Economics 4020 – Dr. Rupp
Test #1 – Fri. Sept 23rd, 2011

20 Multiple Choice questions – (2.5 points each)

1. The profit maximization rule for a firm is to produce where
   a. $MC = AVC$
   b. $MR = P$
   c. $P = ATC$
   d. $MC = MR$
   e. $MR = AVC$

2. An ice cream store is trying to determine when to close at night. You tell the store owner to look at their hourly revenue at night and compare it to the costs. The ice cream store should close at night when hourly:
   a. Total revenue exceeds fixed cost.
   b. Total revenue is smaller than fixed cost.
   c. Total revenue exceeds variable costs.
   d. Total revenue is smaller than variable cost.
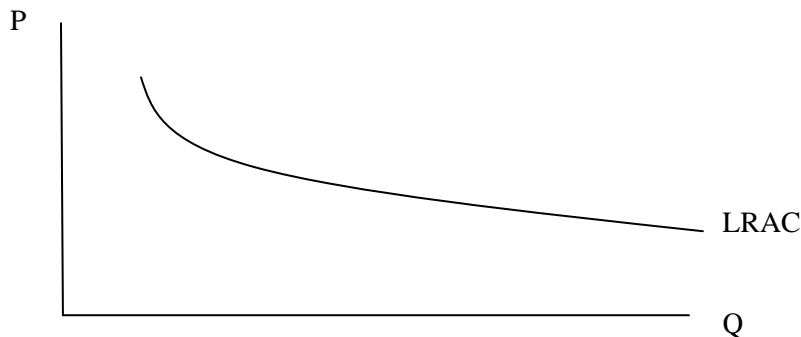
3. The above long-run average cost curve (LRAC) exhibits:
   a. Diseconomies of scale
   b. Constant returns to scale
   c. Economies of scale

4. In the long-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 price is above average variable cost, in the short-run a perfectly competitive firm will
   a. shut down and incur fixed costs.
   b. shut down and incur both variable and fixed costs.
   c. continue to operate.

6. What are the returns to scale of the following function: $Q = KL$
   a. Increasing returns to scale
   b. Decreasing returns to scale
   c. Constant returns to scale

7. Find the marginal cost function, given the total cost function: $TC(Q) = 4Q^2 – 2Q + 10$
   a. $MC = 4Q$
   b. $MC = 8Q$
   c. $MC = 4Q – 2 + 10/Q$
   d. $MC = 8Q – 2$
   e. $MC = -2$

8. Find the fixed cost, given the total cost function: $TC(Q) = 4Q^2 - 2Q + 10$
  a. $FC = -2Q$
  b. $FC = 4Q - 2 + 10/Q$
  c. $FC = 4Q^2 - 2Q$
  d. $FC = 12Q - 6$
  e. $FC = 10$

9. Find the average variable cost, given the total cost function: $TC(Q) = 4Q^2 - 2Q + 10$
  a. $AVC = 4Q - 2 + 10/Q$
  b. $AVC = 4Q - 2$
  c. $AVC = 4Q^2 - 2Q$
  d. $AVC = 10/Q$
  e. $AVC = 8Q - 2$

10. The past 80 years, what has happened to farming yields?
  a. They have increased considerably.
  b. They have decreased considerably.
  c. They have been relatively constant.

11. Which farms have been most profitable in recent years?
  a. No farms have been profitable
  b. Small family run farms
  c. Mid-size family farms
  d. Non-family farms

12. Why are contracts so prevalent recently for farmers?
  a. It lowers their tax bill
  b. Contracts stipulate that retirement benefits be paid
  c. Reduces risk to farmer.
  d. Increases profits.
  e. Contracts are legally required in most states.

13. What has happened to the cost of raising chickens in the U.S. the past 50 years?
  a. It has increased
  b. It has decreased
  c. It has remained the same

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 28 meals are produced, what are the returns to scale for Moe's?
  a. Increasing Returns to Scale
  b. Decreasing Returns to Scale
  c. Constant Returns to Scale

15. The price elasticity of demand for beer is estimated to be approximately -0.8. What does this number mean in words?
  a. A one dollar increase in price, causes 0.8 unit decrease in beer consumption
  b. A one percent increase in quantity, causes prices to fall by 0.8 percent.
  c. A one percent increase in price, reduces total revenue by 0.8 percent.
  d. A one percent increase in price, reduces quantity demanded by 0.8 percent.

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

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16. Draw an isocost curve above where Widgets Inc. spends $300. What is the slope of the isocost curve?
    a. -1/2
    b. -1/10
    c. -4/5
    d. -5/4
    e. -2/3

17. Which of the following beer categories is growing the fastest?
    a. Premium
    b. Super-premium
    c. Budget/Value
    d. Imports & craft beer

18. The survivor test, used by economists to estimate the extent of economies of scale indicates which of the following size beer plants have survived over-time?
    a. Small-sized breweries (< 1 million barrels a year production)
    b. Mid-sized breweries (between 1 and 4 million barrels a year production)
    c. Large-sized breweries (brewing capacity above 4 million barrels a year)

19. What is product differentiation?
    a. Product price is higher to reflect higher input costs
    b. Charging different prices to different people
    c. The point in which marginal revenue begins to diminish
    d. Offering different products in different markets
    e. Slightly different products, hence companies can charge different prices

20. What does marginal cost mean in words?
    a. The revenue from selling one more unit
    b. The cost of producing one more unit
    c. The profit from producing one more unit
    d. The cost of buying another unit
    e. The change in fixed cost from making one more unit

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. Blind taste tests of light beers marketed in the premium and value/budget categories reveal:
    a. Substantial differences between these categories
    b. Little difference between these categories

Short Answer: (4 questions worth 12.5 points each)
1. Given the production function: $Q = 2KL$, wage $= \$4$ and rental price per unit of capital $= \$6$, and a fixed level of capital Ko, find the following:

   a. Short-run total cost: $TC(Q)$

   b. Short-run variable cost $VC(Q)$

   c. Short-run fixed cost

2. Calculating a long-run equilibrium: all firms have identical cost structures. Each firm has a long-run average cost curve: $AC(Q) = 40 - Q + 0.01Q^2$ and a corresponding long-run marginal cost curve: $MC(Q) = 40 - 3Q + 0.02Q^2$. The market demand curve is: $D(P) = 6,400 - 10P$.

      a. 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)

3. The market demand curve is: $P = 100 - Q$. The market supply curve is: $MC = 10 + 2Q$.

    a. Find the equilibrium quantity.

    b. Find the equilibrium price.

    c. Sketch a graph that shows both Consumer and Producer Surplus.

P

Q

    d. How much is the Consumer and Producer Surplus areas?

4. A firm sells a product in a perfectly competitive market, at a price of $5 each. The firm has a fixed cost of $6. Fill in the following table.

Output	AFC	AVC	TC	TR	Marginal Revenue	Marginal Cost	Profit
0	-	-			--	--	
1						2	
2						4	
3						6	

    a. In the short-run, what level of output does the firm maximizes 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?