ECON 002 - Principles of Microeconomics
Drake University, Spring 2023
William M. Boal

Signature: _____

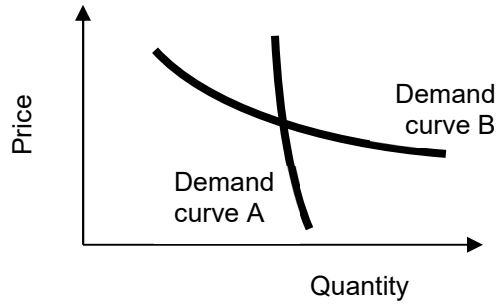
Printed name: _____

EXAMINATION 2 VERSION B
"Applications of Supply and Demand"
March 9, 2023

INSTRUCTIONS: This exam is closed-book, closed-notes. Simple calculators are permitted, but graphing calculators, calculators with alphabetical keyboards, cell phones, and wireless devices are NOT permitted. Numerical answers, if rounded, must be correct to at least 3 significant digits. Point values for each question are noted in brackets. Maximum total points are 100.

I. Multiple choice: Please circle the one best answer to each question. [1 pt each, 22 pts total]

(1) Which demand curve below is *more* elastic?
a. Demand curve A.
b. Demand curve B.
c. Both have the same elasticity because they pass through the same point.
d. Cannot be determined from information given.



(2) A good that has no close substitutes will likely have a price elasticity of demand that is
a. small, in absolute value.
b. large, in absolute value.
c. zero.
d. infinite.
e. cannot be determined.

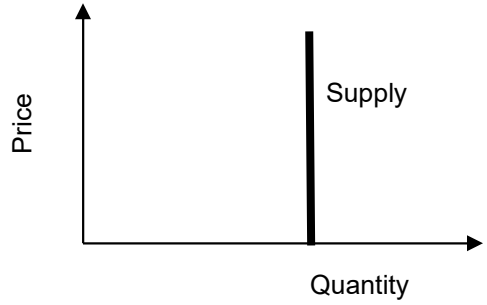
(3) It takes time for consumers to adjust their lifestyles to changes in gasoline prices. Therefore, the short-run demand for gasoline is
a. just as elastic as the long-run demand.
b. more elastic than the long -run demand.
c. less elastic than the long -run demand.
d. Elasticity of demand is not related to time for adjustment.

(4) Suppose the price elasticity of demand for bacon is about – 2. If the price of bacon rises, then the amount of money consumers spend on bacon will
a. increase.
b. decrease.
c. remain constant.
d. cannot be determined from information given.

(5) Assuming that coffee and doughnuts are complements, then the cross-price elasticity of demand for coffee with respect to the price of doughnuts must be
a. positive
b. negative.
c. zero.
d. cannot be determined from information given.

(6) Assuming that opera tickets are a *superior* or *luxury good*, the income elasticity of demand for opera tickets must be
a. negative.
b. exactly zero.
c. between zero and one.
d. exactly one.
e. greater than one.

(7) The supply curve in the graph below is
a. perfectly elastic.
b. perfectly inelastic.
c. unitary elastic.
d. Cannot be determined from information given.



The next four questions refer to the following demand and supply schedules for soybeans in two countries.

	Country X		Country Y	
Price	Q_D	Q_S	Q_D	Q_S
$1	60	30	50	25
$2	50	50	40	30
$3	40	70	75	45
$4	30	90	70	50
$5	20	110	65	55
$6	10	130	60	60
$7	0	150	0	65

(8) In the absence of international trade, Country X's equilibrium price of soybeans would be
a. $2.
b. $3.
c. $4.
d. $5.
e. $6.

(9) In the absence of international trade, Country Y's equilibrium price of soybeans would be
a. $2.
b. $3.
c. $4.
d. $5.
e. $6.

(10) With international trade, the equilibrium price of soybeans in both countries would be
a. $2.
b. $3.
c. $4.
d. $5.
e. $6.

(11) Who in Country X benefits from international trade in soybeans?
a. Buyers in Country X.
b. Sellers in Country X.
c. Both buyers and sellers in Country X.
d. Neither buyers nor sellers in Country X.

