Econ 251
Microeconomics
Spring 2017
Exam 2 Pink

Glenn is trying to decide how many tulip and daffodil bulbs to plant this year. His total utility associated with tulip and daffodil bulbs are given in the table below. Each tulip bulb costs $3, while each daffodil bulb costs $2. Glenn has $16 to spend on tulip bulbs and daffodils. Use this information to answer the following 4 questions.

Quantity of tulip bulbs	Utility from tulip bulbs	Quantity of daffodil bulbs	Utility from daffodil bulbs
1	18	1	15
2	33	2	28
3	43	3	40
4	48	4	51
5	50	5	61
6	51	6	70

1. What is the marginal utility per dollar spent on the 5^{th} daffodil bulb?
    a. 5
    b. 6
    c. 10
    d. 12

2. If the number of tulip bulbs is measured on the x axis, what is the slope of Glenn's budget line?
    a. 2/3
    b. -3/2
    c. -2/3
    d. 3/2

3. What combination of tulip bulbs and daffodil bulbs maximizes Glenn's utility given his limited income?
    a. 6 tulip bulbs and 6 daffodil bulbs
    b. 3 tulip bulbs and 6 daffodil bulbs
    c. 2 tulip bulbs and 5 daffodil bulbs
    d. 4 tulip bulbs and 3 daffodil bulbs

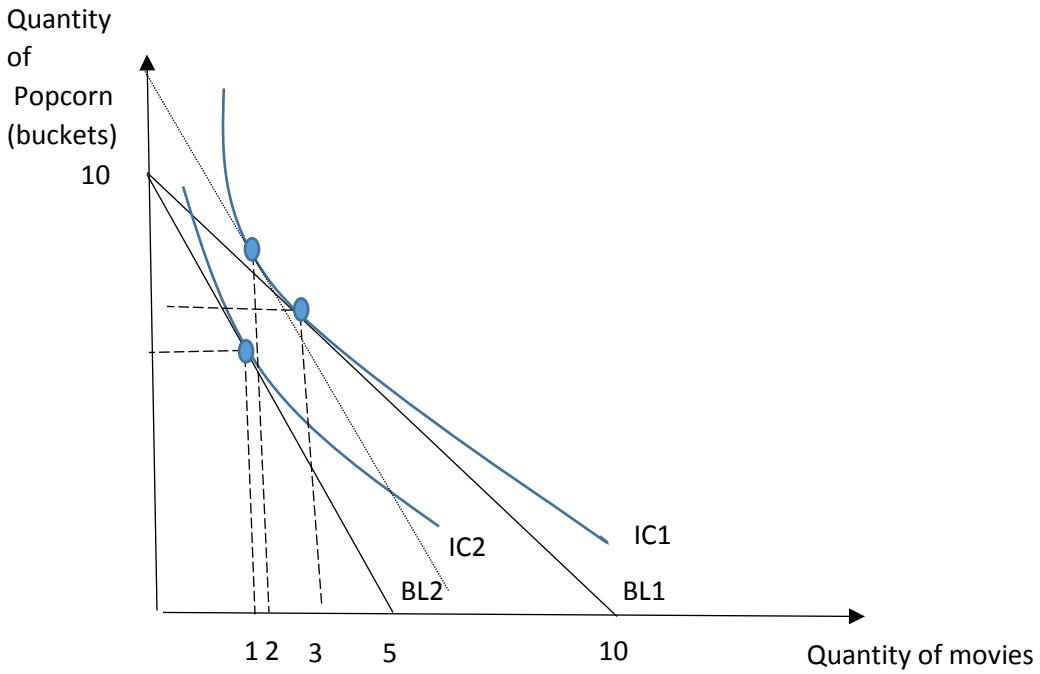
4. When Glenn maximizes his utility given his limited income, which of the following is true?
    a. His real income is equal to the relative price of tulip bulbs.
    b. His marginal rate of substitution is equal to 50.
    c. The marginal utility of the last tulip bulb purchased is equal to the marginal utility of the last daffodil bulbs purchased.

d. The marginal utility of the last tulip bulb purchased is 1.5 times the marginal utility of the last daffodil bulb purchased.

5. Angela maximizes her utility by spending all her $50 of weekly income on 6 guitar strings and 2 guitar picks. Each guitar string costs $8, and each guitar pick costs $1. What is the equation of Angela's budget line? (Qg=the quantity of guitar strings and Qp=the quantity of guitar picks)
   a. 50 = 6Qg + 2Qp
   b. 50=8Qg + Qp
   c. 50 – 2Qg = 8Qp
   d. 50Qp + 50Qg = 1

6. Given the information above, what is the relative price off a guitar string?
   a. 6 guitar picks
   b. 8 guitar picks
   c. 50 guitar picks
   d. None of the above

The graph below shows indifference curves and budget lines facing Ian, who spends all his $100 of income on movies and popcorn. Use this information to answer the following 6 questions.



