Iowa and Kansas can both produce corn and wheat. The following table represents yield per acre for the two states.
Corn is measured in bushels (56 pounds per bushel) as is wheat (60 pounds per bushel).

	Corn	Wheat
Iowa	138	42
Kansas	143	46

1.   Which state has the absolute advantage in corn production?
        a.   Iowa
        b.   Kansas
        c.   Cannot tell

2.   Which of the following statements is true?
        a.   Iowa has an absolute advantage in both products and a comparative advantage in corn.
        b.   Iowa has an absolute advantage in both products and a comparative advantage in wheat.
        c.   Kansas has an absolute advantage in both products and a comparative advantage in corn.
        d.   Kansas has an absolute advantage in both products and a comparative advantage in wheat.
        e.   Missouri has an absolute advantage in both products and a comparative advantage in corn.

Use the following table to answer questions 3 and 4 where the data in the table gives the cost per unit for each item.

	Per barrel oil	Per bushel wheat
Russia	320 rubles	64 rubles
Germany	32 marks	5 marks

3.   What is the opportunity cost of producing one more barrel of oil in Russia?
        a.   1/5 bushel of wheat
        b.   5 bushels of wheat
        c.   64 rubles
        d.   2/5 bushel of wheat
        e.   10 barrels of oil

4.   Which of the following is true?
        a.   Russia has a comparative advantage in producing oil
        b.   Russia has a comparative advantage in producing wheat
        c.   Germany has a comparative advantage in producing wheat
        d.   Russia has a comparative advantage in both goods
        e.   Both a and c are correct

5.   The government has determined the cost of the average consumption bundle in a number of different price
        situations. This represents the price level in the economy. In which of the following situations would a
        consumer be most satisfied?
        a.   An annual income of $33,000 when the standard bundle costs $3,000.
        b.   An annual income of $40,000 when the standard bundle costs $4,000.
        c.   An annual income of $72,000 when the standard bundle costs $6,000.
        d.   An annual income of $80,000 when the standard bundle costs $8,000.
        e.   An annual income of $99,000 when the standard bundle costs $9,000

For questions 6 and 7, consider the following data on coffee and banana production in Brazil and Suriname where the data is production per day. Assume that the production possibility frontier is linear. With no coffee production, Brazil can produce 100,000 bananas. With 50 tons of coffee, Brazil has no banana production, etc.

	Bananas	Coffee
Brazil	100,000	0
Brazil	0	50
Suriname	5,000	0
Suriname	0	5

6.   Which of the following statements is true?
    a.   Brazil has an absolute advantage in coffee production
    b.   Brazil has an absolute advantage in both products and a comparative advantage in bananas
    c.   Suriname has a comparative advantage in bananas
    d.   Both a and b are correct
    e.   Both a and c are correct

7.   If Brazil produced 50,000 bananas and Suriname produced 4,000 bananas and each used their remaining resources for coffee production, what would total coffee production be?
    a.   29 tons
    b.   44 tons
    c.   25 tons
    d.   26 tons
    e.   18 tons

8.   Ignoring all other goods, if Jessica's marginal utility per pound of bread is 10 and per pound of cheese is 30, her
    a.   total utility would be maximized if the price per pound of cheese is triple the price per pound of bread.
    b.   total utility could be increased by buying more bread and less cheese.
    c.   total utility could be increased by buying more cheese and less bread.
    d.   total utility would be maximized if the price per pound of cheese is one-third the price per pound of bread.
    e.   marginal utility would be maximized if the price per pound of cheese is one-third the price per pound of bread.

9.   The marginal rate of substitution measures
    a.   both c and d.
    b.   the slope of the isocost line.
    c.   the amount of one good that must be given up to acquire more of another good while holding total utility constant.
    d.   the decrease in the quantity of input 1 (x_1) that is needed to accompany a one unit increase in the quantity of input two (x_2), in order to keep production the same.
    e.   both b and d.

For questions 10-11, use the table below. The table contains data on demand for 2 goods slips, (S) and camisoles (C). The notation is as follows: PS = price of slips, PC = price of camisoles, I = income, DS = demand for slips, DC = demand for camisoles. There are four situations shown.

