

Economics 101
Professor H. Quirnbach
Second Midterm Exam

PRINT NAME _____
STUDENT ID NO _____
SECTION 4 or 6 (Circle one.)
GROUP TIME _____

SCORE _____

INSTRUCTIONS:

1. Fill in all requested information above and on the answer sheet.
2. There are 25 multiple choice questions and one problem. Enter one and only one answer for each multiple choice question on the answer sheet. There is no penalty for guessing. On the answer sheet, completely darken the letter representing your choice for each question. Do the problem on the test paper itself.

MULTIPLE CHOICE QUESTIONS

1. If \$120 is due to be received in two years and the interest rate is 20% (i.e., 0.20) per year, then to the nearest dollar the present discounted value today is
 - a. \$173.
 - b. \$100.
 - c. \$83.
 - d. \$80.
 - e. \$77.

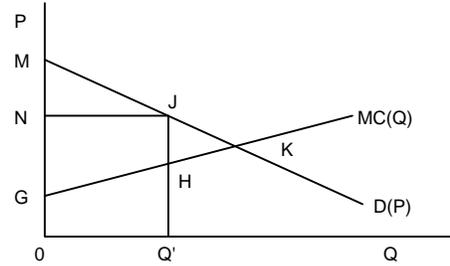
2. Manny, Moe, and Jack each start an auto parts business. For the three of them it is a Pareto improvement
 - a. if Manny makes a profit and the other two lose money, since the other two know nothing about cars.
 - b. if Manny and Moe both make money, even though Jack loses, since a majority came out better off.
 - c. if Jack makes \$200 and Manny and Moe both lose \$50, since Jack's earnings exceed the sum of the others' losses.
 - d. if at least one makes money and the others at least break even.
 - e. only if the auto parts business is perfectly competitive.

3. A plant with 100 workers hires two more and thereby increases output by five units. The plant's marginal product of labor is
 - a. $5/100$.
 - b. $5/102$.
 - c. $5/2$.
 - d. 5.
 - e. The MPL cannot be determined without knowing total output..

4. At $Q = 3$, average cost is \$10 per unit. At $Q = 4$, the average cost is \$11 per unit. The marginal cost of the fourth unit is
 - a. \$1.
 - b. \$4.
 - c. \$10.
 - d. \$11.
 - e. \$14.

5. What may allow the management of a large corporation to pursue goals other than the maximization of profits is
 - a. the divorce of ownership and control.
 - b. an employee stock-option plan.
 - c. an annual bonus plan tied to profits.
 - d. the threat of a takeover by a corporate raider.
 - e. the threat of bankruptcy.

6. In the figure, if fixed costs are zero and output is Q' , social welfare is the sum of areas MNJ and
- JHK.
 - GHJN.
 - GKJN.
 - GKM.
 - GHQ'O.



7. In the same figure, under perfect competition the social welfare would be
- area MNJ.
 - area JHK.
 - area GKM.
 - area GHJM.
 - zero, since competitive markets achieve optimum welfare.

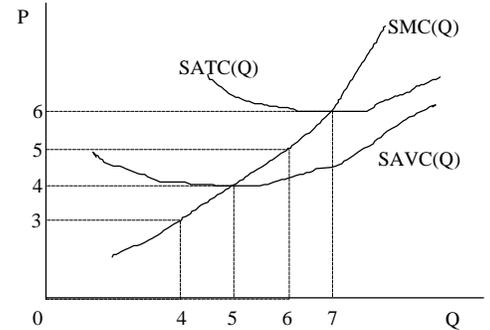
8. The table lists total production costs for various output levels. If the market price were \$10/unit, a competitive firm with these costs would most likely supply
- 9 units, since that maximizes sales without losing money.
 - 8 units, since marginal cost just exceeds price at this level.
 - 7 units, since that is the last unit where price exceeds marginal cost.
 - 6 units, since that is where the profit margin between price and average cost is highest.
 - zero units, since total costs exceed price at all listed outputs.