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(12) Suppose soybean farms in South America enjoy a big harvest because of good weather. Since soybeans are traded internationally, this would cause the price of soybeans in the U.S. to
a. remain constant.
b. rise.
c. fall.
d. Cannot be determined from information given.

(13) To pass the *compensation test of Kaldor and Hicks*, a change in the economy must result in
a. cost savings for the government.
b. a rise in wages, salaries, and other compensation.
c. winners but no losers.
d. gains to winners that exceed any losses to losers.
e. at least some winners.

(14) To be a *Pareto improvement*, a change in the economy must result in
a. cost savings for the government.
b. a rise in wages, salaries, and other compensation.
c. winners but no losers.
d. gains to winners that exceed any losses to losers.
e. at least some winners.

(15) Suppose the price of watermelons is $5 in Kansas City and the cost of shipping a watermelon between Des Moines and Kansas City is $2. Markets are *out of equilibrium* if the price of melons in Des Moines is
a. $1.
b. $4.
c. $5.
d. $6.

(16) Arbitrage guarantees that people in Denver and Chicago pay similar prices for
a. houses.
b. gold.
c. haircuts.
d. gravel.

(17) If the free-market equilibrium price of gasoline is $3, which government price control would be *binding* on the market?
a. A price ceiling (or legal maximum price) of $5.
b. A price floor (or legal minimum price) of $5.
c. Both of the above would be binding.
d. None of the above would be binding.

(18) A quota (or legal maximum quantity) on *buying* ivory would cause its price to
a. rise.
b. fall.
c. rise or fall, depending on the shapes of the demand and supply curves.
d. remain constant.

(19) Which would *decrease* the quantity sold of infant car seats?
a. A tax on infant car seats.
b. A subsidy for infant car seats.
c. Both of the above.
d. None of the above.

(20) Suppose the price elasticity of demand for baby food is -0.2 and the price elasticity of supply is 5.0. If a subsidy is given for baby food,
a. producers will enjoy most of the subsidy.
b. consumers will enjoy most of the subsidy.
c. producers and consumers will each enjoy half of the subsidy.
d. Answer depends on which side receives the check from the government.

(21) A Laffer curve shows the relationship between
a. quantity and price.
b. deadweight loss and tax rates.
c. consumer surplus and price.
d. tax rates and tax revenues.
e. quota quantities and quota price.

(22) If the government pays a subsidy on vitamins, who will likely enjoy the benefit of the subsidy?
a. Vitamin producers.
b. Vitamin consumers.
c. Both of the above.
d. None of the above.

II. Problems: Insert your answer to each question in the box provided. Use margins and graphs for scratch work. Only the answers in the boxes will be graded. Work carefully—partial credit is not normally given for questions in this section.

(1) [Calculating elasticities: 2 pts] Suppose that if the price of admission to the roller rink is $10, the average person goes to the rink 5 times per year; but if the price is $6, the average person goes 11 times per year. Compute the price elasticity of demand for admission to the roller rink using the "arc-elasticity" formula.

(2) [Cross-price elasticity of demand: 4 pts] Suppose that when the price of potato rises by 10 percent, the quantity of corn chips purchased rises by 5 percent.

a. From the information above, are potato chips and corn chips *substitutes* or *complements* ?
b. Compute the cross-price elasticity of demand for corn chips with respect to the price of potato chips. (Full credit requires correct sign.)

