Econ 3144 - Fall 2010
Test 2 - Dr. Rupp

Name $\qquad$
"I have neither given nor received aid on this exam" $\qquad$ (signature)
The following formula might be useful: $\mathrm{E}_{\mathrm{p}}=(\mathrm{P} / \mathrm{Q}) *(1 /$ slope $)$
40 Multiple Choice Questions
Use the following information to answer questions 1-4: The demand for calculators is $Q^{d}=120-5 P$, where $P$ is the price of calculators. Graph the demand curve for calculators below.


1. What is the vertical intercept of the demand curve above?
a. 120
b. 5
c. 24
d. 60
e. $1 / 5$
2. What is the slope of the demand curve above?
a. -5
b. -24
c. $-1 / 24$
d. $-1 / 5$
e. -120
3. What is the price elasticity of demand for calculators if $\mathrm{P}=10$ ?
a. $-1 / 7$
b. -14
c. $-7 / 5$
d. $-5 / 7$
e. $-1 / 14$
4. If the calculator seller wants to increase revenue, what should they do?
a. Increase price
b. Decrease price
c. Leave price unchanged (since already maximizing revenue)

Use the following table to answer questions 5-7:

| East Lake |  | West Lake |  |
| :---: | :---: | :---: | :---: |
| \# of <br> Boats | Average \# <br> Fish | \# of <br> Boats | Average \# <br> of Fish |
| 1 | 9 | 1 | 14 |
| 2 | 8 | 2 | 12 |
| 3 | 7 | 3 | 10 |
| 4 | 6 | 4 | 8 |
| 5 | 5 | 5 | 6 |

5. What is the optimal method of allocate 4 fishing boats between these two lakes?
a. 0 East, 4 West
b. 1 East, 3 West
c. 2 East, 2 West
d. 3 East, 1 West
e. 4 East, 0 West
6. How many fish are caught from the East Lake?
a. 16
b. 9
c. 25
d. 21
e. 17
7. How many total fish are caught from both lakes?
a. 39
b. 44
c. 40
d. 45
e. 38

Use the following information to answer questions \#8-10: Your company owns two widget plants: one plant in Ayden and the other in Grimesland with the following marginal cost and average total cost curves (subscripts A \& G denote Ayden and Grimesland, respectively):

$$
\begin{array}{ll}
\mathrm{MC}_{\mathrm{A}}=0.4 \mathrm{Q}_{\mathrm{A}} & A T C_{A}=0.2 Q_{A} \\
\mathrm{MC}_{\mathrm{G}}=1+0.2 \mathrm{Q}_{\mathrm{G}} & A T C_{G}=1+0.1 Q_{G}
\end{array}
$$

8. What is the least costly way of producing 17.5 widgets? (assume that you can make $1 / 2$ quantities of widgets)
a. $\mathrm{Q}_{\mathrm{G}}=10, \mathrm{Q}_{\mathrm{A}}=7.5$
b. $\mathrm{Q}_{\mathrm{G}}=17.5, \mathrm{Q}_{\mathrm{A}}=0$
c. $\mathrm{Q}_{\mathrm{G}}=8.75, \mathrm{Q}_{\mathrm{A}}=8.75$
d. $\mathrm{Q}_{\mathrm{G}}=7.5, \mathrm{Q}_{\mathrm{A}}=10$
e. $\mathrm{Q}_{\mathrm{G}}=12.5, \mathrm{Q}_{\mathrm{A}}=5$
9. How much did it cost to produce the output selected in question \#8 from the Grimesland plant?
a. $\$ 30$
b. $\$ 48.13$
c. $\$ 16.40$
d. $\$ 20$
e. $\$ 28.13$
10. What is the total cost of producing 17.5 units of output?
a. $\quad \$ 26.25$
b. $\$ 31.25$
c. $\$ 33.13$
d. $\$ 48.13$
e. $\$ 31.72$

Complete the following table for the short-run cost curves for the production function: $\mathrm{Q}=2 \mathrm{~K}+3 \mathrm{~L}$ where in the short-run K is fixed at 2 units, with the rental price of capital = $\$ 12$ and the wage rate $=\$ 10$. Use this table to answer questions 1115 (you can leave your answer in fractions or carry out to two decimal places: i.e., \$14.12):

| Workers | Output | TC | VC | FC | ATC | AVC | AFC | MC |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 0 |  |  |  |  | - | -- | -- | - |
| 1 |  |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |

