ECON 102 - Principles of Microeconomics
Professor Elliott Parker
Second Exam
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N A M E

Part I (54%) - Multiple Choice: on a scantron mark the single best answer, two points each.

1. The term "diminishing returns" refers to:
   A) a falling interest rate that can be expected as one's investment in a single asset increases.
   B) a reduction in profits caused by increasing output beyond the optimal point.
   C) a decrease in total output due to overcrowding, when too much labor is used with too little land or capital.
   D) a decrease in the extra output due to the use of an additional unit of a variable input, when more and more of the variable input is used and all other things are held constant.

2. If two firms are identical in all respects expect that one has more capital than another, the total product curve for the firm with more capital:
   A) must equal the total product curve for firm with less capital.
   B) will lie above the total product curve for the firm with less capital.
   C) will lie below the total product curve for the firm with less capital.
   D) will show no diminishing marginal returns.

3. When Better Beds produces 40 beds per day, its average variable cost is $600, its average total cost is $800, and its marginal cost is $700. When Better Beds increased production from 39 to 40 beds per day:
   A) Average total cost remained at $800 per day.
   B) Average total cost rose.
   C) Average total cost fell.
   D) There is no way to know how average total cost changed.

4. Which of the following is *not* a characteristic of a perfectly competitive industry?
   A) Firms seek to maximize profits.
   B) Profits may be positive in the short run.
   C) many firms
   D) differentiated products

5. A perfectly competitive firm operating in the short run producing 100 units of output has *ATC* = $6 and *AFC* = $2. The market price is $3 and is equal to *MC*. In order to maximize profits (or minimize losses), this firm should:
   A) increase output.
   B) reduce output, but continue to produce a positive amount of output.
   C) shut down.
   D) do nothing; the firm is already maximizing profits.

6. In perfectly competitive long-run equilibrium:
   A) all firms make positive economic profits.
   B) all firms produce at the minimum point of their average total cost curves.
   C) the industry supply curve must be upward sloping.
   D) all firms face the same price, but the value of marginal cost will vary directly with firm size.

7. The marginal utility of coffee consumption for Steve is the change in _____ generated by consuming an additional unit of coffee.
   A) total utility
   B) total consumption
   C) total demand
   D) price

8. The utility associated with the consumption of the next apple is 300 utils, while the consumption of the next banana produces a gain of 500 utils. The price per banana is $0.30, while the price per apple is $0.40. A consumer will maximize utility:
   A) if equal quantities of bananas and apples are consumed.
   B) if less is spent on apples and more on bananas until marginal utilities per dollar for each good are equal.
   C) if only bananas are consumed.
   D) if more is spent on apples and less on bananas until marginal utilities per dollar for each good are equal.

9. On a deserted island, high-speed Internet service would have a _____ marginal utility than in New York City, while in New York City, quiet evenings would carry a _____ marginal utility than on a deserted island.
   A) lower; higher
   B) higher; lower
   C) lower; lower
   D) higher; higher

10. Chuck spends all his income on two goods: tacos and milkshakes. His income is $100, the price of tacos is $10, and the price of milkshakes is $2. Put tacos on the horizontal axis and put milkshakes on the vertical axis. The horizontal intercept for Chuck's budget line is equal to _____ units of tacos.
   A) 50
   B) 10
   C) 5
   D) 100

11. For the vast majority of goods, demand curves slope downward because:
   A) marginal utility rises as quantity demanded increases.
   B) the substitution effect constitutes almost the entire effect of a price change, and this effect always causes quantity demanded and price to be inversely related.
   C) the income effect constitutes almost the entire effect of a price change, and this effect always causes quantity demanded and price to be inversely related.
   D) none of the above.

12. Joe's budget line reflects the _____ available to Joe if he spends _____ of his income.
   A) consumption bundles; all
   B) consumption bundles, part
   C) utility; all
   D) utility; part

13. Suzy knows she has maximized her utility, because she is on her budget constraint and:
   A) consumption of good *X* equals consumption of good *Y*.
   B) what is spent on good *X* equals what is spent on good *Y*.
   C) MU*x*/*Px* = *MUy*/*Py*.
   D) MU*x* = *MUy*.

14. For ordinary goods, indifference curves:
   A) never cross.
   B) slope downward.
   C) are convex from the origin.
   D) are all of the above.