7. On budget line BL1, what are the prices of movies and popcorn?
   a. Movies are $10 each, and popcorn is $10 each
   b. Movies are $5 each, and popcorn is $5 each
   c. Movies are $25 each, and popcorn is $4 each

d. Movies are $20 each, and popcorn is $5 each

8. What combination of movies and popcorn maximizes Ian's utility when he faces budget line BL1?
    a. 10 movies and 10 buckets of popcorn
    b. 3 movies and 7 buckets of popcorn
    c. 5 movies and 5 buckets of popcorn
    d. 5 movies and 7 buckets of popcorn

9. If the budget line rotates to BL2, which of the following must have occurred?
    a. The price of movies increased to $20
    b. The price of popcorn increased to $10
    c. Ian's income decreased to $50
    d. Ian's income increased to $200

10. The income effect of the change from BL1 to BL2 _____ the quantity of movies from _____.
    a. Increases; 3 to 5
    b. Decreases; 3 to 2
    c. Decreases; 2 to 1
    d. Increases; 7 to 8

11. What is Ian's marginal rate of substitution when he maximizes his utility on budget line BL2?
    a. 1
    b. 2
    c. 0.5
    d. 5

12. According to the graph, which of the following is true?
    a. Movies and popcorn are both inferior goods
    b. Movies and popcorn are complements in consumption
    c. Popcorn is a Giffen good
    d. None of the above are true

13. When the price of a Giffen good falls, the quantity demanded
    a. Rises
    b. Falls
    c. Does not change
    d. May rise or fall, depending on the size of the income and substitution effects

The table below provides information about the productivity of labor at a small landscaping company that focuses on mowing lawns. Use this information to answer the following 2 questions.

Labor	Quantity of lawns mowed per day
0	0
1	3
2	7
3	10
4	12
5	13
6	11

14. What is the marginal product of the 4th unit of labor?
    a. 12
    b. 3
    c. 2
    d. 1

15. At what level of labor does the company begin experiencing diminishing returns?
    a. When the 6^{th} unit of labor is hired
    b. When the 5^{th} unit of labor is hired
    c. When the 4^{th} unit of labor is hired
    d. When the 3^{rd} unit of labor is hired

16. In the long run, a firm can produce 100 units of output at a total cost of $1,000, or it can produce 200 units of output at a total cost of $1,800. This firm is experiencing
    a. Economies of scale
    b. Diseconomies of scale
    c. Constant returns to scale
    d. Diminishing returns

The table below provides short-run production and cost data for a honey producer. Use this information to answer the following 3 questions.

Quantity of honey (pounds)	Fixed costs ($)	Variable cost ($)	Marginal cost ($)
100			15
200			20
300	50	6,000	
400		10,000	

17. What is the average fixed cost of producing 200 pounds of honey?
    a. $50
    b. $25
    c. $4
    d. $0.25

18. What is the marginal cost of producing honey as honey production increases from 300 to 400 pounds?
    a. $22.70
    b. $24.50
    c. $36
    d. $40

19. What is the total cost of producing 200 pounds of honey?
    a. $4,500
    b. $4,000
    c. $3,550
    d. $3,000

20. If a firm's fixed costs are positive, which of the following must be true?
    a. The firm is operating in the long run
    b. The firm is operating in the short run
    c. The firm is producing a level of output that does not maximize profit
    d. The firm is producing a level of output that maximizes profit

21. In the short run, if the marginal cost of production is greater than the average total cost of production, which of the following must also be true?
    a. The marginal cost is greater than the average variable cost of production
    b. The average product of labor is smaller than the marginal product of labor
    c. The average fixed cost is greater than the average variable cost
    d. The level of output being produced is the level that minimizes the average total cost of production

The table below provides estimates of the sales revenue of firms in the market for frozen food. Total sales in the industry are $13.5 billion. Use this information to answer the next question.

Firm	Sales Revenue ($)
ConAgra	4.3 billion
McCain Foods	1.2 billion
Schwan's	2 billion
General Mills	1 billion
Nestle	5 billion

22. What is the four-firm concentration ratio in the frozen food industry?
    a. 63%
    b. 80%
    c. 84.9%
    d. 92.6%

23. Which of the following is NOT a characteristic of perfect competition?
    a. Market demand is perfectly elastic
    b. There are no barriers to entry
    c. There are many firms in the industry
    d. The products firms are producing are perfect substitutes for one another

In the perfectly competitive market for beach towels, the market equilibrium price is $12. Production and total cost information for a firm operating in that industry are given below. Use this information to answer the following 3 questions.

Quantity (number of beach towels)	Total Cost ($)
0	60
1	65
2	75
3	87
4	100
5	115

24. What is the marginal revenue associated with producing the 25^{th} beach towel?
    a. $120
    b. $5
    c. $10
    d. $12

25. What is the profit-maximizing number of beach towels produced by the firm?
    a. 0
    b. 1
    c. 3
    d. 5

26. What level of profit does the firm earn when it is maximizing profit?
    a. $17
    b. $48
    c. Negative $51
    d. Negative $60

27. Under which of the following circumstances would a firm in a perfectly competitive industry be earning negative economic profit?
    a. q=100; Price = $20; Total Cost = $100
    b. q=100; Total Revenue = $500; Average Total Cost = $10
    c. q=100; Price = $10; Average Total Cost = $5
    d. The firm would earn negative economic profit in all of the above circumstances