Q	C(Q)
5	\$40
6	\$42
7	\$51
8	\$62
9	\$80

9. Which of the following is/are economic (opportunity) costs but not normally accounting costs?
- The salary of a corporation president.
 - The earnings of the owner of a sole proprietorship.
 - Interest paid by a corporation on a bank loan.
 - Interest paid by a sole proprietorship on a bank loan.
 - Both b and d.
10. With a particular input combination, a firm's marginal product of labor is 3 and its marginal product of capital is 5. If the wage rate is \$10/hour and the rental rate of capital is \$15/hour, then to produce that particular output level a cost-minimizing firm
- should be using more labor and less capital.
 - should be using more capital and less labor.
 - should be using less of both inputs.
 - should be using more of both inputs.
 - should shut down.

11. Which of the following is NEVER characteristic of a perfectly competitive industry?
- Large number of firms.
 - Homogeneous product.
 - Free entry.
 - Brand-name advertising.
 - Zero profits.

12. A competitive firm's cost curves are graphed at the right. If the market price is 5, the firm's short-run supply will be



- 0.
- 4.
- 5.
- 6.
- 7.

13. If all firms in the industry have the same costs as is the previous figure, if there is free entry into the industry, if input prices are stable, and if the long-run and short-run average cost curves are the same, then the long-run equilibrium industry price will be

- 4
- 5
- 6
- 7
- none of the above.

14. An economy will not be at a Pareto optimal point, even when it is on its PPF, if

- the marginal rate of substitution for any consumer is not equal to the marginal rate of transformation.
- the marginal rates of technical substitution are not equal among firms.
- the levels of income are not equal among consumers.
- the marginal products of labor are not equal in different industries.
- the government owns any industries.

15. In the budget line-indifference curve diagram we have used for the labor-supply problem, if the wage rate increases

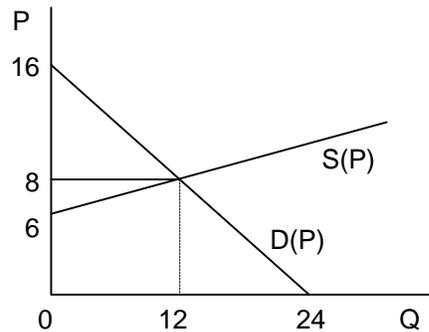
- the budget line makes a parallel shift out, reflecting the increase in the consumer's income.
- the budget line's leisure intercept shifts in, reflecting the higher opportunity cost of an hour of leisure.
- the budget line's leisure intercept shifts out, reflecting the greater value of labor time.
- the budget line's goods intercept shifts in, reflecting the lower relative price of goods.
- the budget line's goods intercept shifts out.

16. A competitive firm gets \$2/unit for its output, and its marginal product of labor is currently 3. The firm should reduce its labor usage only if the wage rate is over
- \$1/hour.
 - \$2/hour.
 - \$3/hour.
 - \$5/hour.
 - \$6/hour.
17. Suppose that at $Q = 5$ average cost is \$10/unit. If doubling all inputs leads to exactly double the output, then at $Q = 10$ the average cost will be
- \$5/unit.
 - \$10/unit.
 - \$20/unit.
 - \$40/unit.
 - none of the above.
18. \$100 invested in a capital project would pay a return of \$125 a year from now. Investing in this project is clearly in a firm's best interest
- only if the interest rate is less than 25% per year.
 - only if the interest rate is greater than 25% per year.
 - only if the interest rate equals 25% per year.
 - at any interest rate.
 - Answer is unclear without knowing the source of the investment funds.
19. As the wage rate rises from \$4 to \$5 per hour, Ted increases his hours of work from 40 to 45 hours per week. The elasticity of Ted's labor supply with respect to the wage rate (arc method) is
- 5.
 - 17/9.
 - 4/5.
 - 9/17.
 - 1/5.
20. The demand curve for apples is given by $Q = 60 - 2P$, and apples are supplied by a competitive industry with constant returns to scale. If the average cost of producing apples is \$15, the equilibrium quantity of apples will
- be 15.
 - be 22.5.
 - be 30.
 - be 45.
 - depend on the exact number of firms growing apples.

21. An isocost line is to an isoquant as a budget line is to
- a utility function.
 - an indifference curve.
 - a tangency point.
 - a sunk cost.
 - consumer cost control.
22. Sunk costs
- are never long-run fixed costs.
 - are always long-run fixed costs.
 - are only avoided by shutting down.
 - are never avoided by shutting down.
 - are none of the above.
23. The process of "marginal analysis"
- starts with an arbitrary choice and then tries to improve by making small changes.
 - operates by comparing marginal benefits and marginal costs.
 - operates by comparing total benefits and total costs.
 - does both a and b.
 - does both a and c.

