Econ 2016: Principles of Microeconomics

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Homework 8 (Total score: 20 Points)

Due Date: Oct 26 (Wed), 12:40 PM

1. Multiple Choice (6 points)

P = $5

C 1. (1 point) The Package Store hires workers to wrap packages. The store sells this service for $5. The marginal revenue product of this store's fifth worker is $50. The marginal product of the fifth worker is MRP = 50.
A. 0.01 package B. 1 package C. 10 packages D. indeterminate from this information

C 2. (1 point) Refer to Table 1. The marginal revenue product of the fourth worker is
A. $5 B. $20 C. $100 D. $475

A 3. (1 point) Refer to Table 1. The marginal revenue product of the _____ worker is $150.
A. second B. third C. fourth D. fifth

C 4. (1 point) Refer to Table 1. The maximum payment to labor per day that this profit-maximizing T-shirt manufacturer would be willing to pay to hire three workers per day is
A. $15 B. $75 C. $125 D. $200

Figure 1: Question 1.2-1.4

Total Labor Units (employees)	Total Product (T-shirts per day)	Marginal Product of Labor (per day)	Price per T-shirt
0	0	—	—
1	20	20	$5
~~2~~	50	30	5
3	75	25	5
(4)	95	20	5
5	110	15	5

MRP w

100
150
1250

MRP = MP × Px
= 20 × 5

C 5. (1 point) The formula for the marginal revenue product of labor (L is for labor, X is the output) is:
A. $\frac{MP_L}{P_X}$ B. $\frac{P_X}{MP_L}$ C. $MP_L \times P_X$ D. $MP_L + P_X$

B 6. (1 point) This firm is currently hiring 16 workers and paying a wage of $10. Besides, we know that, when the firm hires 15 workers, $w = MRP_L$ holds. This firm should:
A. do nothing because it is maximizing profits.
B. reduce employment to 15 workers to increase profits.
C. reduce employment to 14 workers to increase profits.
D. increase employment to 17 workers to increase profits.

2. Short-Answer Question (14 points):

- Suppose that UGA bus and Uber are substitutes in Athens, and there is an event: UGA started providing more buses in Athens, which causes the supply for bus increase.
- Before this event happened, the bus market achieved an equilibrium at (P^*_{bus} = \$2, Q^*_P = \$1000); the Uber market achieved the other equilibrium at (P^*_{uber} = \$10, Q^*_t = \$200)
- After this event, supply for buses increased.
- Please draw the following graphs to show me how two markets (coffee and tea) achieve equilibrium after the event.

1. Draw demand curves, supply curves, equilibrium points in two markets before the change. (1 point)
2. Draw the new supply curves for two markets after the change, denote new prices as P'_{bus} and P'_{uber}, new quantities as Q'_{bus} and Q'_{uber}. (2 point)
3. For the bus, please draw a representative bus driver's MC curve, LRAC curve, SRAC curve at price P'_{bus}. (2 point) (Tips: To draw the LRAC and SRAC, you need to make sure: P = \$2 intersects with the minimum point of LRAC, and the minimum point of SRAC, also intersects with the MC.)
4. Point out the profit area for a bus driver, which is Negative (negative/positive), so new drivers will exit (enter/exit) this market. (3 points)
5. For the Uber, please draw a representative uber driver's MC curve, LRAC curve, SRAC curve at price P'_{uber}. (2 point)
6. Point out the profit area for a Uber driver, which is _____ (negative/positive), so new drivers will _____ (enter/exit) this market. (3 points)
7. In the perfect competition market, the market price for the bus eventually will _____ (Increase/Decrease). (1 points)

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