PS	PC	I	DS, I = 400 DS, PC = 5	DC, I=400 DC, PC = 5	PS	PC	I	DS, I = 600 DS, PC = 5	DC, I=600 DC, PC = 5
10.00	5.00	400.00	23.70	32.60	10.00	5.00	600.00	35.70	48.60
15.00	5.00	400.00	15.40	33.80	15.00	5.00	600.00	23.40	49.80
20.00	5.00	400.00	11.25	35.00	20.00	5.00	600.00	17.25	51.00
25.00	5.00	400.00	8.76	36.20	25.00	5.00	600.00	13.56	52.20
30.00	5.00	400.00	7.10	37.40	30.00	5.00	600.00	11.10	53.40
35.00	5.00	400.00	5.92	38.60	35.00	5.00	600.00	9.35	54.60
40.00	5.00	400.00	5.03	39.80	40.00	5.00	600.00	8.03	55.80
45.00	5.00	400.00	4.34	41.00	45.00	5.00	600.00	7.00	57.00

PS	PC	I	DS, I = 400 DS, PC = 20	DC, I=400 DC, PC = 20	PS	PC	I	DS, I = 600 DS, PC = 20	DC, I=600 DC, PC = 20
20.00	20.00	400.00	12.60	7.40	20.00	20.00	600.00	18.60	11.40
25.00	20.00	400.00	9.84	7.70	25.00	20.00	600.00	14.64	11.70
30.00	20.00	400.00	8.00	8.00	30.00	20.00	600.00	12.00	12.00

10.   What is the price elasticity of demand for slips with an income of $400 when the price of camisoles is $5.00 as the price of slips goes from $20 to $25?
   a.   1.099
   b.   -1.120
   c.   -1.151
   d.   -1.107
   e.   -1.078

11.   What is the income elasticity of demand for slips when the price of camisoles is $5.00, the price of slips is $30.00 and income goes from $400 to $600?
   a.   1.099
   b.   -1.120
   c.   -1.151
   d.   1.075
   e.   1.000

12.   Marginal revenue measures
   a.   the change in cost required to produce one more unit of output.
   b.   the change in output that can be obtained from one more dollar of expenditure.
   c.   the change in output that results from one more unit of an input.
   d.   the change in revenue from the production of one more unit of output.
   e.   the level of output divided by the level of input.

13.   Which of the following statements is correct?
   a.   Average variable costs are always decreasing
   b.   Average fixed costs (AFC) are always decreasing
   c.   Total costs (TC) are always greater than or equal to total variable costs (TVC)
   d.   Both b and c are correct
   e.   Average fixed costs (AFC) are always increasing

14.	Consider the following data on consumption of q_1 and q_2. The price of q_1 is $5.00. The price of q_2 is $15.00. Income is $90. Which of the following combinations of goods maximizes utility.

q2	q1	MU_1	MU_2
0	18	0.000	∞
1	15	0.181	5.409
2	12	0.320	3.834
3	9	0.499	2.990
4	6	0.787	2.360
5	3	1.461	1.753
6	0	∞	0

a.	$q_2 = 2$, $q_1 = 12$
b.	$q_2 = 3$, $q_1 = 9$
c.	$q_2 = 5$, $q_1 = 3$
d.	$q_2 = 4$, $q_1 = 6$
e.	$q_2 = 1$, $q_1 = 15$

For questions 15 and 16, consider the diagram on the next page.

15.	What caused the change in consumption from (q_1^0, q_2^0) to (q_1^1, q_2^1)?
a.	An increase in income
b.	An increase in the price of good 2
c.	An increase in the price of good 1
d.	A decrease in the price of good 1
e.	A decrease in the price of good 2

16.	What is the income effect of the change in question 15?
a.	(q_1^0, q_2^0) to (q_1^1, q_2^1)
b.	(q_1^0, q_2^0) to (q_1^0, q_2^1)
c.	(q_1^0, q_2^0) to $(\hat{q}_1, q_2^1)$
d.	(q_1^0, q_2^0) to $(\hat{q}_1, \hat{q}_2)$
e.	$(\hat{q}_1, \hat{q}_2)$ to (q_1^1, q_2^1)

17.	For a firm to minimize cost which of the following must hold?
a.	the slope of the isocost line and the slope of the isoquant curve must be equal
b.	$\dfrac{-w_1}{w_2} = \dfrac{-MPP_{x_1}}{MPP_{x_2}}$

c.	$\dfrac{-w_2}{w_1} = MRS_{x_1 x_2} = \dfrac{\Delta x_1}{\Delta x_2}$

d.	both a and b
e.	a, b, and c

Initial point (q_1^0, q_2^0)

Subsequent point (q_1^1, q_2^1)