15. Jenny believes that spending one hour studying for economics will increase her grade by 20 points. Studying for a second hour will increase her grade by 10 points. She also believes that studying for an hour for history will increase her grade by 15 points, but spending a second hour will increase her grade by only 5 points. Jenny has two hours to study. If Jenny wants to maximize her scores, what should she do?
   A) Study 1 hour for economics and 1 hour for history
   B) Study 2 hours for economics and 0 hours for history
   C) Study 0 hours for economics and 2 hours history
   D) Study 1 hour for economics and 0 hours for history

16. T'Pol, a coldly rational Vulcan, buys a warm soda and one slice of cold pizza. The marginal utility from a soda is 40, and the price of the soda is $1. The marginal utility from a slice of pizza is 80. Since T'Pol always chooses the utility-maximizing choice, we know the price of a slice of pizza must be:
    A) $20.00.
    B) $2.00.
    C) $1.00.
    D) $0.50.

17. Karen consumes gasoline and other goods. A new excise tax on gasoline raises gas prices. However, the government pays Karen an income subsidy which is just enough for her to stay on her original (pre-tax) indifference curve. Her new optimal consumption bundle will have:
    A) the same amount of both goods as before.
    B) less of other goods and more gas.
    C) less gas and more of other goods.
    D) This question can't be answered, since some essential information (such as Karen's income, the pre- and post-tax prices of gas, etc.) is missing.

18. Human capital:
    A) consists of man-made resources such as buildings and machines.
    B) is the improvement in labor created by education and knowledge that is embodied in the work force.
    C) has become less important due to the progress in technology.
    D) is both b and c.

19. One model of discrimination assumes that people can be hired for either skilled or unskilled jobs, and their success at the skilled jobs depends on their level of unobservable human capital, which is costly to acquire. Skilled jobs pay better, but hiring a worker with low levels of human capital for a skilled position will be costly for both the employer and the unskilled employee. Assume employers can only observe an applicant=s external appearance, not their actual human capital, and people can be divided into either Apurple@ or Agreen@ categories. Further assume (for some historical reason) that purples initially have more human capital than greens. Which of the following is not a prediction of this model?
    A) An applicant=s chances of getting a skilled position depends primarily on his or her own past investments in acquiring human capital.
    B) Purple employers will hire only purple applicants for skilled jobs, even though some green applicants may have high levels of human capital.
    C) Job discrimination and income differentials may continue to be a problem even if everybody is rational and nobody has any particular preference for interacting only with others like themselves.
    D) Green workers will assume that purple employers won=t hire them anyway, and so will choose not to invest in acquiring human capital.

20. In the above Purple-Green model, affirmative action would be most successful if:
    A) it encouraged purple workers to invest less in human capital.
    B) it forced purple employers to hire unskilled green workers for skilled jobs over purple workers.
    C) it led green workers to believe that acquiring more human capital would lead to a skilled position.
    D) it encouraged employers to hire unskilled purple workers for unskilled jobs over green workers.

21. One reason that wage discrimination based on gender or ethnicity could continue to exist is:
    A) the existence of higher than equilibrium wages due to market interference or market failure.
    B) market competition makes it profitable to engage in discrimination.
    C) it is justified by the marginal productivity theory of income distribution.
    D) the South African experience with apartheid showed that discrimination led to more rapid economic growth.

22. Actual wage differentials can be partially explained by which of the following?
    A) differences in talent
    B) different amounts of human capital
    C) compensating differentials
    D) all of the above

23. Which of the following instances of wage disparity is an example of the existence of compensating differentials?
    A) A window washer working in a suburban residential subdivision gets paid less than one who is washing windows on the outside of a skyscraper.
    B) Tiger Woods gets paid more than a college professor.
    C) A nuclear scientist gets paid more than a janitor working in the same building.
    D) On the average, white men get paid more than women of all ethnicities.

24. Consider an economy that produces only two things, paintings and frames, using only one input, labor. There is only one labor market: painters and framers are paid the same wage. All workers are currently working, with half making paintings and half making frames. A worker in this economy needs two hours to make a painting and one hour to make a frame. The price of a painting is five times that of a frame. From this information we know the economy is:
    A) efficient in production, and efficient in output levels.
    B) inefficient in production, and inefficient in output levels.
    C) efficient in production, and inefficient in output levels.
    D) inefficient in production, and efficient in output levels.

