ECON 002 - Principles of Microeconomics Signature: _____
Drake University, Fall 2022
William M. Boal Printed name: _____

EXAMINATION 1 VERSION A
"Competitive Supply and Demand"
September 21, 2022

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 write your name and "Version A" on your Scantron sheet. Then mark the one best answer to each question on the Scantron sheet. [1 pt each, 33 pts total]

(1) The assumption in economics that people are *rational* implies that people
a. ignore "soft" concerns like friendships and charity.
b. do the best they can with what they have.
c. make sacrifices today for a better future.
d. maximize their income.
e. use math to make decisions.

(2) In economics, a situation of scarcity is one where the available resources are insufficient
a. to feed the entire population.
b. to give everyone their fair share.
c. to do everything one might want to do.
d. to provide for any saving.
e. to allow for economic growth.

(3) Aaron buys a ticket to a football game for $50. When he arrives at the stadium, he discovers that scalpers are willing to pay $150 for his ticket. His *opportunity cost* of attending the game is now
a. $0.
b. $50.
c. $100.
d. $150.

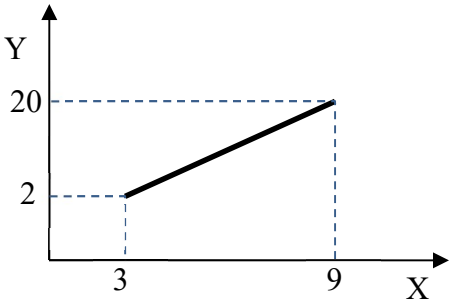
(4) Rational choice implies pursuing an activity until the marginal benefit of the last unit
a. is much greater than its marginal cost.
b. begins to exceed its marginal cost.
c. begins to fall below its marginal cost.
d. is much less than its marginal cost.

(5) In economics, an *equilibrium* is a situation where
a. total costs equal total benefits.
b. no one wants to change their choices.
c. inflation equals zero percent.
d. economic growth is zero.

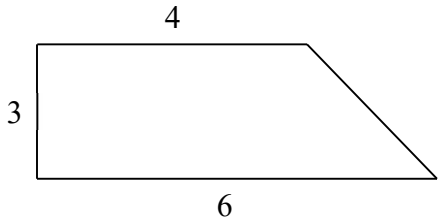
(6) "A tax cut should be enacted" is an example of
a. a positive statement.
b. a normative statement.
c. both of the above.
d. none of the above.

(7) Which of the following would most naturally be studied in *microeconomics* rather than macroeconomics?
a. The price of automobiles.
b. Unemployment.
c. Inflation.
d. Economic growth.

(8) In the graph below, the slope of the line segment equals
a. 1.
b. 2.
c. 3.
d. 4.
e. 5.
f. 6.



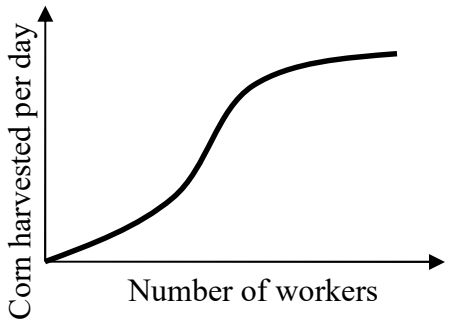
(9) The area of the trapezoid below equals
a. 8.
b. 15.
c. 18.
e. 72



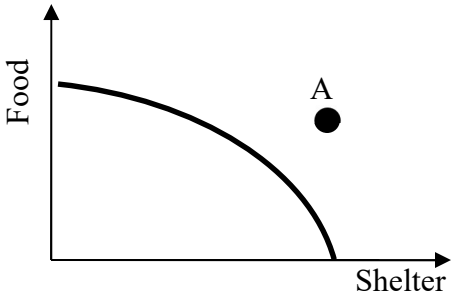
(10) Economic or physical capital includes
a. shares of stock in public corporations.
b. trucks and machines.
c. mortgage-backed securities.
d. bank accounts.
e. all of the above.

(11) A curve that shows the relationship between inputs and outputs is called
a. a production-possibilities curve.
b. a supply curve.
c. a production function or total product curve.
d. an average cost or unit-cost curve.