11. How much is the output when there are two workers?
a. 8
b. 16
c. 10
d. 12
e. 6
12. How much is variable cost when there are no workers?
a. $\$ 0$
b. $\$ 20$
c. $\$ 10$
d. $\$ 12$
e. $\$ 24$
13. How much is total cost when there is one worker?
a. $\quad \$ 22$
b. $\$ 34$
c. \$8
d. $\$ 10$
e. $\$ 24$
14. How much is average total cost when there are two workers?
a. $\$ 3.33$
b. $\$ 2.40$
c. $\$ 2.00$
d. $\$ 10.00$
e. $\$ 4.40$
15. What is the marginal cost when there is one worker?
a. $\$ 3.33$
b. $\$ 2.40$
c. $\$ 10.00$
d. $\$ 0.33$
e. $\$ 4.40$

Use the following chart to answer questions 16-18:

| Q | Fixed Cost | Variable <br> Cost | Total Cost | Marginal <br> Cost | Average <br> Fixed Cost | Average <br> Variable <br> Cost | Average <br> Total Cost |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 0 | 40 |  |  | -- | -- | -- | -- |
| 1 |  |  | 60 |  |  |  |  |
| 2 |  | 35 |  |  |  |  |  |
| 3 |  |  |  | 10 |  |  |  |
| 4 |  |  |  |  |  | 12.5 |  |

16. Based on the chart above, what is the marginal cost of the $4^{\text {th }}$ unit of output?
a. 12.50
b. 5.00
c. 50.00
d. 15.00
e. 20.00
17. What is the total cost when output $=3$ ?
A) $\$ 75$
B) $\$ 50$
C) $\$ 45$
D) $\$ 90$
E) $\$ 85$
18. What is the average variable cost when output $=3$ ?
A) $10 / 3$
B) 10
C) 45
D) 15
E) 20
19. If Jane and Bob's demand curves are: $P=4-Q_{J}$ and $P=4-2 Q_{B}$, respectively. Find the equation for the market demand curve.
a. $\quad P=4-\frac{2}{3} Q$
b. $\quad P=8-\frac{2}{3} Q$
c. $P=4-\frac{3}{2} Q$
d. $P=8-\frac{3}{2} Q$
e. $P=4-\frac{1}{2} Q$

Use the graph below to answer questions 20-23.