24. In the figure at the right, if fixed costs are zero, then the competitive equilibrium value of social welfare (by the usual measure) is

- 0.
- 12.
- 48.
- 60.
- 96.



25. A perfectly competitive industry achieves the socially optimal market outcome if consumers are rational and
- there are positive externalities.
 - there are no negative externalities.
 - there are no positive externalities.
 - there are no externalities at all.
 - Perfectly competitive markets always perform optimally.

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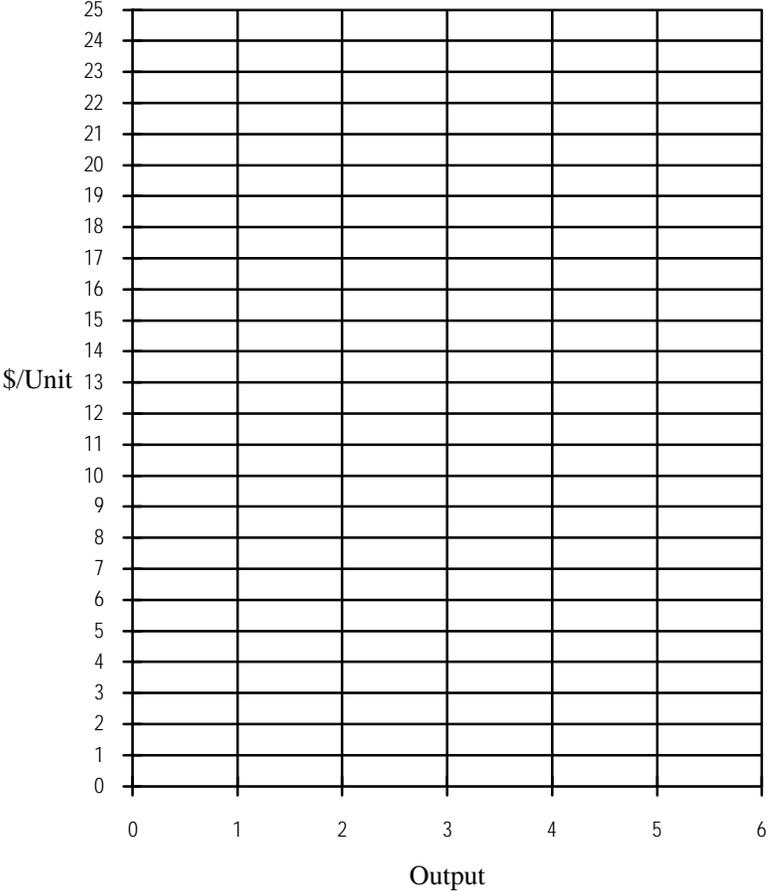
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PROBLEM

Long-run cost data for a perfectly competitive firm are given in the table at the right. The LMC column shows the long-run marginal costs of each successive unit of output. You are to fill in the unshaded boxes in the columns for LTC (long-run total cost) and LATC (long-run average total cost) for each output Q.

Q	LMC	LTC	LATC
0		18	XXX
	1		
1			
	3		
2			
	5		
3			
	9		
4			
	14		
5			
	16		
6			

Note that the firm's fixed costs are \$18. We suppose that the firm has already decided to produce and has paid this cost. Reflecting this decision, we have entered "\$18" as the "LTC" of zero output, even though we know that in the long run all costs could be avoided if the firm truly decided to shut down. Of course, at Q=0, average costs are undefined.



On the graph grid, please graph the LMC and LATC curves, the former in stair-step fashion. Then shade in with heavier marking the firm's long-run supply curve. Label each curve. If output price is given by P, then at P=10, the firm supplies Q=____. At P=15, the firm supplies Q=____. Using the arc method, compute the firm's elasticity of supply with respect to price P between these two prices:_____. If the long-run equilibrium is characterized by free entry, the same cost functions for all firms, and stable input prices, then the long-run equilibrium P=_____.