25. Consider an economy that produced only two goods, milk and cookies, for only two people, Jacob and Zoe. Efficiency in production means that:
    A) the quantity produced equals the quantity consumers want.
    B) the value of the marginal product of labor in milk equals the value of the marginal product in cookies.
    C) there is no way to give Jacob more cookies without taking cookies away from Zoe.
    D) there is no way to produce more cookies without reducing the production of milk.

26. The mother of Jacob and Zoe gives them one oatmeal cookie to share, but lets them decide how to split the cookie. Which of the following splits is inefficient in consumption?
    A) Jacob eats half, Zoe eats half.
    B) Jacob eats the entire cookie, Zoe eats nothing.
    C) Jacob takes half the cookie, but throws it away because he doesn't like oatmeal cookies. Zoe eats her half of the cookie.
    D) Jacob and Zoe take turns taking a bite, until the cookie is gone.

27. Which of the following statements about fairness is correct?
    A) What constitutes fairness is subjective; there isn't one agreed-upon definition of fairness.
    B) A fair distribution of income would be one in which every individual in the economy receives the same income.
    C) Any situation that is efficient is fair (since one cannot have fairness without efficiency).
    D) A situation is fair if all individuals have equal opportunities for advancement.

Part II (46%) - Problems and Short Answers

1. (10%) Liza makes a base salary of $200 per week, and her job as a broker requires making unsolicited, or Acold@ calls to potential clients in an attempt to persuade them to put their portfolio in her hands. One out of ten cold calls will make her $100 each, one will make her $50, and the other eight will make her nothing. She can make ten cold calls per hour, and she can work as much as 80 hours per week.

a) (2%) What is Liza's expected income per hour, not including her base salary? Including her base salary, how much can she expect to earn per week if she works 40 hours?

b) (3%) With leisure (80 hours less her labor) on the horizontal axis and the goods she can buy with her cash income on the vertical axis (assume they cost $1 each), plot and label Liza=s budget constraint. Use indifference curves to show how she maximizes utility, assuming she chooses to work 40 hours per week.

c) (3%) Suppose that the firm offers her an increase in her base salary to $400 per week. Plot the new budget constraint on your original diagram, and compare it to the original. If leisure and cash income are both normal goods, will Liza make more or fewer cold calls? What are the income and substitution effects?

d) (2%) Assume instead that her employer gave her a better calling list, where one out of ten calls makes her $100, but now *two* out of ten make her $50 each, and the other seven still make her nothing. Plot this third budget constraint on the same graph as the first two. Will Liza make more or fewer cold calls than with the raise in (c)? What are the income and substitution effects?

2. (8%) Your uncle Bob is a chair manufacturer, and having heard from your proud father that you are studying microeconomics, he comes to you for advice, and lays out his situation. His only true variable input is labor; including benefits, his full-time workers earn $350 per week (40 hours at $8.75 per hour). Keep it simple, and assume that he is unable to hire part-time workers, there are no additional labor expenses, and overtime is too expensive). His chairs sell for $60 each in a very competitive market. Based on his experience, he figures that in a typical week he can produce Q chairs with L labor hours, as shown below (Uncle Bob is the first worker, and he values his time at $8.75 per hour, just like everybody else). Fill out the rest of his weekly production schedule, and then graph his marginal and average product (it does not have to be precisely to scale). What is the profit-maximizing number of labor hours? How do you know?

