

Pledge (sign) _____
“I did not copy another student’s answers”

Economics 4020 – Dr. Rupp
Test #1 – Sept 27th, 2012

20 Multiple Choice questions – (2.5 points each)

1. $STC = 40 + 10Q + 0.1Q^2$. $SMC = 10 + 0.2Q$. The market price is \$20. Find the profit maximizing output.
 - a. $Q=50$
 - b. $Q = 20$
 - c. $Q = 0.5$
 - d. $Q = 5$
 - e. $Q = 12$
2. Frozen yogurt businesses continue to enter the Greenville market...therefore economists would conclude that:
 - a. Frozen yogurt businesses must be losing money
 - b. Frozen yogurt businesses must be breaking even
 - c. Frozen yogurt businesses must be making profits



3. The above long-run average cost curve (LRAC) exhibits:
 - a. Diseconomies of scale
 - b. Constant returns to scale
 - c. Economies of scale
4. The short-run the supply curve for a firm in this perfectly competitive market is
 - a. the upward sloping portion of the AVC curve.
 - b. the downward sloping portion of the AVC curve.
 - c. the upward sloping portion of the ATC curve.
 - d. the portion of the MC curve that lies above AVC.
 - e. the portion of the MC curve that lies above ATC.
5. When does a firm close in the long run?
 - a. If they cannot cover all fixed cost
 - b. If total revenue exceeds total cost
 - c. If they cannot cover all variable cost
 - d. If total cost exceeds total revenue
 - e. If sunk costs exceed fixed cost
6. What are the returns to scale of the following function: $Q = 2K + 0.5L$
 - a. Increasing returns to scale
 - b. Decreasing returns to scale
 - c. Constant returns to scale
7. True/False: Perfectly competitive firms can earn economic profits in the long run.
 - a. True
 - b. False

8. Which market structure best typifies the agricultural markets in the U.S.?
- Monopoly
 - Oligopoly
 - Monopolistic Competition
 - Perfect Competition
9. If input prices rise with output, we would expect the long-run supply curve to have the following slope:
- negative
 - positive
 - zero
10. The past 80 years, what has happened to farming yields?
- They have increased considerably.
 - They have decreased considerably.
 - They have been relatively constant.
11. Which farms have been the least profitable in recent years?
- Small family run farms
 - Mid-size family farms
 - Large family farms
 - Non-family farms
12. Recent technology improvements in seed production for growing onions have led to higher yields for onion growers. Given this information and what you know about the price elasticity of demand for onions, what do you expect to happen to the revenue for onion growers?
- It will increase
 - It will decrease
 - It will remain unchanged
13. Based on the survivor test in the beer industry what can we conclude about the optimal size brewery?
- The optimal size is a small brewery plant (between 100 – 500 thousand barrels of beer per year)
 - The optimal size is a mid-size brewery plant (between 500 thousand to 2 million barrels per year)
 - The optimal size is a large brewery plant (4+ million barrels per year)
14. Currently Moe's has 2 employees and 1 grill (capital), which produces 15 meals per day. If Moe's decides to double both inputs (employees and grills) and 32 meals are produced, what are the returns to scale for Moe's?
- Increasing Returns to Scale
 - Decreasing Returns to Scale
 - Constant Returns to Scale
15. The price elasticity of demand for most agricultural products is:
- Unit elastic
 - Inelastic
 - Elastic
16. What has happened to the concentration of sales by the top five largest brewers in the U.S. beer industry during the past 60 years?
- The industry has become more concentrated
 - The industry has become less concentrated
 - The industry concentration has remained relatively constant

Name _____

Widgets Inc. can hire workers at \$20 per day and can rent a unit of equipment for \$25 per day. Currently Widgets Inc. spends \$300 per day on inputs (assume that you can hire partial quantities of inputs).



17. Draw an isocost curve above where Widgets Inc. spends \$300. What is the slope of the isocost curve?
- 1.25
 - 0.10
 - 0.80
 - 0.67
 - 12.0
18. If the marginal product of labor is 8 and the marginal product of capital is 10, is this firm optimizing? If not, what do you recommend?
- Yes, the firm is optimizing. Do nothing.
 - Not optimal. Hire workers, use less capital.
 - Not optimal. Fire workers, use more capital.
19. Which of the following did **not** contribute to the rise of the national brewer?
- The invention of radio
 - Refrigeration
 - Pasteurization
 - Rail transportation network
20. Adjusted for inflation, what has happened to the real price of chicken the past 60 years?
- Chicken has become more expensive
 - Chicken has become less expensive
 - Chicken prices have been constant

Extra credit (you are eligible to answer the extra credit question if you meet two criteria: (1) your cell phone did not ring during class or during this test and (2) you are taking the test at the regularly scheduled day and time):

21. Which crop provides Pitt county farmers with the highest revenue per acre?
- Corn
 - Soybeans
 - Peanuts
 - Tobacco
 - Wheat

Name _____

Short Answer: (4 questions worth 12.5 points each)

1. Given the production function: $Q = 2L^{1/2}$:
 - a. Find the long-run total cost as a function of Q: $TC(Q)$

 - b. Find the long-run average total cost as a function of Q: $ATC(Q)$

 - c. How does LR average total cost vary with Q? (either sketch a graph or find the derivate to support your answer)

 - d. Does this cost function exhibit economies of scale, diseconomies of scale, or constant returns to scale?

