**Problem Set of Final Exam**
**Microeconomics 2**
**International Undergraduate Program in Economics**

Course : Microeconomics 2 (Advanced Microeconomics)
Instructor : Teguh Dartanto
Time : 150 Minutes
: Closed Book & can use a non-scientific calculator

1. **[30 point]** a firm has the following production technology/function:

$$q = \frac{aZ_1\ Z_2}{b}$$

where $Z_1$ and $Z_2$ are the input of good-1and good-2, respectively; $w_1$ and $w_2$ are the input price of good-1 and good-2, respectively; a is the technology and b is the corruption index (higher value of b means higher corruption). Both a and b are the positive number. Answer the following question!

a. Find the conditional input demand function! (8 points)
b. Find the cost function! (7 points)
c. If $Z_1$ is labor and $Z_2$ is capital, calculate the impact of increasing in technology (a) on the demand of labor ($Z_1$) and the impact of increasing in corruption (b) on the cost of production? (8 points)
d. Explain concisely the economic analysis and insight of your findings in 1.c! (7 points)

**2. [40 point] answer the following questions!**

a. Explain the concept of *increasing return to scale (IRTS)* of production function and what is the implication of IRTS on the average and marginal cost! Why the firm who has IRTS production technology will be a champion in the industry? What the source of IRTS technology? (6 points)
b. Find the elasticity of substitution and explain the meaning of this elasticity of the following production function: (7 points)

$$q = K^{0.5} + L^{0.5}$$

c. In the general equilibrium theory, why do consumer and producer interact each other to determine the equilibrium? using the Edgeworth box explain that voluntary exchange can improve the welfare of society! Explain the concept of Feasible Allocation, Pareto Optimal allocation, Core Allocation and Competitive Allocation! (7 points)
d. A firm has the following production technology/function:

$$q(Z_1, Z_2) = aZ_1^2 + bZ_2^2$$

where $Z_1$ is the input of good-1, $Z_2$ is the input of good-2, $w_1$ and $w_2$ are the input price of good-1and good-2 respectively and P is a price of product. Find the input demand function, the supply function and the profit function! (20 points)

3. **[30 point]** Consider the pure exchange economy $E = (R_+^2, U_1, U_2, w_1, w_2)$ in which

$$w_1 = (4,2);\ U_1(x_1, y_1) = \sqrt{x_1 y_1}$$
$$w_2 = (2,4);\ U_2(x_2, y_2) = x_2 y_2$$

a. Find the Pareto Optimal Allocation! (7 point)
b. Find the Core Allocation! (7 point)
c. Find the Competitive Allocation! (8 point)
d. Indicate them in the Edgeworth box and if an individual-1 offer (4,4) to individual-2, should individual-2 will accept or reject? Why do he/she reject or accept the offer? (8 point)

**!!!!Good Luck and I am waiting for your brightness!!!**