20. If $\mathrm{M}=\$ 100, \mathrm{P}_{\mathrm{Y}}=\$ 1$, and $\mathrm{P}_{\mathrm{X}}=\$ 1$. Find the best affordable bundle.
A) A
B) B
C) C
D) D
E) E
21. Suppose the price of $X$ increases from $P_{X}=\$ 1$ to $P_{X}=\$ 2$. Everything else is unchanged ( $M=\$ 100 \& P_{Y}=\$ 1$ ). The total effect is represented by moving from point $\qquad$ to point $\qquad$ .
A) A to E
B) D to A
C) E to D
D) C to E
E) A to D
22. The substitution effect due to the price of $X$ increasing is represented as moving from point $\qquad$ to point $\qquad$ .
A) D to E
B) A to E
C) A to C
D) C to D
E) C to A
23. The income effect due to the price of $X$ increasing is represented as moving from point $\qquad$ to point $\qquad$ .
A) C to A
B) E to D
C) B to C
D) C to D
E) A to C
24. An increase in quantity demand is represented by
a) A shift outward of the entire demand curve.
b) A shift inward of the entire demand curve.
c) A movement along the demand curve in a southeasterly direction due to a decline in the good's price.
d) A movement along the demand curve in a northwesterly direction due to a decline in the good's price.
25.Two goods, X \& Y , all called complements if
a) An increase in Px causes more $Y$ to be bought.
b) An increase in Px causes less $Y$ to be bought.
c) An increase in Py causes less $Y$ to be bought.
d) An increase in income causes more of both $\mathrm{X} \& \mathrm{Y}$ to be bought.
26. The minimum efficient scale is the:
a) Point where diminishing returns start to occur
b) Minimum point of marginal cost curve
c) Minimum point of the short-run total cost curve
d) Minimum point of the long-run average cost curve
e) Minimum point of the average fixed cost curve
27. If a good is normal and its price rises,
a) The income effect will be positive and the substitution effect will be positive.
b) The income effect will be negative and the substitution effect will be negative.
c) The income effect will be positive and the substitution effect will be negative.
d) The income effect will be negative and the substitution effect will be positive.
28. In words, what is an inferior good?
a) A good which you buy more of when the price rises
b) A good which you buy more of when the price falls
c) A good that you buy more of when income rises
d) A good that you buy more of when income falls
29. If you double all prices and income and find that demand doesn't change, then this indicates that demand functions are
a. said to exhibit constant returns to scale.
b. illustrations of diminishing marginal product.
c. homogenous of degree zero.
d. minimum efficient scale.
e. Giffen goods.
30. Suppose that the income elasticity number for cupcakes is: $\mathrm{E}_{\mathrm{I}}=0.8$. Interpret this number.
A) If price of cupcakes rise by $1 \%$, then demand for cupcakes rises by $0.8 \%$.
B) If income falls by $1 \%$, then demand for cupcakes falls by $0.8 \%$.
C) If price of cupcakes rise by $1 \%$, then demand for cupcakes falls by $0.8 \%$.
D) If income rises by $1 \%$, then demand for cupcakes falls by $0.8 \%$.
31. The price elasticity of demand for milk is -0.5 . This means that:
A) if price increases by $1 \%$ then the decrease is quantity demanded will be $5 \%$
B) if price increases by $1 \%$ then the decrease in quantity demanded will be $0.05 \%$
C) if price increases by $1 \%$ then the decrease in quantity demanded will be $0.5 \%$.
D) if price increases by $1 \%$ then the decrease is quantity demanded will be $\$ 0.50$.
32. If the price elasticity of demand for milk is -0.5 , what should milk producers due if they want to increase revenues?
A) increase the price of milk
B) reduce the price of mik
C) keep the price of milk unchanged (since already maximizing revenue)
33.Find the returns to scale for the following function: $Q=2 K+3 L$
A) increasing returns to scale
B) decreasing returns to scale
C) constant returns to scale
34. The curve that shows the various input combinations that produce the same output is called $a(n)$ :
A) Engel curve
B) isoquant curve
C) minimum efficient scale
D) isocost curve
E) indifference curve
35. If fixed cost $=\$ 100$ at $Q=5$, then which of the following is true:
A) fixed cost $=\$ 0$ at $\mathrm{Q}=0$.
B) fixed cost $<\$ 100$ at $\mathrm{Q}=0$.
C) fixed cost $=\$ 200$ at $\mathrm{Q}=10$.
D) fixed cost $=\$ 100$ at $\mathrm{Q}=10$.

Use the following information to answer the next two questions. An apple orchard uses both machines and workers to pick apples. The daily rental price of an apple picking machine is $\$ 40$ while the daily wage rate per apple picker is $\$ 30$.

K
$\qquad$
36. In the space above, draw an isocost curve for this apple orchard spending $\$ 240$. What is the isocost curve slope?
A) $-4 / 3$
B) -4
C) $-1 / 4$
D) $-3 / 4$
E) -3
37. Given the marginal product of daily rental price of capital is $\$ 40$ and the daily wage rate per worker is $\$ 30$. The marginal product of workers is 40 and the marginal product of capital is 30 . What do you recommend?
A) Rent more capital and fire workers.
B) Rent less capital and hire workers.
C) Don't change anything, since this company is already optimally using its inputs.
38.The cross-price elasticity of Coke and Pepsi is most likely:
A) positive
B) negative
C) zero
39. The price elasticity of supply is
A. usually negative, but sometimes positive
B. usually positive, but sometimes negative
C. usually zero, but sometimes positive
D. usually positive, but sometimes zero
E. usually negative, but sometimes zero
40. When economists refer to the "short-run" this is:
A) approximately one week.
B) approximately one month.
C) approximately one year.
D) a period of time in which at least one of the firm's inputs is fixed.
E) a period of time in which all of the firm's inputs are variable.

Extra Credit: You are eligible to answer this extra credit question only if you meet two criteria: (1) your cell phone has not rung in class since the previous test and (2) you are taking this test in class at the regularly scheduled day and time.
41. Which of the figures below represents the long-run average costs curves for a natural monopoly?
A) Figure 1
B) Figure 2
C) Figure 3