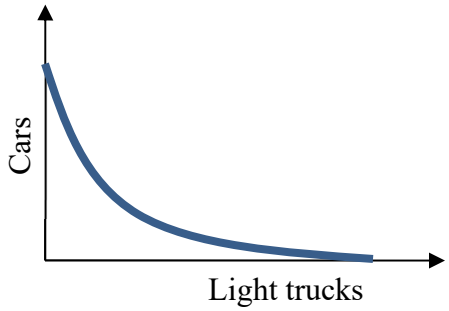
(12) Consider the production function shown below. As more labor is used, the marginal product of labor
a. decreases.
b. increases.
c. first increases, then decreases.
d. first decreases, then increases.
e. remains constant.



(13) The graph below shows the production possibility curve for some country. The combination of outputs represented by point A
a. is feasible and efficient.
b. is feasible but not efficient.
c. is infeasible.
d. cannot be determined from information given.



The next two questions refer to the following graph of a factory's production-possibility curve.



(14) By definition, what is held constant along this production-possibility curve?
a. The prices of cars and trucks.
b. Output of cars.
c. Output of light trucks.
d. The factory's total inputs.
e. None of the above.

(15) As more light trucks are produced, the opportunity cost of the last truck
a. remains constant.
b. decreases.
c. increases.
d. first increases, then decreases.

The next three questions refer to the following information. Farm A can produce 20 units of tomatoes or 20 units of peppers per acre. Farm B can produce 30 units of tomatoes or 60 units of peppers per acre.

(16) What is Farm A's opportunity cost of a unit of tomatoes?
a. 1 unit of peppers.
b. 2 units of peppers.
c. 20 units of peppers.
d. 2 units of tomatoes.

(17) What is Farm B's opportunity cost of a unit of tomatoes?
a. 1 unit of peppers.
b. 2 units of peppers.
c. 60 units of peppers.
d. 30 units of tomatoes.

(18) Which farm has a comparative advantage in tomatoes?
a. Farm A.
b. Farm B.
c. Both farms.
d. Neither farm.

(19) Monetary exchange is more common today than bartering because
a. bartering is a lost art.
b. monetary exchanges are subject to less tax.
c. bartering requires a "double coincidence of wants."
d. bartering is often illegal whereas anything can be legally bought and sold with money.

(20) An efficient well-functioning market
a. ensures that every potential buyer and seller makes a trade.
b. obeys the law of one price.
c. generates a variety of prices from which buyers and sellers may choose.
d. converges to a price such that consumer surplus equals producer surplus.
e. all of the above.

(21) **A** demand curve for smartwatches shows how the quantity of smartwatches people want to buy is affected by
a. the smartwatch's features.
b. the income of consumers.
c. the price of smartwatches.
d. the price of substitutes, like fitbits.

(22) The *law of demand* means that
a. the quantity that buyers want to buy is negatively related to the price.
b. demand curves must be straight lines.
c. anything consumers want will be produced.
d. if buyers want something, they will pay whatever price is demanded by sellers.
e. consumers have a right to buy whatever they want.

(23) The "income effect" causes consumers to buy more when the price of a good falls because consumers
a. want to substitute goods for money.
b. want to reward sellers for lowering the price by increasing sellers' incomes.
c. shift their purchases from alternative goods that have not fallen in price.
d. can afford to buy more of everything due to the drop in price of this good.

(24) A fall in the price of Android smart phones will shift the demand for Apple iPhones to the left, since Android phones and iPhones are
a. complementary goods.
b. substitute goods.
c. normal goods.
d. inferior goods.

(25) A rise in consumers' income will shift the demand for hotel rooms to the right, because hotel rooms are
a. inferior goods.
b. complementary goods.
c. substitute goods.
d. normal goods.

(26) Supply curves tend to slope upward because
a. sellers try to increase the price over time.
b. price necessarily equals quantity.
c. the first few units are relatively cheap to produce but additional units often cost more.
d. you have to pay more to buy more.

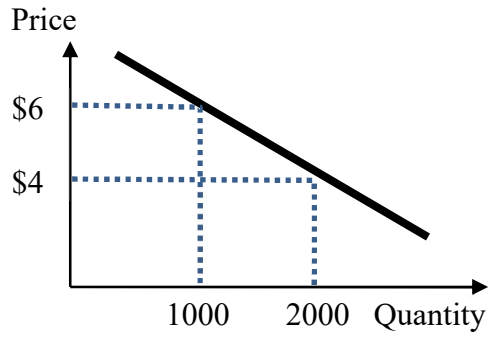
(27) Corn oil is made from corn, so if the price of corn rises, then the
a. demand for corn oil will shift left.
b. demand for corn oil will shift right.
c. supply of corn oil will shift left.
d. supply of corn oil will shift right.

