EXAMINATION 1 VERSION B
## "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 B" on your Scantron sheet. Then mark the one best answer to each question on the Scantron sheet. [1 pt each, 33 pts total]

(1) In economics, *rational behavior* means
a.   using math to make decisions.
b.   ignoring "soft" concerns like friendships and charity.
c.   doing the best one can with what one has.
d.   making sacrifices today for a better future.
e.   maximizing one's income.

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

(3) Briana buys a ticket to a concert for $20. When she arrives at the concert hall, she discovers that scalpers are willing to pay $80 for her ticket. Her *opportunity cost* of attending the concert is now
a. $20.
b. $60.
c. $80.
d. $100.

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

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

(6) "GDP has increased this year" 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.   Economic growth.
b.   The supply of housing.
c.   Unemployment.
d.   Inflation.
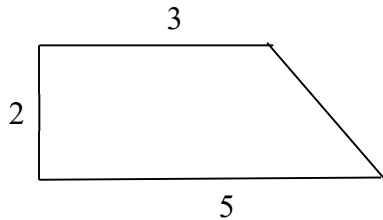
(8) In the graph below, the slope of the line segment equals
a.   1.
b.   2.
c.   3.
d.   4.
e.   5.
f.   6.
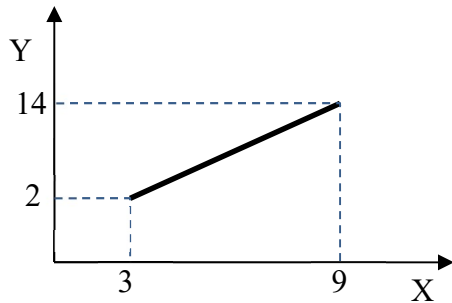
(9) The area of the trapezoid below equals
a.   8.
b.   15.
c.   18.
b.   30

(10) Economic or physical capital includes
a.   bank accounts.
b.   shares of stock in corporations.
c.   bonds.
d.   all of the above.
e.   none of the above.

(11) A curve that shows the relationship between inputs and outputs is called
a.   an average cost or unit-cost curve.
b.   a production-possibilities curve.
c.   a supply curve.
d.   a production function or total product 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.
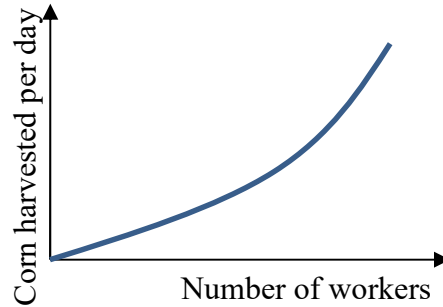
(13) The graph below shows the production possibility curve for some country. The combination of outputs represented by point A
a.   is feasible and efficient.
b.   is feasible but not efficient.
c.   is infeasible.
d.   cannot be determined from information given.
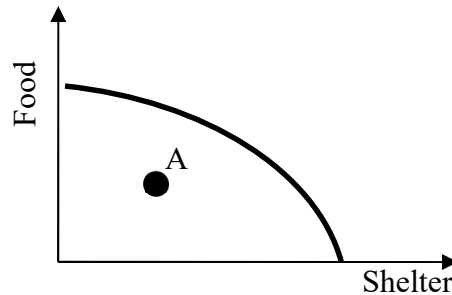
The next two questions refer to the following graph of a factory's production-possibility curve.
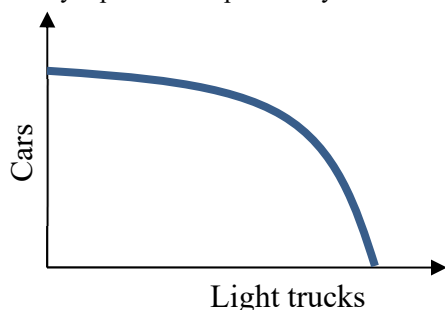
(14) By definition, what is held constant along this production-possibility curve?
a. The factory's total inputs.
b. The prices of cars and trucks.
c. Output of cars.
d. Output of light trucks.
e. None of the above.

(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 40 units of peppers per acre. Farm B can produce 30 units of tomatoes or 30 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. 30 units of peppers.
d. 20 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 often illegal whereas anything can be legally bought and sold with money.
b. bartering is a lost art.
c. monetary exchanges are subject to less tax.
d. bartering requires a "double coincidence of wants."

