

國立成功大學

114學年度碩士班招生考試試題

編 號：181

系 所：交通管理科學系

科 目：經濟學

日 期：0211

節 次：第 1 節

注 意：1.不可使用計算機
2.請於答案卷(卡)作答，於
試題上作答，不予計分。

The exam has 20 questions in blank and each question is 5 points. There are 100 points in total.

Question 1. (20 points)

Congress and the President decide that the United States should reduce air pollution by reducing its use of gasoline. They impose a \$0.5 tax on each gallon of gasoline sold.

- Should they impose this tax on producers or consumers? _____ Explain carefully using a supply-and-demand diagram.
- If the demand for gasoline were more elastic, would this tax be more effective or less effective in reducing the quantity of gasoline consumed? _____ Explain with both words and a diagram.
- Are consumers of gasoline helped or hurt by this tax? _____ Why?
- Are workers in the oil industry helped or hurt by this tax? _____ Why?

Question 2. (30 points)

It is a hot day, and Bert is thirsty. Here is the value he places on each bottle of water.

Value of first bottle	\$7
Value of second bottle	\$5
Value of third bottle	\$3
Value of fourth bottle	\$1

- From this information, derive Bert's demand schedule. Graph his demand curve for bottled water. _____
- If the price of a bottle of water is \$4, how many bottles does Bert buy? _____ How much consumer surplus does Bert get from his purchases? _____ Show Bert's consumer surplus in your graph. _____
- If the price falls to \$2, how does the quantity demanded change? _____ How does Bert's consumer surplus change? _____ Show these changes in your graph.

Question 3. (30 points)

The many identical residents of Whoville love drinking Zlurp. Each resident has the following willingness to pay for the tasty refreshment.

First bottle	\$5
Second bottle	\$4
Third bottle	\$3
Fourth bottle	\$2
Fifth bottle	\$1
Further bottle	\$0

- a. The cost of producing Zlurp is \$1.5, and the competitive suppliers sell it at this price. (The supply curve is horizontal.) How many bottles will each Whovillian consume?
_____ What is each person's consumer surplus? _____
- b. Producing Zlurp creates pollution. Each bottle has an external cost of \$1. Taking this additional cost into account, what is total surplus per person in the allocation you described in part (a)? _____
- c. Cindy Lou Who, one of the residents of Whoville, decides on her own to reduce her consumption of Zlurp by one bottle. What happens to Cindy's welfare (her consumer surplus minus the cost of pollution she experiences)? How does Cindy's decision affect total surplus in Whoville? _____
- d. Mayor Grinch imposes a \$1 tax on Zlurp. What is consumption per person now? Calculate consumer surplus, the external cost, government revenue, and total surplus per person.

- e. Based on your calculation, would you support the mayor's policy? Why or why not?

Question 4. (20 points)

Below are some data from the land of milk and honey.

Year	Price of Milk	Quantity of Milk	Price of Honey	Quantity of Honey
2023	\$1	100 quarts	\$2	50 quarts
2024	\$1	200 quarts	\$2	100 quarts
2025	\$2	200 quarts	\$4	100 quarts

- a. Compute nominal GDP, real GDP, and the GDP deflator for the year 2025, using 2023 as the base year. _____
- b. Compute the percentage change in nominal GDP, real GDP, and the GDP deflator in 2025 from the preceding year. _____ Identify the variable that does not change.
_____ Explain why your answer makes sense.
- c. Did economic well-being increase more in 2024 or 2025? Explain. _____