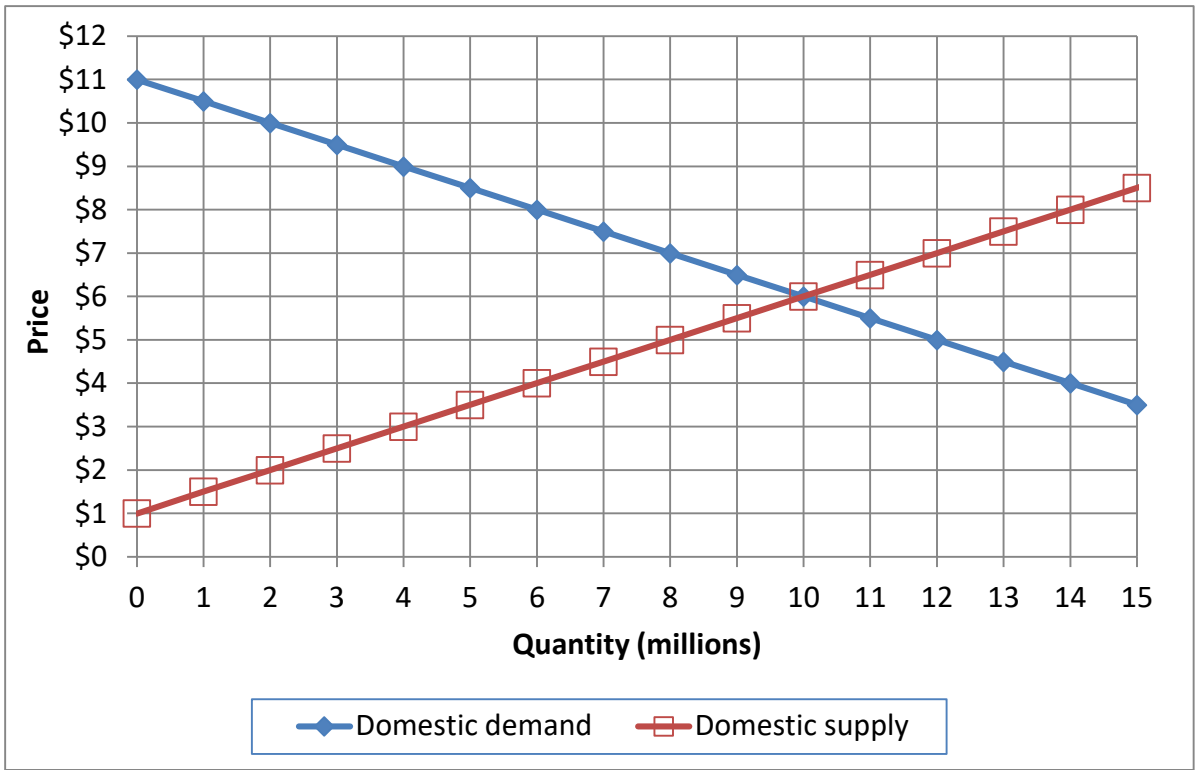
(3) [Income elasticity of demand: 4 pts] Suppose that when consumers' income rises by 5 percent, the quantity of airline tickets purchased rises by 6 percent.

a. From the information above, are airline tickets an *inferior good,* a *necessary good,* or a *luxury (or superior) good* ?
b. Compute the income elasticity of demand for airline tickets. (Full credit requires correct sign.)

(4) [Using price elasticity of demand: 10 pts] Suppose the cable TV company *raises* its price by 6%. Suppose the price elasticity of demand for cable TV service is -1.5. Assume everything else affecting demand for cable TV service remains constant.

a. According to the information above, is demand for cable TV service *elastic, inelastic,* or *unitary-elastic*?
b. As the price rises, will the number of cable TV customers *increase*, *decrease*, or remain *constant*?
c. ... by approximately how much? %
d. Will the total revenue received by the cable TV company *increase*, *decrease*, or remain *constant*?
e. ... by approximately how much? %

(5) [Welfare analysis of international trade: 18 pts] Domestic supply and demand for tee shirts in a particular country are given by the following diagram.



a. At first, international trade in tee shirts is not permitted. Find the equilibrium price without international trade. $

Then this industry is opened to international trade and the international price of tee shirts turns out to be **$ 5.**

b. Will this country now *export* or *import* tee shirts?

c. How many? million

d. Does consumer surplus in this country *increase* or *decrease* from international trade in tee shirts?

