Code of Conduct Statement: I understand that this online exam is an open book, open note, calculator approved exam. I understand that I may not provide help to anyone else and I may not receive help from anyone else on this exam. If help, other than that provided by open book, open note, or calculator use, occur on this exam I understand that this is an academic misconduct violation. I also understand that my instructor reserves the right to not accept an exam score if there are concerns about academic misconduct. In "choosing" the answer below I am explicitly agreeing with this code of conduct statement.

- Yes, I agree to the behaviors and expectations outline in this code of conduct.

Multiple Choice Questions (30 questions each worth 3 points)

1. Which of the following statements is true about the price elasticity of demand between two specific points on a demand curve using the arc elasticity measure?

a. To use this measure of elasticity you must have the coordinates of two points on the demand curve.
b. This measure gives us different values depending on whether you are measuring this elasticity moving from point A to point B or point B to point A.
c. To use this measure of elasticity you must know the slope of the supply curve and have the coordinates of one point on the demand curve.
d. This measure takes an average of the quantities as the "base" for purposes of calculating the percentage change in the price of the good.

2. Which of the following statements is true about real and nominal prices?

a. The real price and the nominal price of a good are the same in the base year.
b. The nominal price can never be lower than the real price.
c. The real price can never be lower than the nominal price.
d. The number and type of items used to calculate the cost of the market basket can vary across years when calculating the CPI.

3.Consider the demand curve for gadgets given by the following equation where P is the price per unit and Q is the number of gadgets:

Market Demand for Gadgets: $Q = 50 - (1/4)P$

Suppose that the price is initially $20 per gadget and then rises by $40. Given this information and holding everything else constant, how many of the following statements are true?

- Demand for gadgets in this price range is elastic no matter whether you use the arc elasticity method or the point elasticity method to calculate the price elasticity of demand.

- An increase in price from $20 per gadget to $60 per gadget will result in a decrease in total revenue in this market.
- This increase in price results in the price effect on total revenue being greater in absolute value terms than the quantity effect on total revenue.
- Using the simple percentage change formula, this price change reflects a 100% increase in the price of gadgets.

a. One statement is true.
b. Two statements are true.
c. Three statements are true.
d. Four statements are true.

Answer the **next four (4)** questions using the following information.

Beckwood is a small economy that is initially a closed economy. Its domestic demand and supply curves for watches are given by the following equations where P is the price per watch and Q is the number of watches:

Domestic Demand Curve for Watches: $P = 400 - Q$
Domestic Supply Curve for Watches: $P = 40 + (5/4)Q$

You are also told that the world price for a watch is $90.

4. Given this information and holding everything else constant, if this market opens to trade, then:

a. Beckwood will export watches and the value of producer surplus in Beckwood will increase.
b. Beckwood will import watches and the value of consumer surplus in Beckwood will increase.
c. Beckwood will import watches and the value of total surplus in Beckwood will decrease.
d. Beckwood will export watches and the value of total surplus in Beckwood will increase.

5. Suppose Beckwood opens its watch market to trade. Given this information and holding everything else constant, then:

a. Total surplus will increase by [(1/2)($310 per watch)(310 per watch) + (1/2)($50 per watch)(50 watches)].
b. Beckwood will import (310 – 40) watches into its economy.
c. Beckwood will charge $240 per watch and import (160 – 40) watches into its economy.
d. Beckwood will charge $90 per watch and import (160 – 40) watches into its economy.

6. Suppose Beckwood opens its watch market to trade. At the same time Beckwood's government implements an import quota of 90 watches. Given this information and holding everything else constant, then:

a. The price with this import quota will equal $200 per watch.
b. The level of imports with this program will now be equal to 100 watches.
c. The consumer surplus with this import quota will equal $44,100.
d. The producer surplus with this import quota will equal $9000.

7. Instead of the import quota described in the last question, the government of Beckwood implements a tariff in this market. The tariff raises the price of a watch to $140. Given this information and holding everything else constant, then:

a. Total surplus in this market with the implementation of this tariff will equal $38,800.
b. Tariff revenue for the government will equal $9000.
c. This tariff will result in a deadweight loss that is equal to $2500.
d. This tariff is a government policy that both domestic producers and domestic consumers will support compared to the government implementing a policy of open trade without a trade agreement.