Name _____

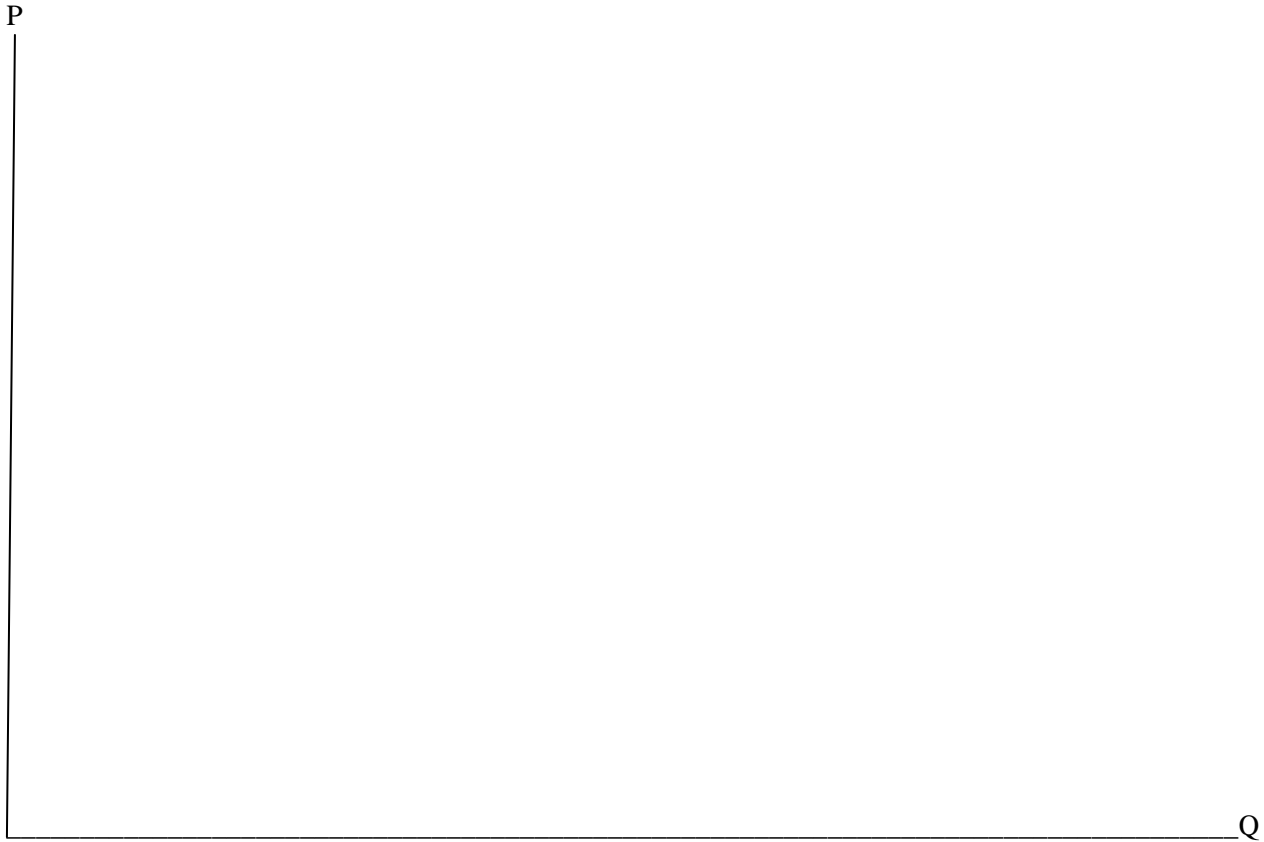
2. Calculating a long-run equilibrium: all firms have identical cost structures. Each firm has a long-run average cost curve: $AC(Q) = 12 - 4Q + \frac{1}{2} Q^2$ and a corresponding long-run marginal cost curve: $MC(Q) = 12 - 6Q + Q^2$. The market demand curve is: $Q^d(P) = 1,800 - 60P$.
- What is the long-run equilibrium quantity per firm (show your work)

b. Find the long-run equilibrium price (show your work)

c. Find the number of firms (show your work)

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3. Draw a diagram below that shows the short-run profit maximizing output for a competitive firm at a market price of \$8, who produces 40 units of output and loses \$60 in the short-run. Your graph should show that being open in the short-run is preferred to being closed in the short-run. **Label all curves!**



Name _____

4. A firm sells a product in a perfectly competitive market, at a price of \$6 each. The firm has a fixed cost of \$12. Fill in the following table.

Output	AFC	AVC	TC	TR	Marginal Revenue	Marginal Cost	Profit
0	-	-			--	--	
1		4					
2						2	
3			24				

- a. In the short-run, what level of output does the firm maximize profit?
- b. Is this firm open or closed in the short-run?
- c. In the long-run, how much does this firm produce?
- d. In the long-run, is this firm open or closed?