28. A perfectly competitive firm will choose to shut down rather than operate at a loss if
    a. The marginal cost falls below the marginal revenue
    b. The marginal cost falls below the price
    c. The price falls below average total cost
    d. The price falls below average variable cost

29. If a perfectly competitive firm is currently producing where profit is positive but marginal revenue is below marginal cost, what should the firm do to increase its profit?
    a. Increase output
    b. Decrease output
    c. Increase price
    d. None of the above

30. In the long run, which of the following is NOT true for profit-maximizing firms in perfect competition?
    a. Price is equal to total cost
    b. Price is equal to marginal revenue
    c. Price is equal to marginal cost
    d. Price is equal to average total cost

31. In general, a firm in any industry will choose the level of output that maximizes profit where
    a. Marginal revenue is equal to average fixed cost
    b. Marginal revenue is equal to marginal cost
    c. Price is equal to average variable cost
    d. Price is equal to total cost

Market demand and marginal cost facing a monopolist are given below. Use this information to answer the following 4 questions.

$$D: Q^d = 2{,}000 - (1/5)P$$

$$MC: MC = 2Q + 100$$

32. What is the monopoly's marginal revenue equation?
    a. MR = -5P + 10,000
    b. MR = 400 – 5Q
    c. MR = 2000 – (2/5)P
    d. MR = 10,000 – 10Q

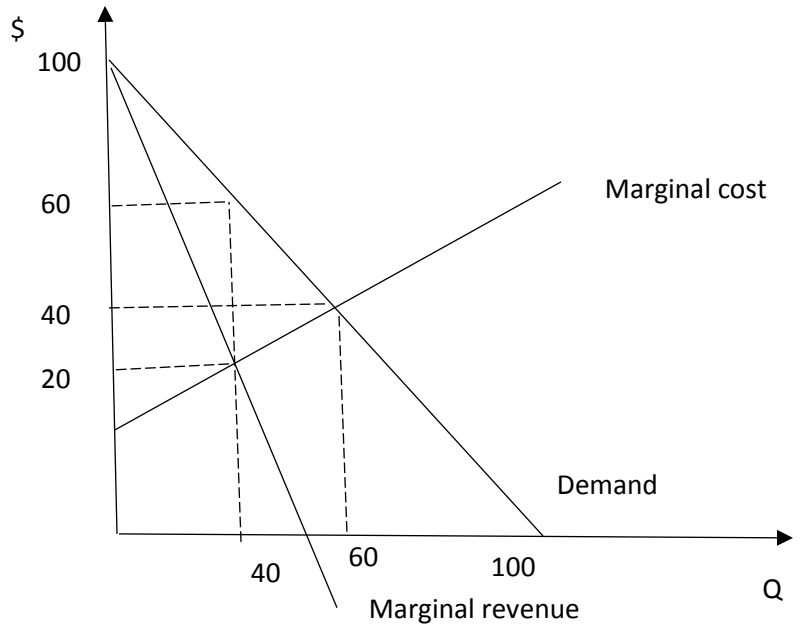
33. What level of output and price will maximize profit for this monopoly?
    a. Q*= 825; P*= $5,875
    b. Q*= 825; P*= $1,750
    c. Q*= 864; P* = $1,828
    d. Q* = 864; P* = $498

34. Which of the following equations reflects the marginal benefit to society of output in this market?
    a. MB = 2,000 – (2/5)Q
    b. MB = 10,000 – 5Q
    c. MB = 5,000 – (2/5)Q
    d. MB = 2Q + 2,000

35. What level of output would satisfy allocative efficiency in this market? (Round to the nearest whole number.)
    a. 1650
    b. 1728
    c. 1414
    d. 850

36. If the midpoint of a linear demand curve facing a monopoly is at the point (100, $100), which of the following must also be true at that point?
    a. Profit is being maximized
    b. Allocative efficiency is achieved
    c. Marginal revenue is equal to zero
    d. Demand is inelastic

The graph below shows demand, marginal revenue, and marginal cost for a monopoly that produces hydro-electric power. Use this information to answer the following 2 questions.



37. If the monopoly produces the level of output that maximizes profit, what is deadweight loss?
    a. $200
    b. $400
    c. $800
    d. $1,600

38. If the monopoly above practices perfect price discrimination, which of the following is true?
    a. Profit is maximized by producing 60 units of output
    b. Consumer surplus is $0
    c. Deadweight loss is $0
    d. All of the above

39. If a monopoly is a “natural” monopoly,
    a. There are significant barriers to entry in the industry
    b. The Herfindahl-Hirschman index is equal to 0
    c. The firm experiences diseconomies of scale
    d. All the above are true

40. If a natural monopoly is regulated by marginal-cost pricing where price and marginal cost are both equal to $50 and quantity is equal to 1,000 at that point, which of the following must also be true?
    a. Marginal revenue is equal to $50 at the quantity of 1,000
    b. Average total cost is equal to $50 at the quantity of 1,000
    c. Profit is negative when quantity is 1,000 and the price is $50
    d. The monopoly’s profit is maximized at the quantity of 1,000