Labor Economics (ECON 115)
Drake University, Spring 2012
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Signature: _____

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EXAMINATION #1 VERSION B
February 9, 2012

INSTRUCTIONS: This exam is closed-book, closed-notes. Simple calculators are permitted, but graphing calculators or calculators with alphabetical keyboards are NOT permitted. Cell phones or other wireless devices are NOT permitted. Point values for each question are noted in brackets. Maximum total points are 100.

I. Multiple choice: Circle the one best answer to each question. [2 pts each, 28 pts total]

(1) If a change in government policy makes union workers better off by $20 billion but makes their employers worse off by $15 billion, then that change in policy
a. passes the compensation test.
b. does not pass the compensation test.
c. passes the compensation test only if unions actually give back their gains to employers.
d. cannot be determined from information given.

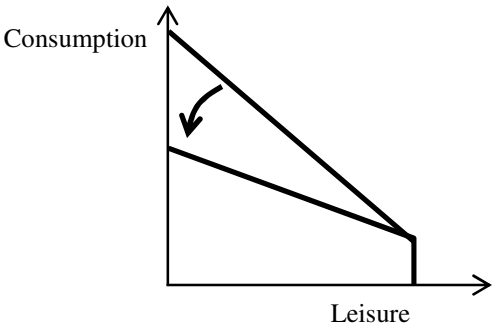
(2) A person who is not currently working, and last looked for a job six weeks ago, would be classified in the U.S. as
a. employed.
b. unemployed.
c. out of the labor force.

(3) Over the last century, the average wage in the U.S. has
a. increased.
b. decreased.
c. remained constant.

(4) Suppose a person finds these two combinations or bundles equally attractive:
(i) $100 of consumption and 30 hours of leisure.
(ii) $300 of consumption and 20 hours of leisure.
Then a third bundle, consisting of $500 of consumption and 10 hours of leisure would be
a. less attractive than bundles (i) and (ii).
b. as attractive as bundles (i) and (ii).
c. more attractive than bundles (i) and (ii).
d. cannot be determined from information given.

(5) Suppose a person has 60 hours of time available for work or leisure, and can earn a wage of $10 per hour. The person also enjoys $200 dollars of nonlabor income per week. Which bundle is *not* in the person's opportunity set?
a. 20 hours of leisure and $600 of consumption.
b. 40 hours of leisure and $500 of consumption.
c. 10 hours of leisure and $600 of consumption.
d. 50 hours of leisure and $200 of consumption.

(6) In the graph below, the budget constraint is changing because of
a. an increase in the wage.
b. a decrease in the wage.
c. an increase in nonlabor income.
d. a decrease in nonlabor income.
e. a change in preferences.



(7) If the market wage is above a person's reservation wage, that person will choose
a. to work at least some hours.
b. not to work at all.
c. to devote all available time to work.
d. Answer cannot be determined from information given.

(8) If for a particular worker, the substitution effect is stronger tha the income effect, then the worker's labor supply curve
a. slopes up.
b. bends backward.
c. is vertical.
d. is horizontal.

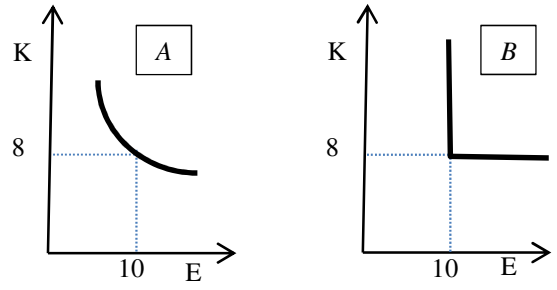
(9) Consider a cash grant welfare program, where a person is given $3000 that is reduced by $0.50 for every $1.00 of labor earnings. According to economic theory, this program would cause
a. an increase in work hours by those already working.
b. a slight decrease in work hours by those already working.
c. an increase in labor force participation.
d. a decrease in consumption.

(10) Incomes have risen worldwide in recent decades. Meanwhile, fertility rates have
a. also risen.
b. fallen.
c. remained constant.

(11) When all firms in an industry simultaneously suffer a wage increase, their
a. marginal product curves become flatter.
b. production functions shift down.
c. value-of-marginal-product curves shift up.
d. isoquant curves straighten.

(12) Suppose the wage rises. Then in the long run the amount of labor hired
a. increases due to the substitution effect but decreases due to the scale effect.
b. decreases due to the substitution effect but increases due to the scale effect.
c. increases due to both substitution and scale effects.
d. decreases due to both substitution and scale effects.