e. By how much? $ million

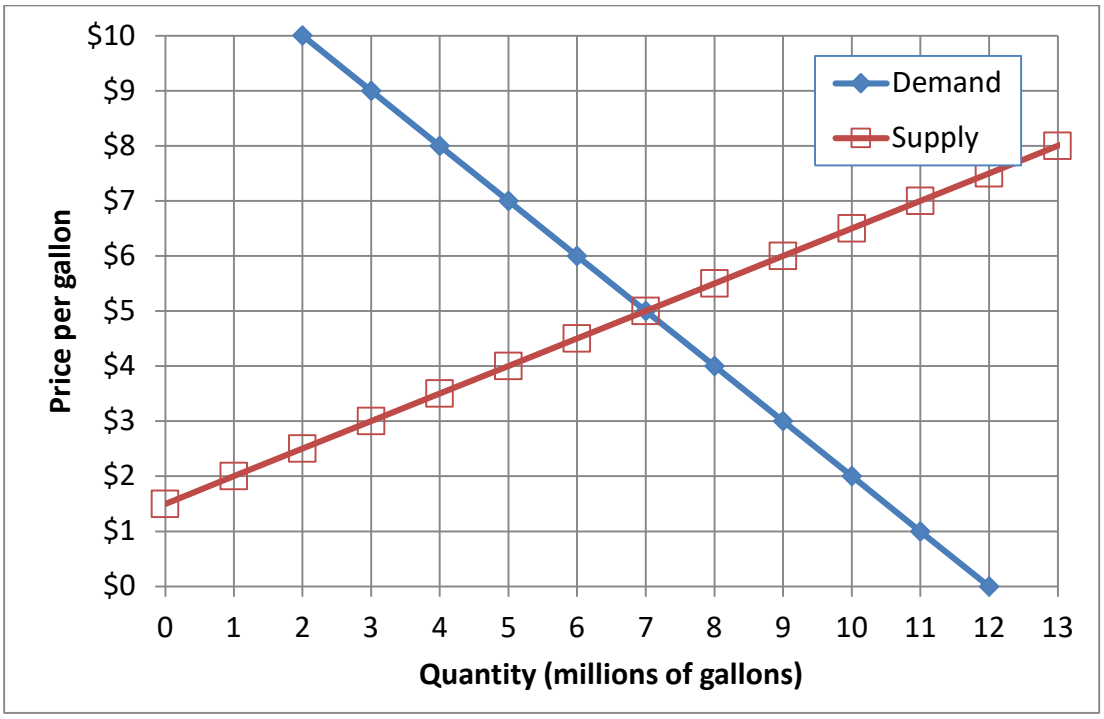
f. Does producer surplus in this country *increase* or *decrease* from international trade in tee shirts?

g. By how much? $ million

h. Does total social welfare in this country *increase* or *decrease* from international trade in tee shirts?

i. By how much? $ million

(6) [Welfare analysis of market controls: 18 pts] The following graph shows the market for milk.



a. Find the equilibrium price without government intervention. $

Suppose the government imposes a price floor (or legal minimum price) of **$ 7 per gallon**. No milk may be sold for a price less than the price floor.

b. How much milk will actually be sold? million gallons

c. Will there be *excess demand, excess supply*, or *neither*?

d. How much? million gallons

e. Does producer surplus *increase, decrease,* or *remain constant* because of the price floor, as compared to the market without government intervention? (Assume optimistically that milk is produced by those producers with the lowest cost.)