8. Rank the different elasticity measures according to how precise they are starting with the most precise measure and moving toward the least precise measure.

a. point price elasticity > arc price elasticity > elasticity calculated using the standard percentage change formula
b. arc price elasticity > elasticity calculated using the standard percentage change formula > point price elasticity
c. arc price elasticity > point price elasticity > elasticity calculated using the standard percentage change formula
d. elasticity calculated using the standard percentage change formula > point price elasticity > arc price elasticity

9. Suppose the cross-price elasticity of demand for good X is given by the following equation where Q is the quantity of good X and P is the price of good Y:

$$\varepsilon_{XY} = \frac{\%\Delta Q_X}{\%\Delta P_Y} = 2$$

If the price of good Y increases by 10%, then the number of units of good X demanded will be 120. Given the above information, what is the number of units of good X demanded before the change in the price of good Y?

a. 100 units of good X
b. 140 units of good X
c. 96 units of good X

d. 144 units of good X

10. Consider the market for potatoes in Madison. The market supply and demand equations are given by the following equations where P is the price per unit of potatoes and Q is the number of units of potatoes:

Market Supply Curve: P = 3Q
Market Demand Curve: P = 10 – Q

Suppose the market is initially in equilibrium at a point we will refer to as point A. Then, a new study comes out that finds that eating potatoes is good for you. This causes the demand curve to change to the following:

New Market Demand Curve: P = 20 – Q

Assume the supply curve is unchanged. The market now reaches a new equilibrium at a point that we will refer to as point B. Given points A and B, and using the arc method for calculating elasticity, find the price elasticity of supply ε_S?

a. $\varepsilon_S = -1$
b. $\varepsilon_S = 1$
c. $\varepsilon_S = 3$
d. $\varepsilon_S = 1/3$

11. Adam is a junior economist at the Bureau of Labor Statistics. He is given the following data detailing the nominal price for the basket of goods used to compute the consumer price index as well as the consumer price index (CPI) used to compute the CPI over a 5-year period.

Year	Nominal Price of the Basket of Goods	Consumer Price Index
2015	$10	100
2016	$12	120
2017	$16	160
2018	$20	200
2019	$18	180

Adam is asked by his boss to calculate the annual inflation rate based on this basket of goods from 2017 to 2018. Given this information and holding everything else constant, what is the inflation rate?

a. 20 percent
b. 25 percent
c. 33 percent

d. 50 percent

12. Mary consumes cups of coffee (C) and pretzels (P) and calculates her (ordinal) utility according to the following function: U = C + P. Suppose Mary initially consumes 5 cups of coffee and 10 pretzels. How many of the following statements are true?

- If Mary doubles her consumption of coffee and pretzels, her new utility level will be twice as high.
- If Mary consumes 5 pretzels and 10 cups of coffee, her new utility is lower than her original utility.
- Mary gains more utility from drinking one more cup of coffee than by eating one more pretzel.

a. One of the statements is true.
b. Two of the statements are true.
c. All of the statements are true.
d. None of the statements are true.

13. Suppose that the price of a salad is $5 and the price of a pizza is $10. Marty knows that her marginal utility from consuming an additional salad is equal to 40 utils of satisfaction and she knows that her marginal utility from consuming an additional pizza is 100 utils of satisfaction. Given this information and holding everything else constant, if Marty's desire is to maximize her satisfaction, what would you recommend that she do?

a. Marty should purchase more pizza and less salad.
b. Marty should purchase less pizza and more salad.
c. Marty should purchase more pizza and more salad.
d. Marty should purchase less pizza and less salad.

14. An economy measures its consumer price index based on a fixed market basket that is composed of 4 cups of coffee, 2 rolls, and 1 book. Government workers on a regular basis go out and collect prices on these three items. The following table provides you with some of this data.

Item	Price in 2016	Price in 2017	Price in 2018
1 cup of coffee	$2.00	$3.00	$4.00
1 roll	$1.00	$1.00	$2.00
1 book	$10.00	$16.00	$20.00

Using 2017 as the base year and measuring the CPI on a 100-point scale, which of the following tables provides the accurate CPI index numbers based on the above data?

a.

Year	CPI with BY 2017
2016	100
2017	150
2018	200

b.

Year	CPI with BY 2017
2016	50
2017	75
2018	100

c.

Year	CPI with BY 2017
2016	66.7
2017	100
2018	133.3

d.

Year	CPI with BY 2017
2016	50
2017	100
2018	150

15. Suppose Tom consumes only bread and apples. Both apples and bread are normal goods. Given his current income, his utility maximizing bundle is 2 slices of bread and 4 apples. If he gets a raise in income while prices stay the same, what do you think will happen to his optimal consumption bundle?

a. He will consume more bread and more apples.
b. He will consume more bread and less apples.
c. He will consume more apples and less bread.
d. He will keep consuming 2 slices of bread and 4 apples.

Use the following information to answer the **next three (3)** questions.

Mike's utility function for Good X and Good Y is given by the following equation where Q is Utility, X is the number of units of Good X and Y is the number of units of Good Y.

