

MIZAN-TEPI UNIVERSITY
COLLEGE OF BUSINESS AND ECONOMICS
DEPARTMENT OF ECONOMICS

GROUP ASSIGNMENT

INTRODUCTION TO ECONOMICS (Econ-1103)

GROUP - 5

-
- *Your answer should be clear and precise*
 - *The Instructor is not responsible for any failure to respect the submission date*
 - *Working together is encouraged but copying from each other is strictly forbidden.*
 - *Submission Date: January 10, 2023, G. C*
-

- 1) Show the relationship between short-run MC and MP_L both mathematically and graphically.
- 2) When price of tea in local café rises from Br.10 to 15 per cup, demand for coffee rises from 3000 cups to 5000 cups a day despite no change in coffee prices.
 - a) Determine cross price elasticity.
 - b) Based on the result, what kind of relation exists between the two goods?
- 3) A firm operates in a perfectly competitive market. The market price of its product is 4 birr and the total cost function is given by $TC = \frac{1}{3}Q^3 - 5Q^2 + 20Q + 50$, where TC is the total cost and Q is the level of output.
 - a) What level of output should the firm produce to maximize its profit?
 - b) Determine the level of profit at equilibrium.
 - c) What minimum price is required by the firm to stay in the market?
- 4) If demand for show tickets is described by the equation $QD = 100 - P$, and supply is $QS = 20 + P$, find the equilibrium price and quantity. How would your answer change if the supply curve shifted to $QS' = 10 + P$ due to increases in actor salaries?
- 5) Suppose that demand and supply of car is described by the following equations:
$$P = 100 - 3Q_d, \text{ and } P = 20 + Q_s.$$
 - a) Calculate the equilibrium price and quantity. Illustrate your result using graph.
 - b) Suppose a 4birr tax is placed on apples. What is the new equilibrium quantity? How much do consumers pay to get this quantity? How much do suppliers receive for selling this quantity. Show your results on a supply and demand diagram
- 6) The equation for the production isoquant is, $25K^{3/5} L^{2/5} = 5400$
 - (a) Find the MRTS
 - b) Evaluate it at $K = 243, L = 181$
- 7) A consumer has utility function for goods X and Y given by $U(X, Y) = X^{0.2} Y^{0.3}$.
 - a) What is consumer's marginal utility for X? What is his marginal utility for Y?
 - b) Suppose the price of X is equal to 4 and the price of Y equal to 6. what is the utility maximizing proportion of X and Y in his consumption? [That is, if he is a utility maximizer, how many units of X will he consume in terms of units of Y that he consumes?].
 - c) If the total amount of money he is willing to spend on the two goods is equal to 60, how much of each will he consume?

- 8) From the TU_x schedule in Table 1,
- Derive the MU_x schedule
 - Plot the TU_x and the MU_x schedules and indicate the saturation point.
 - From your MU_x schedule(table), explain if Q_x refers to the number of candy bars consumed per day by a teenager.
 - What does a utility function reflect?

Table 1:

Q_x	0	1	2	3	4	5	6	7	8	9
TU_x	0	7	13	18	22	25	27	28	28	27

- 9) Given the following short run production function schedule (Table 2) of a firm where we have only one variable input, labor (L), and one fixed input, land. Answer the following questions
- Identify the three stages of production in table form and graphically
 - When the law of diminishing marginal returns does starts to operate?

Table 2:

Labor (L)	0	1	2	3	4	5	6	7	8
Total Product (TP)	0	3	7	12	16	18	19	19	16

- 10) Given the information about the costs of a firm in table 3, workout the following questions.
- What is the firm's fixed cost?
 - What is the total cost of producing 4 units?
 - If the firm close down and produces no output, what will be its total cost?
 - If the firm decides to increase its output from 6 to 7units, by how much will its total cost increase?

Table 3:

Output	AFC, \$	AVC, \$
1	50.00	100.00
2	25.00	80.00
3	16.67	66.67
4	12.50	65.00
5	10.00	68.00
6	8.37	73.33
7	7.14	80.00
8	6.25	87.50

Best of Luck!