I^1

U_0

U_1

q_1

$\hat{q}_1$

q_1^1

q_1^0

I^0

$\hat{q}_2$

q_2^0

q_2^1

q_2
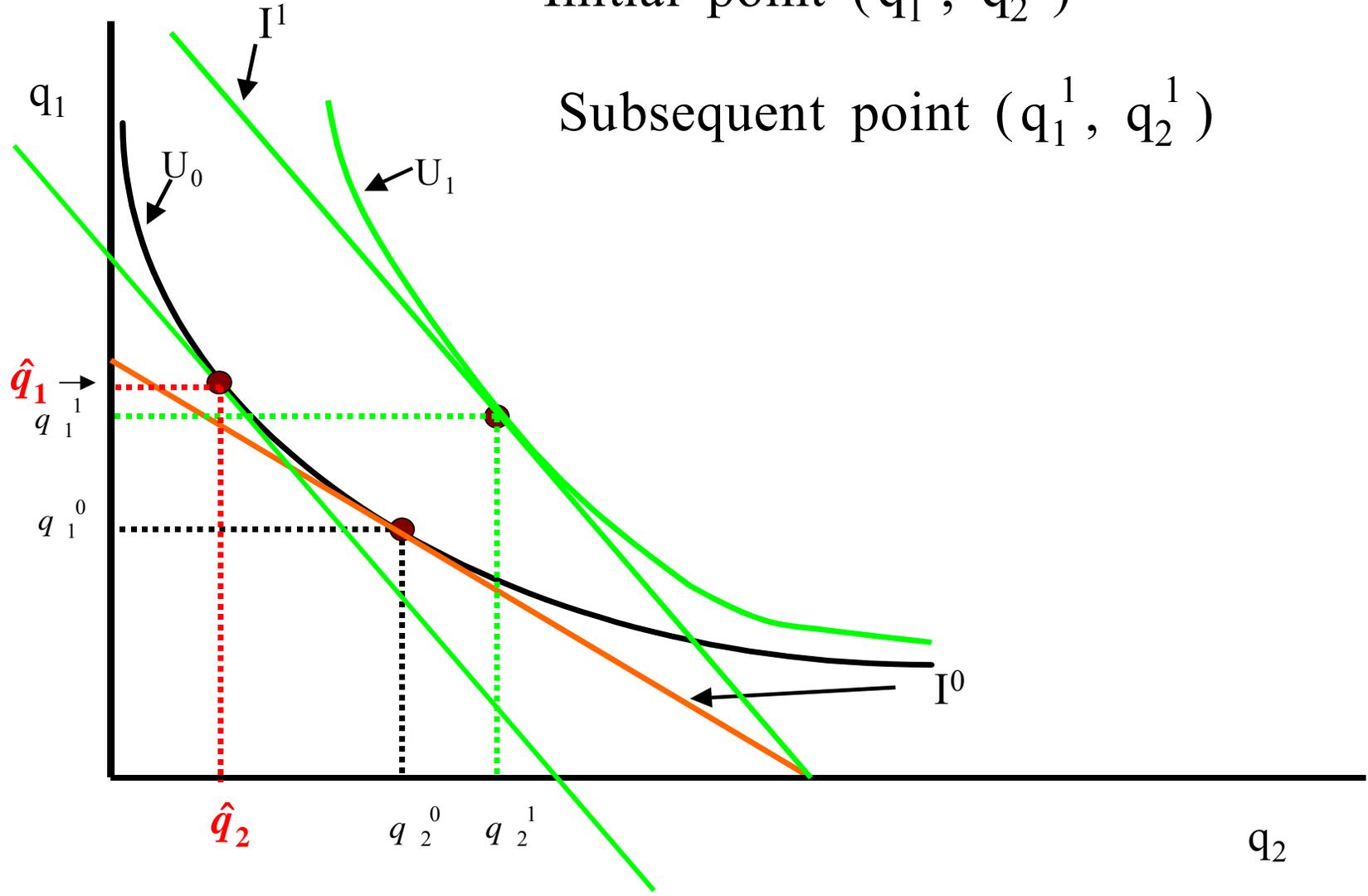
18.   Below is some data on use of an input and total product (y). What is the marginal product in going from 25 to 30 units of input where input is x and output is y.