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

(21) **A** demand curve for melons shows how the quantity of melons people want to buy is affected by
a. the price of substitutes, like apples.
b. the size of the melon.
c. the income of consumers.
d. the price of melons.

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

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

(24) As the price of smart phones falls, consumers are buying more apps to run on their smart phones, because smart phones and apps are
a. substitute goods.
b. complementary goods.
c. inferior goods.
d. normal goods.

(25) As consumers' incomes rise, they typically go to more music concerts, because concerts are
a. a substitute good.
b. a complementary good.
c. an inferior good.
d. a normal good.

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

(27) If a new, more efficient method for growing rice is developed, then
a. demand for rice will shift left.
b. demand for rice will shift right.
c. supply of rice will shift left.
d. supply of rice will shift right.

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

(29) Excess demand in the market for cars would occur if the actual price of cars were
a. greater than the equilibrium price.
b. less than the equilibrium price.
c. too close to the equilibrium price.
d. cannot be determined from the information given.

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

The next two questions refer to the following graph of the demand for hamburgers.
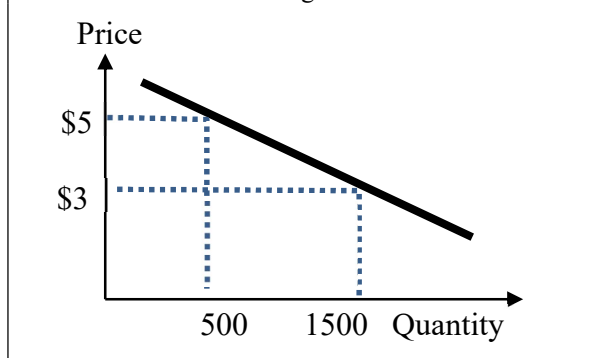
(31) How much are consumers willing to pay for the 1500th hamburger?
a. zero.
b. $2.
c. $3.
d. $4.
e. $5.

(32) If the market price of hamburgers rises from $3 to $5, then total consumer surplus
a. decreases by $1000.
b. decreases by $2000.
c. decreases by $3000.
d. increases by $1000.
e. increases by $2000.
f. increases by $3000.

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

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 bus fare in Omaha is $2.00 and the average bus fare in Chicago is $3.00. Compute the percent difference using the midpoint method.

%

(2) [Percent change of product: 4 pts] Consumer spending on bananas equals the price paid times the quantity purchased. Suppose the price of bananas increases by 5 percent and the quantity purchased decreases by 8 percent.

a. Does spending on bananas *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	15 trees planted	trees planted per worker	
			trees planted per worker
10 workers	40 trees planted	trees planted per worker	
			trees planted per worker
15 workers	75 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.
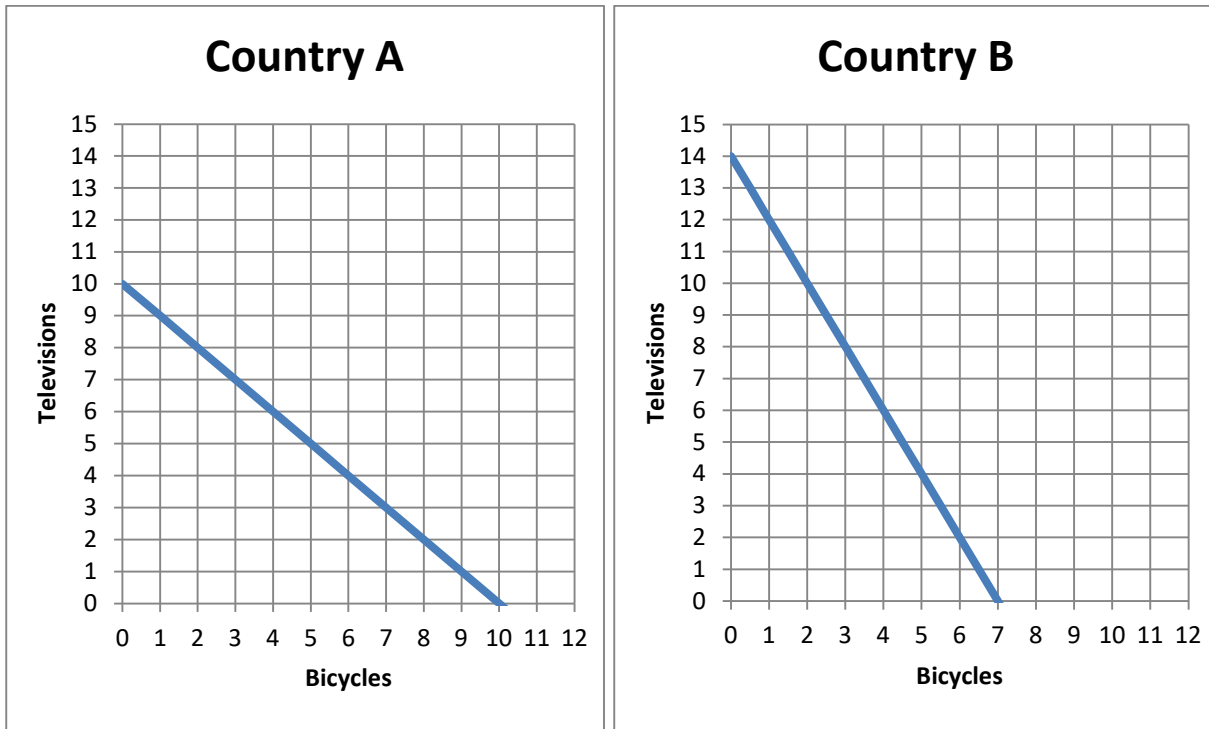
Country A