(28) Equilibrium in a competitive market occurs when
a. the price is zero.
b. the quantity demanded equals the quantity supplied.
c. the price is affordable to most people.
d. the revenue received by sellers is maximized.

(29) Some people believe there is excess supply in the housing market. If they are right, then the price of houses can be expected to
a. rise.
b. fall.
c. remain constant.
d. Price movements are not related to excess supply.

(30) In September, the price of pears decreases and the quantity sold increases. This could be caused by a
a. rightward shift in the demand for pears.
b. rightward shift in the supply of pears.
c. leftward shift in the demand for pears.
d. leftward shift in the supply of pears.

The next two questions refer to the following graph of the demand for sandwiches.



(31) How much are consumers willing to pay for the 1000th sandwich?
a. zero.
b. $2.
c. $4.
d. $6.
e. $10.

(32) If the market price of sandwiches falls from $6 to $4, then total consumer surplus
a. increases by $2000.
b. increases by $3000.
c. increases by $4000.
d. decreases by $2000.
e. decreases by $3000.
f. decreases by $4000.

(33) At any point on the supply curve for wheat, the height of the supply curve equals
a. consumer surplus on that bushel of wheat.
b. consumers' willingness to pay for that bushel of wheat.
c. marginal cost of producing that bushel of wheat.
d. producer surplus on that bushel of wheat.

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) [Percent change, midpoint formula: 2 pts] Suppose the average price of electricity in Iowa is 9 cents per kilowatt-hour and the average price in Montana is $11 cents per kilowatt-hour. Compute the percent difference using the midpoint method.

%

(2) [Percent change of product: 4 pts] Consumer spending on gasoline equals the price paid times the quantity purchased. Suppose the price of gasoline increases by 9 percent and the quantity purchased decreases by 3 percent.

a. Does spending on gasoline *increase* or *decrease*?