Mike's Utility Function: $U = 4XY$

You are also provided the following information:

Mike's Marginal Utility of Good X: $MU_X = 4Y$
Mike's Marginal Utility of Good Y: $MU_Y = 4X$
Mike's Available Income to be Spent on Good X and Good Y = \$100
Price of Good X = \$5

16. You are told that if Mike only purchases Good Y he can afford to purchase 50 units of good Y. From this you can conclude that:

a. The price of Y is less than \$1 per unit of good Y.
b. That Mike can afford to consume the bundle of Good X and Good Y, (X, Y) = (14, 15).
c. Good Y is an inferior good since Good Y costs less than Good X.
d. That Utility from the consumption bundle (X, Y) = (14, 15) is greater than 1000 utils.

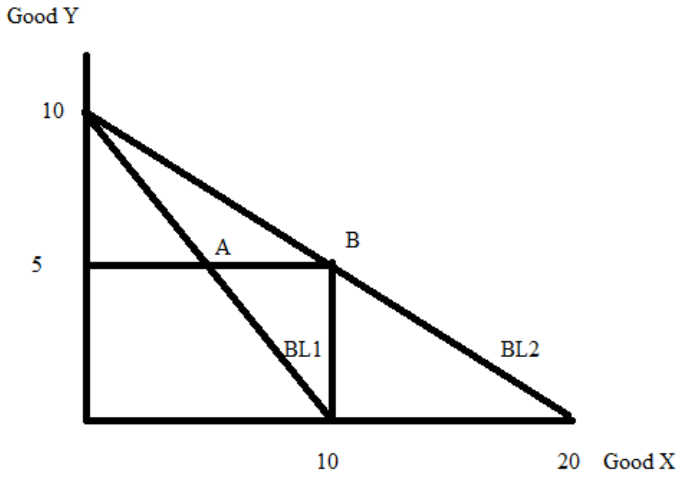
17. Mike's utility maximizing bundle of (Good X, Good Y), given the above information and holding everything else constant, is:

a. (14 units of Good X, 15 units of Good Y)
b. (4 units of Good X, 40 units of Good Y)
c. (8 units of Good X, 30 units of Good Y)
d. (10 units of Good X, 25 units of Good Y)

18. Suppose that the price of Good X increases to \$10 per unit. Given this information and holding everything else constant, which of the following equations expresses his new utility optimization rule?

a. $100 = 10X + Y$
b. $100 = 5X + 2Y$
c. $X = 5Y$
d. $5X = Y$

19. Consider the following graph depicting an individual's budget lines, BL1 and BL2. BL1 is this individual's initial budget line and BL2 is the individual's budget line after something changes. Point A represents this individual's initial utility optimization point and point B represents this individual's new optimization point after the change. Assume that this individual has an income of $100 to be spent on good X and good Y.



Given this information and holding everything else constant, which of the following statements is true?

a. The price of Good X increased moving from BL1 to BL2, holding everything else constant.
b. If we assume that the demand curve is linear for Good X, then this individual's demand curve for Good X could be written as P = 15 – Q.
c. The price of Good Y increased moving from BL1 to BL2, holding everything else constant.
d. It is not possible to write an equation for this individual's demand equation for Good X given the information that is provided.

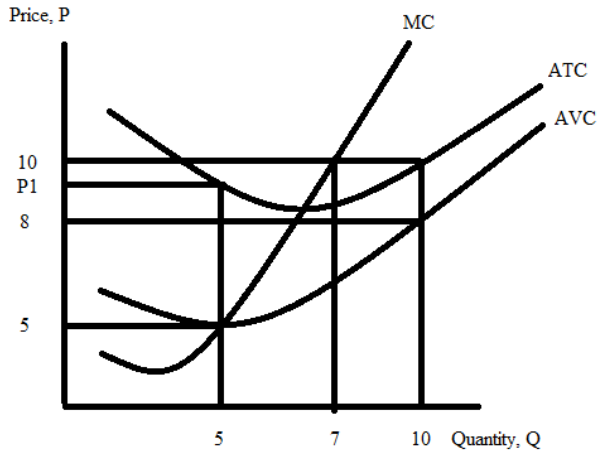
20. Which one of the following statements is true?
a. The shutdown point is when AVC is minimized, or where the AVC curve intersects the ATC curve.
b. The breakeven point is when ATC is minimized, or where the AFC curve intersects the ATC curve.
c. The shutdown point is when AVC is minimized, or where the AVC curve intersects the MC curve.
d. The breakeven point is when AVC is minimized, or where the AVC curve insects the MC curve.

21. Consider a firm. You are told that this firm's marginal cost curve is beneath its average total cost curve for quantities of production between zero units and 100 units. Given this information and holding everything else constant, you conclude that over this range of production:

a. The firm's marginal cost curve is rising as output increases.
b. The firm's average total cost curve is declining as output increases.
c. The firm's marginal cost curve is a horizontal line as output increases.
d. The firm's average fixed cost curve is increasing as output increases.