L	*Q*	*MPL*	*APL*
0	0		
40	10	_____	_____
80	24	_____	_____
120	30	_____	_____
160	34	_____	_____
200	36	_____	_____

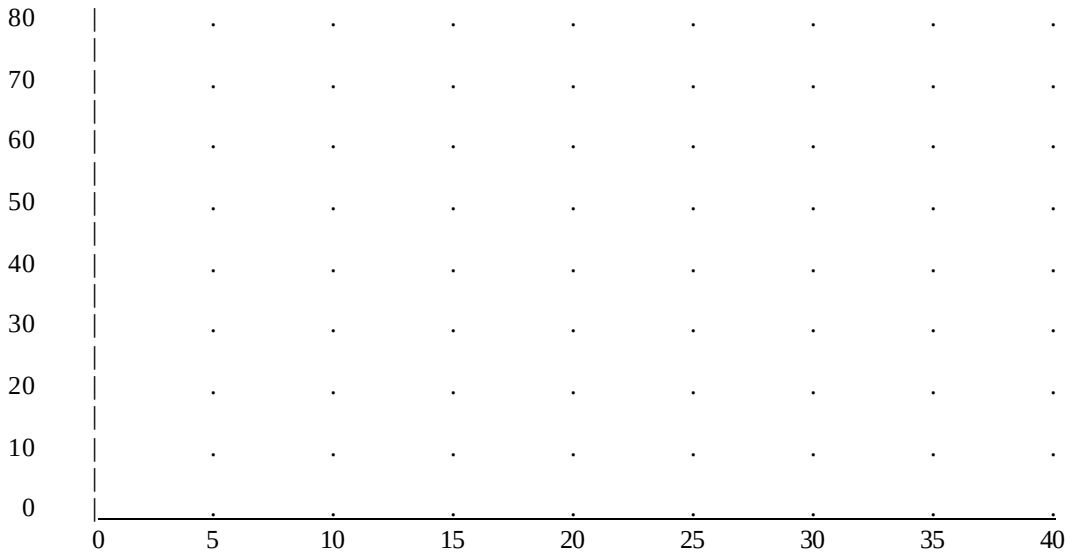
3. (12%) Uncle Bob tells you more about his firm. His fixed costs include $700 per week for the space and equipment, which he is contractually obligated to pay until his lease ends next year, plus $100 for the utility bills. His only variable cost is labor at a wage of $8.75 per hour, as he explained above.

a) (5%) Fill in the following cost schedule for Uncle Bob:

L	*Q*	*VC*	*TC*	*AVC*	*AC*	*MC*	*Rev*	*MR*
0	0	_____	_____				_____	
40	10	_____	_____	_____	_____	_____	_____	_____
80	24	_____	_____	_____	_____	_____	_____	_____
120	30	_____	_____	_____	_____	_____	_____	_____
160	34	_____	_____	_____	_____	_____	_____	_____
200	36	_____	_____	_____	_____	_____	_____	_____

b) (3%) What is the maximum amount of profit your uncle can make in this business, assuming nothing changes? Should he continue to operate until next year? Should he renew his leases next year?

c) (4%) Graph below MC, AVC, AC, and MR for Uncle Bob=s firm. Label the graph carefully, and show his profit-maximizing choice of output.



4. (8%) Suppose all U.S. domestic firms in a particular market have identical and normally-shaped cost curves, with significant fixed and sunk costs and constant returns to scale. Suppose this market is in long-run equilibrium. Suddenly, the government adopts a free-trade agreement with a neighboring country; since we have a comparative disadvantage in this particular product, this implies more (foreign) sellers. How will this affect the market and the typical domestic firm in the short-run? Consider price, quantity for the typical firm, total quantity-demanded, and firm profitability. What will happen to the market, and the typical firm, in the long-run? Use appropriate graphs to illustrate.

5. (2%) What is the expected return from an investment if there is a 10 percent chance of a 5 percent return, a 40 percent chance of a 8 percent return, and a 50 percent chance of a 12 percent return?

6. (2%) Suppose that a government bond that matures in two years will pay you its $10,000 face value. If it is currently selling at $9210, what is its annual rate of return?

7. (2%) Suppose that a junk bond that matures in two years has a 50% chance of paying you its $10,000 face value, and a 50% chance of paying you nothing. Assuming the market price of the government bond in question #6 above was $9210, would you expect the current price of this bond to equal $4605, be more than $4605, or less? Explain.

8. (2%) Suppose you just bought 1000 shares of stock at $5 each. These stocks are paying annual dividends of 25 cents per share. If the annual interest rate available on absolutely safe investments is 4.5%, and the earnings of this stock are expected to grow at 3.0% per year, what is the risk premium on this stock?

BONUS QUESTION: In chapter 12 of Miller, et al., "The Effects of the Minimum Wage," a study by Card & Krueger was cited that found that the short-run effects of a higher minimum wage on unemployment were very small, while another study from Canada found the long-run effects to be more significant. Explain how a higher minimum wage should affect the unemployment rate, particularly for the unskilled. What was the major reason for the difference between these two studies? Why do Miller, et al., argue that the minimum wage makes discrimination easier for employers? Which groups benefit most from a higher minimum wage, and which groups are made worse off?