(13) Which isoquant below exhibits greater elasticity of substitution?
a. Isoquant A.
b. Isoquant B.
c. Their elasticities of substitution are equal.
d. Cannot be determined from information given.



(14) Labor demand is less elastic in the short run than in the long run because
a. firms pay less attention to short-run profit than to long-run profit.
b. isocost curves become steeper as the wage increases.
c. labor is a normal good.
d. firms cannot substitute capital for labor in the short run.

II. Problems: Insert your answer to each question in the box provided. Show your work and circle your final answers.

(1) [Regression analysis: 6 pts] Let W denote the hourly wage received by a worker. Let S denote the number of years of schooling that the same worker has completed. The following model has been estimated by the method of least-squares regression, using data on several hundred workers. The numbers in parentheses are standard errors.

$$\begin{array}{rcccc} \log(W) & = & 1.02 & + & 0.10\ S \\ & & (0.04) & & (0.03) \end{array}$$

a. If a worker has 12 years of schooling, what value of "log(W)" would she or he have, on average?

b. Is the coefficient of schooling "significant" by the usual standards? Why or why not?

c. According to these results, if schooling increases by one year, then how much does the ***wage*** increase?

(2) [Measuring the labor force: 8 pts] The U.S. Bureau of Labor Statistics reported that in July 2010, 14.6 million people were unemployed, 138.9 million people were employed, and 84.3 million working-age people were not in the labor force.

a. Compute the working-age population to the nearest tenth of a million.

b. Compute the unemployment rate to the nearest tenth of a percentage point.

c. Compute the employment rate (or employment-to-population ratio) to the nearest tenth of a percentage point.

d. Compute the labor force participation rate to the nearest tenth of a percentage point.

(3) [Budget constraint: 6 pts] Suppose Amanda has 60 hours of time available each week for work or leisure, enjoys weekly nonlabor income of $100, and can earn a basic wage of $20 per hour. However, if Amanda's total income exceeds $500 per week, she faces a marginal tax rate of 25%. In other words, the first $500 of income is not taxed, but any income above $500 is taxed at a rate of 25%. Draw a graph of Amanda's weekly budget constraint. Draw a graph of Amanda's weekly budget constraint. Label the endowment point and any other kink points.

(4) [Labor supply: 12 pts] Let L denote the weekly hours of leisure Brian enjoys and let C denote the dollars of consumption. Suppose Brian's utility function is U = (C-20)(L), so that his marginal utility of consumption is MU_C = L and his marginal utility of leisure is MU_L = (C-20) . He has $200 in weekly nonlabor income. He has 60 hours per week available for work or leisure.

a. Compute Brian's reservation wage.

Suppose Brian can work as many hours as he likes at an hourly wage of $10.

b. Give an equation for his budget constraint in terms of L and C.

c. How much leisure L and consumption C will he choose to enjoy?

d. How many hours will he choose to work?

(5) [SR labor demand: 12 pts] Suppose Acme Company has the following production function.

$$q = 5\ K^{1/2}\ E^{1/2}$$

so that the marginal product of labor is

$$MP_E = (5/2)\ (K/E)^{1/2}\ .$$

The price of output is \$30, the wage is \$10 per hour, and the price of capital is \$500. The current capital stock is fixed at K=16 units.

a. How much labor E should Acme employ in the short run?

b. How much output q will Acme produce?

c. How much profit will Acme earn?

(6) [LR labor demand: 12 pts] General Manufacturing Company initially faces input prices of w=$10 for labor and r=$20 for capital. Then its input prices increase to w=$20 for labor and r=$25 for capital.

a. Will the substitution effect cause the company to use more or less capital? More or less labor? Why?

b. Will the scale effect cause the company to use more or less capital? More or less labor? Why?

c. Will the total effect cause the company to use more or less capital? More or less labor? Why?

(7) [LR labor demand: 4 pts] Two industries have the following characteristics. Note that some of the data are extraneous and not necessary to solve this problem.

	Industry A	Industry B
Hourly wage	$12	$18
Price of output	$25	$30
Elasticity of demand for output	-1.5	-0.9
Elasticity of substitution in production	1.1	1.1
Share of labor in total cost	0.6	0.6
Employment	5000	2000

Which industry has more elastic demand for labor? Why?

(8) [Elasticities, minimum wage: 12 pts] Suppose the elasticity of demand for workers is -0.6 and the elasticity of supply of workers is +0.2. Suppose the labor market is in equilibrium, with 150 million workers employed and no one unemployed. Consider what would happen if a new law increased the wage by 10 percent.

a. How many people would now be employed?

b. How many people would want to work, but would be unable to find jobs?

c. What would be the unemployment rate?

[end of exam]