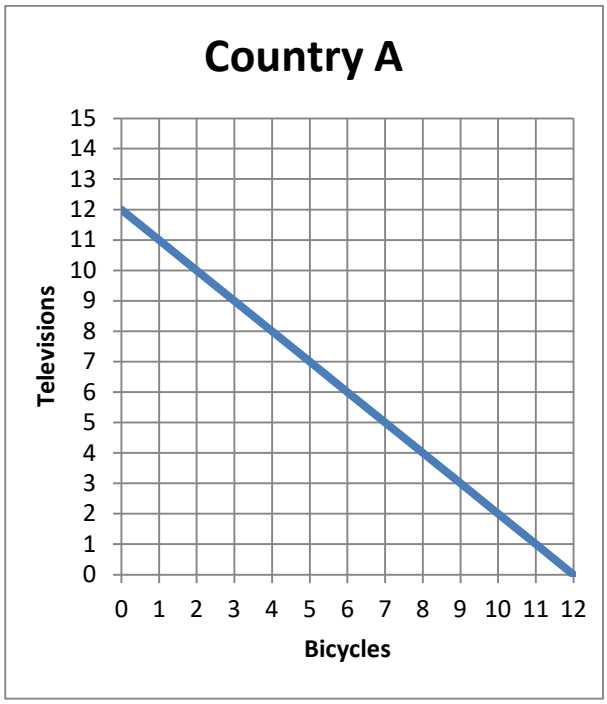
b. By approximately how much? %

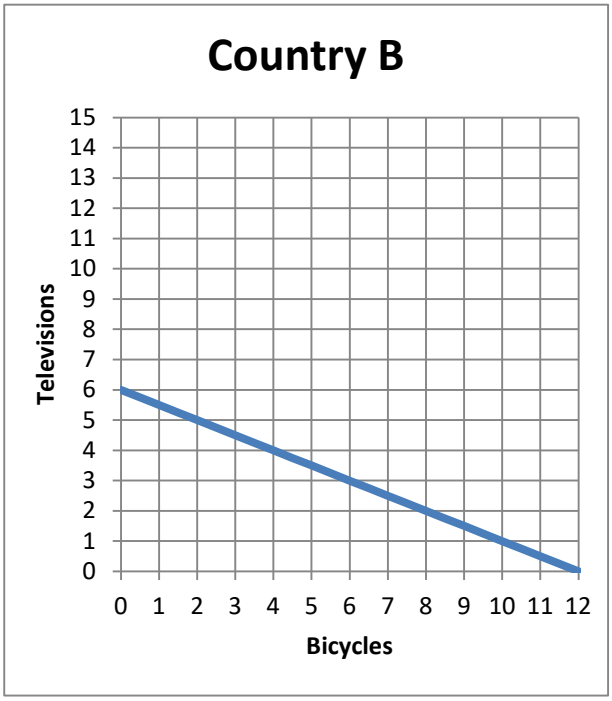
(3) [Production functions: 7 pts] A work crew plants trees. Complete the table by computing the work crew's average product and marginal product and placing your answers in the unshaded cells of the third and fourth columns below. Then answer the question below.

Number of workers	*Trees planted per day*	*Average Product*	*Marginal Product*
0 workers	0 trees planted		
			trees planted per worker
5 workers	30 trees planted	trees planted per worker	
			trees planted per worker
10 workers	50 trees planted	trees planted per worker	
			trees planted per worker
15 workers	60 trees planted	trees planted per worker	

Is the work crew's production function characterized by *diminishing returns* to their labor input? Answer YES or NO.

(4) [Comparative advantage, gains from trade: 17 pts] Country A and Country B can each produce televisions and bicycles. They each face a tradeoff between these two products because of limited workforces. Their production possibility curves are shown below.





a. What is Country A's opportunity cost of producing a television? bicycles

b. What is Country B's opportunity cost of producing a television? bicycles

c. What is Country A's opportunity cost of producing a bicycle? televisions

d. What is Country B's opportunity cost of producing a bicycle? televisions

e. Which country has a comparative advantage in producing televisions?

f. Which country has a comparative advantage in producing bicycles?

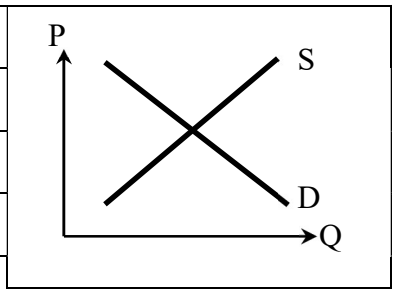
g. [3 pts] Fill in the blanks: *Both* countries can consume combinations of products *outside* their individual production possibility curves if _____ exports *three* bicycles to _____, which exports _____ televisions in return.

h. **Plot** the trade that you propose in part (g) on the graphs above. For each country, plot and label the starting point representing **production before trade**, and the ending point representing **consumption after trade**.

(5) [Shifts in demand and supply: 15 pts] Analyze each of the following markets according to the accompanying imaginary scenario.

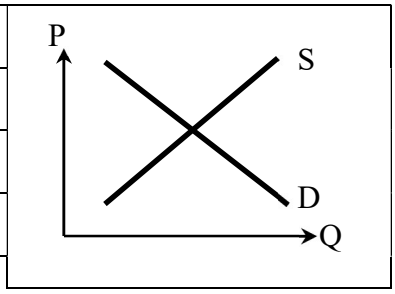
a. Consider the market for ***grapefruit juice***. Suppose the price of orange juice rises.

Does demand shift *left*, shift *right*, or remain *unchanged* ?
Does supply shift *left*, shift *right*, or remain *unchanged* ?
Does the equilibrium price *increase, decrease,* or *cannot be determined* ?
Does the equilibrium quantity *increase, decrease,* or *cannot be determined* ?
Sketch a graph of this scenario at right, showing which curve(s) shift(s).



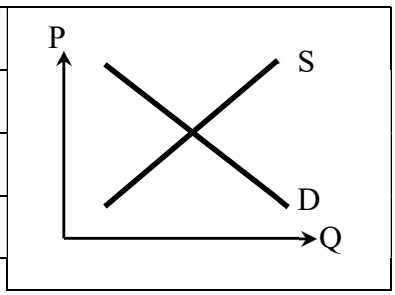
b. Consider the market for ***plastic***. Suppose the price of petroleum rises. (Most plastic is made from petroleum.)

Does demand shift *left*, shift *right*, or remain *unchanged* ?
Does supply shift *left*, shift *right*, or remain *unchanged* ?
Does the equilibrium price *increase, decrease,* or *cannot be determined* ?
Does the equilibrium quantity *increase, decrease,* or *cannot be determined* ?
Sketch a graph of this scenario at right, showing which curve(s) shift(s).