x	y
0	0
5	145
10	280
15	405
20	520
25	625
30	720
35	805
40	880
45	945
50	1000
55	1045
60	1080
65	1105
70	1120
75	1125
80	1120
85	1105
90	1080
95	1045
100	1000

a.   95
b.   23.75
c.   19
d.   47.5
e.   24

19.   What is the shutdown rule for a firm in the short-run?
   a.   In the short-run, the firm should continue to produce if total revenue (TR) exceeds total variable costs (TVC) and total fixed costs (TFC) are all sunk; otherwise, it should shut down.
   b.   In the short-run, the firm should continue to produce if total revenue (TR) exceeds total costs (TC); otherwise, it should shut down.
   c.   In the short-run, if some fixed costs are not sunk, the firm should continue to produce if (TR - TVC) > (TFC - sunk fixed costs) > 0; otherwise, it should shut down.
   d.   In the short-run, the firm should continue to produce if total revenue (TR) is less than total variable costs.
   e.   Both a and c are reasonable rules.

Below are some data on costs for Puff N'Stuff Enterprises

Y	FC	VC	C
0.00	150.00	0.00	150.00
1.00	150.00	9.62	159.62
2.00	150.00	18.56	168.56
3.00	150.00	26.94	176.94
4.00	150.00	34.88	184.88
5.00		42.50	192.50
6.00			199.92
7.00			207.26
8.00			214.64
8.33			217.13
9.00			222.18
10.00			230.00
11.00			238.22
12.00			246.96
13.00			256.34
14.00			266.48
15.00			277.50
16.00		139.5	
17.00		152.66	
18.00		167.04	
19.00		182.8	
20.00		200.0	

20. What is total variable cost of producing 14 units of output?
   a. 266.48
   b. 10.71
   c. 116.48
   d. 150
   e. 19.03

21. What is the marginal cost of the 18th unit of output?
   a. 15.74
   b. 14.38
   c. 9.28
   d. 8.33
   e. 17.61

22. We say that a firm experiences *economies of scale* or increasing returns to size when
   a. AC > MC
   b. MC > AC
   c. both a and e
   d. both a and b
   e. ε_S (elasticity of scale) > 1

Consider the following production function

$$y = 40x_1 + 20x_2 - 2x_1^2 - x_2^2$$

The price of x_1 is \$4.00 and the price of x_2 is \$1.00. You are trying to find the cost minimizing way to produce 234 units of output. The following data will be useful to you in the task.

x_1	x_2	MPP_1	MPP_2
8.066	2.350	7.734	15.300
8.168	2.300	7.327	15.400
8.000	2.250	8.000	15.500
9.025	2.200	3.900	15.600
8.600	2.100	5.600	15.800
8.817	2.050	4.731	15.900
9.000	2.000	4.000	16.000
9.226	1.950	3.095	16.100
9.500	1.900	2.000	16.200

23.   What is the marginal rate of substitution of x_1 for x_2 when x_1 is 9.025 and x_2 is 2.2?
   a.   0.25
   b.   -4.00
   c.   -0.244
   d.   -0.25
   e.   -4.102

24.   What is the least cost way to produce 234 units of output?
   a. $x_1 = 8.000$ and $x_2 = 2.25$
   b. $x_1 = 9.025$ and $x_2 = 2.2$
   c. $x_1 = 8.600$ and $x_2 = 2.1$
   d. $x_1 = 8.817$ and $x_2 = 2.05$
   e. $x_1 = 9.000$ and $x_2 = 2.00$

25. Consider the following data on output, price, revenue, cost, etc. At what level should this firm produce?

y	FC	VC	C	MC	Demand/Price	MR
0.00	100	0.00	100.00		192	
				79.00		182.00
1.00	100	79.00	179.00		182	
				81.00		162.00
2.00	100	160.00	260.00		172	
				89.00		142.00
3.00	100	249.00	349.00		162	
				103.00		122.00
4.00	100	352.00	452.00		152	
				123.00		102.00
5.00	100	475.00	575.00		142	
				149.00		82.00
6.00	100	624.00	724.00		132	
				181.00		62.00
7.00	100	805.00	905.00		122	
				219.00		42.00
8.00	100	1024.00	1124.00		112	
				263.00		22.00
9.00	100	1287.00	1387.00		102	
				313.00		2.00
10.00	100	1600.00	1700.00		92	

a.   2
b.   3
c.   4
d.   5
e.   6

Economics 101
Fall 1998
Exam 3

Question	Correct Answer	Question	Correct Answer
1	b	14	d
2	d	15	d
3	b	16	e
4	e	17	e
5	c	18	c
6	d	19	e
7	d	20	c
8	a	21	b
9	a	22	c
10	b	23	b
11	a	24	e
12	d	25	c
13	d		