Country B

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 **natural gas**. Suppose we have an unusually cold winter. (Most homes in the Midwest are heated with natural gas.)
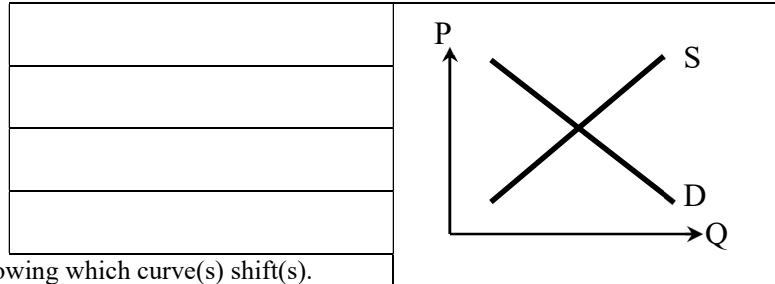
Does demand shift *left*, shift *right*, or remain *unchanged* ?
Does supply shift *left*, shift *right*, or remain *unchanged* ?
Does the equilibrium price *increase, decrease,* or *cannot be determined* ?
Does the equilibrium quantity *increase, decrease,* or *cannot be determined* ?
Sketch a graph of this scenario at right, showing which curve(s) shift(s).

b. Consider the market for **new houses**: A construction workers' union wins a big wage increase.
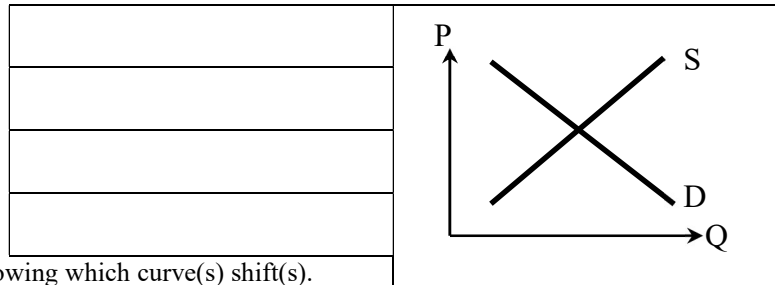
Does demand shift *left*, shift *right*, or remain *unchanged* ?
Does supply shift *left*, shift *right*, or remain *unchanged* ?
Does the equilibrium price *increase, decrease,* or *cannot be determined* ?
Does the equilibrium quantity *increase, decrease,* or *cannot be determined* ?
Sketch a graph of this scenario at right, showing which curve(s) shift(s).