Use the graph below of a firm's cost curves to answer the **next two (2)** questions.

The graph is not drawn to scale, but any marked points with numeric values are accurate. ATC is the firm's average total cost curve, AVC is the firm's average variable cost curve, and MC is the firm's marginal cost curve.



22. Given this graph and holding everything else constant, the value of "P1" is (remember that this graph is NOT drawn to scale, so think-don't just look!):

a. $9.80
b. $9.00
c. $9.20
d. $8.50

23. When this firm produces 10 units of the good its _____ and when this firm produces 7 units of the good its _____.

a. Average total cost is $10 per unit; marginal cost of producing one more unit of the good is greater than its average total cost per unit
b. Economic profit is greater than its accounting profit; economic profit is equal to zero dollars
c. Total variable cost is equal to $80; average variable cost is decreasing as output increases

d. Average variable cost is greater than its average fixed cost; average fixed cost is greater than $4.

24. In perfectly competitive market in the long run, what is the equilibrium market price and why?
a. The long run equilibrium price is always where MC = ATC because the long run entry and exit of firms into the industry insures that economic profit will be equal to zero in the long run.
b. The long run equilibrium price is always equal to min AVC because free entry and exit allows all non-profitable firms to leave the market.
c. The long run equilibrium price is always where P = MC because the market is a perfectly competitive market.
d. The long run equilibrium price is always equal to min ATC because all firms decide to coordinate with one another in order to maximize joint profits.

Use the following information to answer the **next four (4)** questions.

Consider a representative firm in a perfectly competitive market. Assume that all firms are identical in this market. The relevant market and firm information are given below:

Market Demand Curve: $P = 100 - Q$
Market Supply Curve: $P = 20 + Q$

Total Cost for the Representative Firm: $TC = 64 + 20q + 4q^2$
Marginal Cost for the Representative Firm: $MC = 20 + 8q$

25. Given this information and holding everything else constant, in the **short run** how many units of output, q, will the firm produce?

a. q = 40 units
b. q = 60 units
c. q = 6 units
d. q = 5 units

26. Given this information and holding everything else constant, in the **short run** what is the value of the firm's profits?

a. Profit = $360
b. Profit = $64
c. Profit = $36
d. Profit = $24

27. Given this information and holding everything else constant, what is the **long run** equilibrium price in this market? Assume that the market demand does not change when computing this equilibrium price.

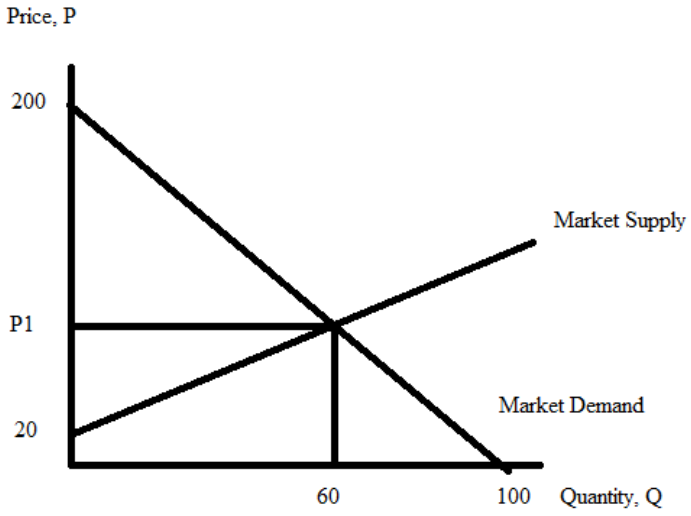
a. $144 per unit
b. $100 per unit
c. $36 per unit
d. $52 per unit

28. Given this information and holding everything else constant, how many firms are in this industry in the long run? Assume that there are no changes in the market demand and that all firms in the market are identical.

a. 8 firms
b. 9 firms
c. 10 firms
d. 12 firms

sUse the following information to answer the **next two (2)** questions.

Consider a perfectly competitive industry where all the firms are identical. You are provided the following graph that depicts the industry's market supply curve and market demand curve. Both of these curves are linear, and it is assumed that the individual firms all have linear marginal cost curves. You are also told that this industry is in equilibrium and that equilibrium is based on the information you are provided in the graph. When this market is in equilibrium, you are told that the representative firm produces 4 units of output.



29. Given this information and holding everything else constant, how many firms are in this industry?

a. 14 firms
b. 15 firms
c. 12 firms
d. 10 firms

30. Given the above information and holding everything else constant, what is the equation for the firm's Marginal Cost Curve? In the following answers MC is marginal cost and q is the quantity produced by the firm.

a. MC = 20q
b. MC = 20 + (1/15)q
c. MC = 20 + q
d. MC = 20 + 10q