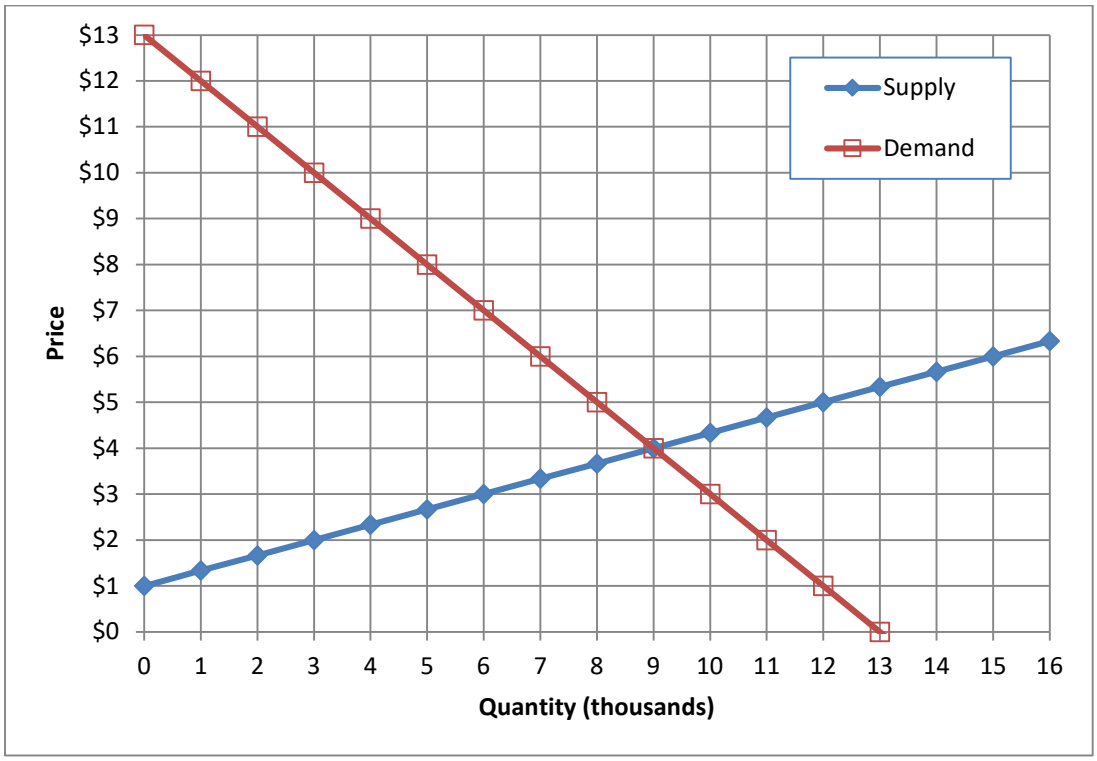


c. Consider the market for ***blueberries***: A new government study reports that eating blueberries helps fight cancer and heart disease. At the same time, new environmental regulations raise the cost of growing blueberries.

Does demand shift *left*, shift *right*, or remain *unchanged* ?
Does supply shift *left*, shift *right*, or remain *unchanged* ?
Does the equilibrium price *increase, decrease,* or *cannot be determined* ?
Does the equilibrium quantity *increase, decrease,* or *cannot be determined* ?
Sketch a graph of this scenario at right, showing which curve(s) shift(s).



(6) [Consumer surplus, producer surplus: 22 pts] The market for flashdrives is depicted in the graph below.



Suppose the price in this market were \$3 for some unknown reason.

a. Would there be *excess demand, excess supply*, or *neither*?

b. How much?

c. Would the price tend to *rise, fall*, or remain *constant*?

	thousand

Now suppose the market is in *equilibrium*.

d. What is the equilibrium price?

e. What is the equilibrium quantity?

f. How much are consumers willing to pay for the 3 thousandth flashdrive?

g. How much consumer surplus do they enjoy for the 3 thousandth flashdrive?

h. What is the marginal cost to producers of the 6 thousandth flashdrive?

i. How much producer surplus do they enjoy for the 6 thousandth flashdrive?

j. Compute total consumer surplus.

k. Compute total producer surplus.

\$	
	thousand
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[end of exam]