c. Consider the market for **airline tickets**: The price of jet fuel rises. At the same time, a recession lowers consumers' incomes.
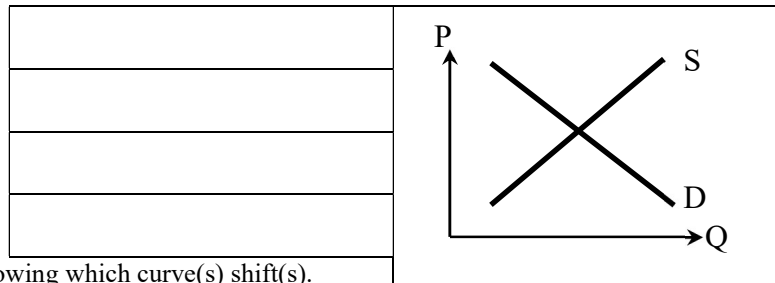
Does demand shift *left*, shift *right*, or remain *unchanged* ?
Does supply shift *left*, shift *right*, or remain *unchanged* ?
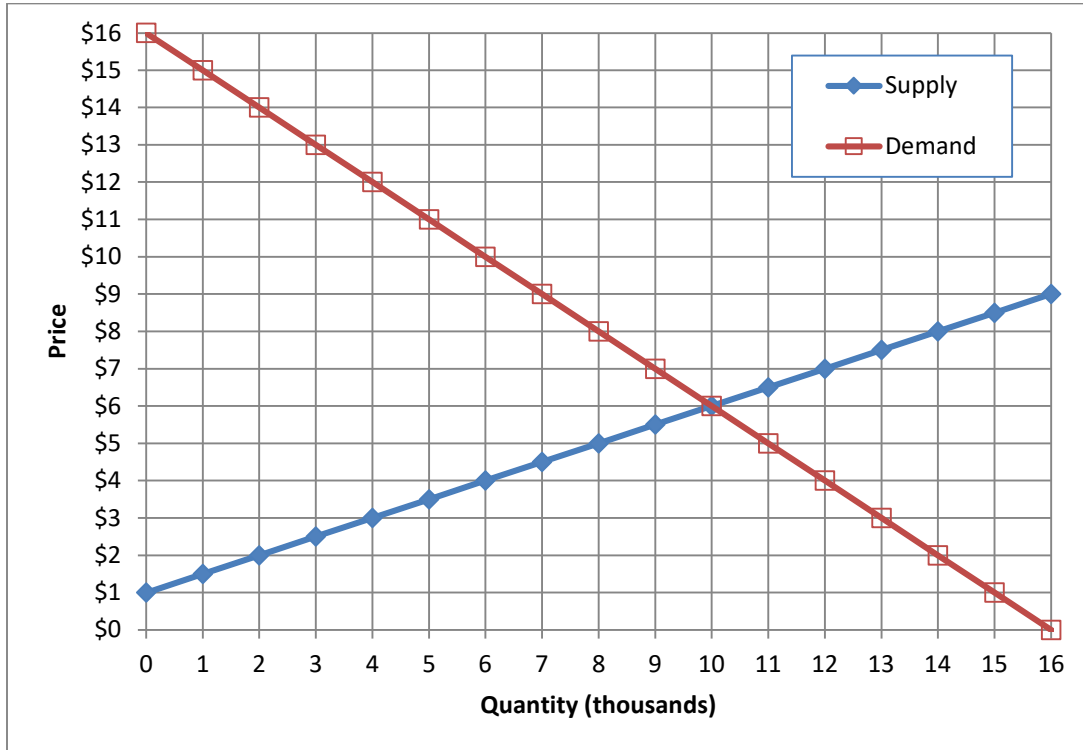Does the equilibrium price *increase, decrease,* or *cannot be determined* ?
Does the equilibrium quantity *increase, decrease,* or *cannot be determined* ?
Sketch a graph of this scenario at right, showing which curve(s) shift(s).

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

Suppose the price in this market were $8 for some unknown reason.
a. Would there be *excess demand, excess supply*, or *neither*?

b. How much?

thousand

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

Now suppose the market is in *equilibrium*.
d. What is the equilibrium price?

$

e. What is the equilibrium quantity?

thousand

f. How much are consumers willing to pay for the 7 thousandth flashdrive?

$

g. How much consumer surplus do they enjoy for the 7 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.

$	thousand

k. Compute total producer surplus.

$	thousand

[end of exam]