problem set (Bonus)**

- If the consumer utility function is as below:

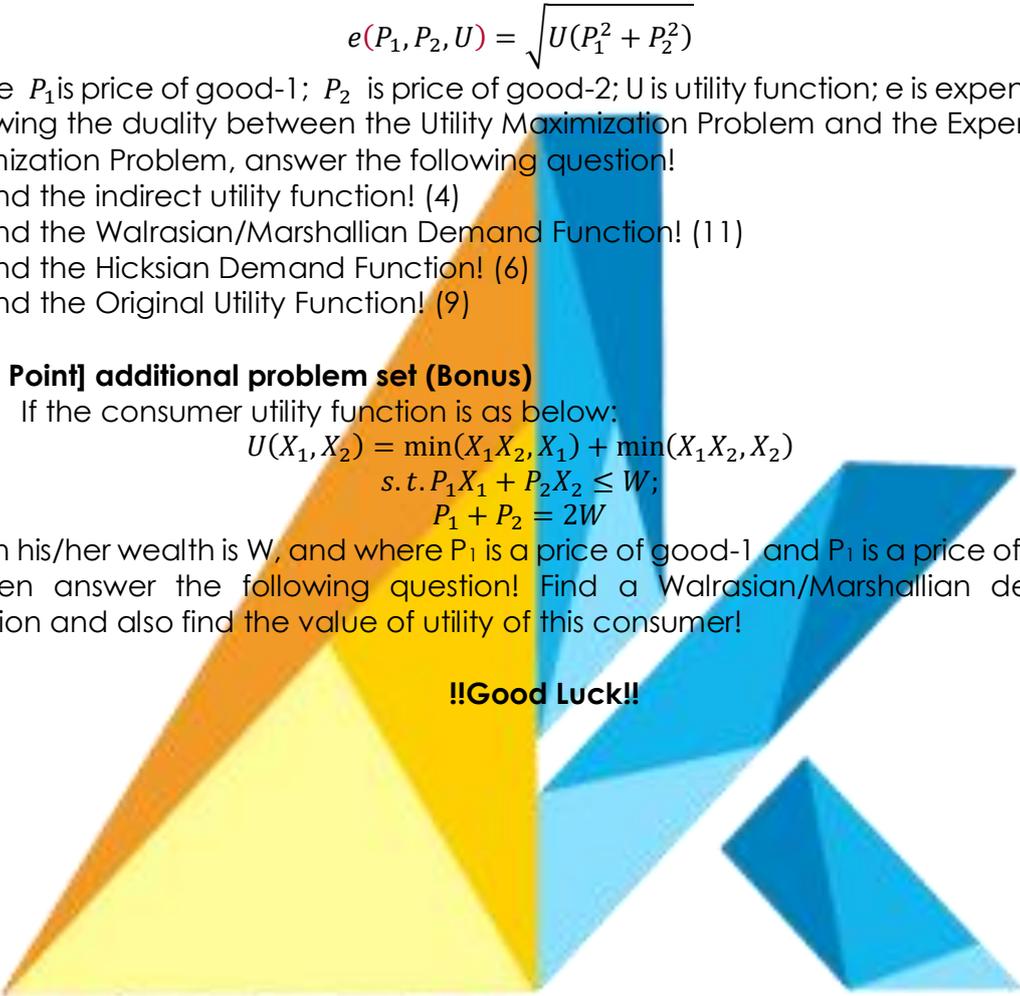
$$U(X_1, X_2) = \min(X_1 X_2, X_1) + \min(X_1 X_2, X_2)$$

$$s. t. P_1 X_1 + P_2 X_2 \leq W;$$

$$P_1 + P_2 = 2W$$

Given his/her wealth is W , and where P_1 is a price of good-1 and P_1 is a price of good-2, then answer the following question! Find a Walrasian/Marshallian demand function and also find the value of utility of this consumer!

!!Good Luck!!



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