



# MANICALAND STATE UNIVERSITY OF APPLIED SCIENCES

**FACULTY OF AGRIBUSINESS AND COMMERCE**

**Agricultural Economics and Development**

**MICROECONOMICS FOR AGRICULTURE**

**CODE: AEDT121**

**SESSIONAL EXAMINATIONS**

**OCTOBER 2021**

**DURATION: 3 HOURS**

**EXAMINER: MR N. CHIPUNZA**

---

## ***INSTRUCTIONS***

- 1. Answer all question in Section A*
  - 2. Answer any three (3) questions in Section B*
  - 3. Graph paper is required for questions 6 & 8.*
  - 4. A scientific calculator is needed*
  - 5. Start a new question on a fresh page*
-

## SECTION A: COMPULSORY

### Question 1

One of the scarce resources that constrain our behaviour is time. Each of us has only 24hrs in a day.

- i. How do you go about allocating your time in a given day among competing alternatives? [3]
- ii. How do you go about weighting the alternatives? [3]
- iii. Once you choose most important use of time, why do you not spend all your time on it? [4]

### Question 2

Fill in the missing amounts in the following table. [10]

| Description   | % Change in Price | % Change in Quantity | Elasticity |
|---|-------------------|----------------------|------------|
| Demand for Ben & Jerry's Ice cream                    | +5%               | -7%                  | a          |
| Demand for beer at San Francisco 49ers football games | -15%              | b                    | -0.4       |
| Demand for Broadway theatre tickets in New York       | c                 | -10%                 | -1.1       |
| Supply of chickens                                    | +5%               | d                    | +1.0       |
| Supply of beef cattle                                 | -10%              | -8%                  | e          |

### Question 3

In equilibrium, the market price for a good is equal to the amount consumers are willing to pay for it. Therefore, in equilibrium consumer surplus is always zero. Do you agree or disagree, explain your answer? [10]

#### Question 4

“As long as all resources are fully employed and every firm in the economy is producing its output using the best available technology, the result will be efficient”. Do you agree or disagree with this statement, explain your answer? [10]

#### SECTION B: [ ANSWER ANY THREE QUESTIONS]

#### Question 5

You are an intern to the editor of a small-town newspaper. Your boss, the Editor, ask you to write the first draft of an editorial for this week’s paper. Your assignment is to describe the costs and the benefits of building a new bridge across the railroad trucks in the centre of town. Currently, most people who live in this town must drive 2 miles through thickly congested traffic to existing bridge to get to the main shopping and employment centre. The bridge will cost the citizens USD25 million, which will be paid for with tax on their incomes over the next 20 years.

- i. What are the opportunity costs of building this bridge? [8]
- ii. What are the benefits that citizens will likely receive of the bridge is built? [8]
- iii. What other factors might you consider in writing this editorial? [4]

#### Question 6

Suppose the market demand for pizza is given by

$$Q^d = 300 - 20P \text{ and the market supply for pizza is given by } Q^s = 20P - 100, \text{ where } P = \text{Price (per pizza).}$$

- i. Graph the supply and the demand schedules for pizza using \$5.00 through \$15.00 as the value of P. [4]
- ii. In equilibrium, how many pizzas would be sold and at what price? [4]
- iii. What would happen if suppliers set the price of pizza at \$15.00? Explain the market adjustment process. [4]
- iv. Suppose the price of hamburgers, a substitute for pizza, doubles. This leads to a doubling of demand for pizza. (At each price, consumers demand twice as much as pizza as before.), write the equation for the new marker demand for pizza. [4]

- v. Find the new equilibrium price and quantity of pizza. [4]

### Question 7

For this problem, assume that Joe has \$80.00 to spend on books and movies each month and that booth goods must be purchased whole (no fractional units). Movie's cost \$8.00 each and books costs \$20.00 each. Joe's preferences for movies and books are summarized by the following information.

| Movies      |     |    |       | Books       |    |    |       |
|-------------|-----|----|-------|-------------|----|----|-------|
| # Per month | TU  | MU | MU/\$ | # Per month | TU | MU | MU/\$ |
| 1           | 50  |    |       | 1           | 22 |    |       |
| 2           | 80  |    |       | 2           | 42 |    |       |
| 3           | 100 |    |       | 3           | 52 |    |       |
| 4           | 110 |    |       | 4           | 57 |    |       |
| 5           | 116 |    |       | 5           | 60 |    |       |
| 6           | 121 |    |       | 6           | 62 |    |       |
| 7           | 123 |    |       | 7           | 63 |    |       |

- i. Fill in the figures for marginal utility and marginal utility per dollar for both movies and books. [4]
- ii. Are those preferences consistent with the law of diminishing marginal utility? [2]
- iii. Given the budget of \$80.00 what quantity of books and quantity of moves will maximise Joe's level of satisfaction? [2]
- iv. Draw the budget constraint (with books on the horizontal axis) and identify the optimal combination of books and movies as **point A**. [2]
- v. Now suppose the price of books falls to \$10.00
  - a. Which of the columns in the table must be recalculated? [2]
  - b. Do the required recalculations? [2]
- vi. After the price change how many movies and how many books will joe purchase? [2]

- vii. Draw the new budget constraint and identify the new optimal combination of books and movies as **point B**. [2]
- viii. How can a decrease in the price of books causes Joe to buy more movies as well as more books? [2]

### Question 8

Suppose that widgets can be produced using 2 different techniques A and B. The following Table provides the total input requirements for each of the five different Total output levels.

|      | Q = 1 |   | Q = 2 |    | Q = 3 |    | Q = 4 |    | Q = 5 |    |
|------|-------|---|-------|----|-------|----|-------|----|-------|----|
| Tech | K     | L | K     | L  | K     | L  | K     | L  | K     | L  |
| A    | 2     | 5 | 1     | 10 | 5     | 14 | 6     | 18 | 8     | 20 |
| B    | 5     | 2 | 8     | 3  | 11    | 4  | 14    | 5  | 16    | 6  |

- i. Assuming that the price of labour ( $P_L$ ) is \$1.00 and price of capital ( $P_k$ ) is \$2.00, calculate the total cost of production for each level of the five levels of output using the optimal (least cost) technology at each level. [5]
- ii. How many labour hours (units of labour) would be employed at each level of output and how many machine hours (units of capital)? [5]
- iii. Graph total cost of production as a function of output (put cost on the y axis and output (q) on the x axis). Again, assume the optimal technology is used. [5]
- iv. Repeat i through iii under the assumption that the price of labour rises from \$1.00 to \$3.00 while the price of capital remains at \$2.00. [5]

**END OF EXAMINATION**