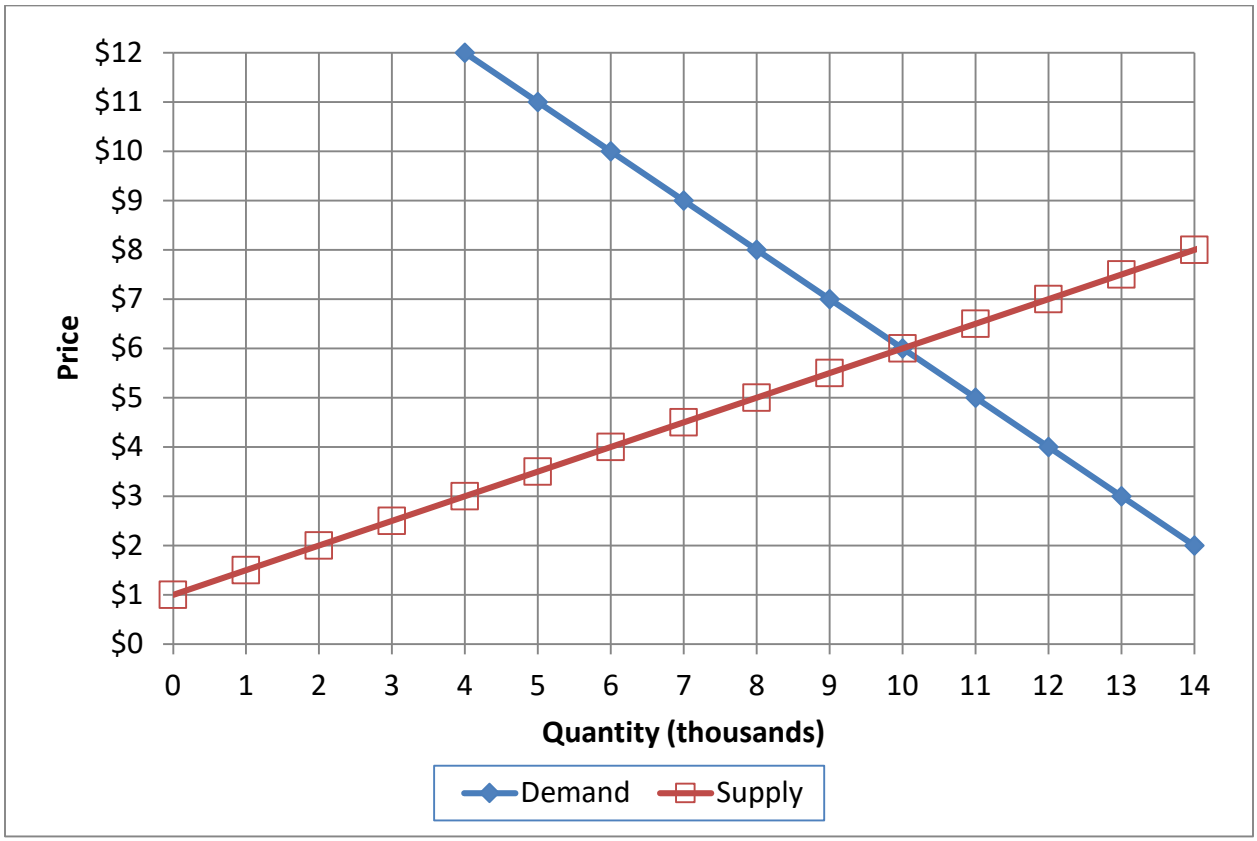
f. By how much? $ million

g. Does consumer surplus *increase, decrease,* or *remain constant* because of the price floor, as compared to the market without government intervention?

h. By how much? $ million

i. Compute the deadweight social loss caused by the price floor. $ million

(7) [Welfare analysis of tax or subsidy: 18 pts] The graph below shows the market for snow shovels.



Suppose the government pays a **subsidy of $ 3** per snow shovel.

a. Compute the equilibrium quantity sold.		thousand
b. Compute the equilibrium total price received by sellers (including the subsidy).	$	per snow shovel
c. Compute the equilibrium net price paid by buyers (excluding the subsidy).	$	per snow shovel
d. Does producer surplus *increase, decrease,* or *remain constant* because of the subsidy?		
e. By how much?	$	thousand
f. Does consumer surplus *increase, decrease,* or *remain constant* because of the subsidy?		
g. By how much?	$	thousand
h. Compute the direct cost of the subsidy to the government—that is, the amount that the government will have to pay buyers and/or sellers.	$	thousand
i. Compute the deadweight social loss caused by the subsidy.	$	thousand

III. Critical thinking: Write a one-paragraph essay answering ***one*** question below (your choice). [4 pts]

(1) Consider the following statement. "Limiting the number of barbers is good for consumers, because if there were too many barbers, each barber would have few customers and would have to raise the price of a haircut to stay in business. So limiting the number of barbers keeps the price of a haircut reasonable for consumers." Do you agree or disagree? Explain why. Justify your answer with a supply-and-demand graph. Label both axes and all curves.

(2) You want to boost your company's revenue. A company statistician estimates that demand for your main product has a price elasticity of **–0.6** . Marketing Consultant A argues that you should raise the price of your product. "Your customers are willing to pay more, so this is clearly the right way to boost revenue," says Consultant A. Marketing Consultant B argues that you should cut the price. "The best way to boost revenue is to build market share," says Consultant B. Who is right? Why? (Ignore the graph.)

Please circle the question you are answering. Write your answer below. Full credit requires correct economic reasoning, legible writing, good grammar including complete sentences, and accurate spelling.

[end of exam]