

Practice Questions for Final Exam

- (1) Thomas is trying to decide how many workers to hire. His candy factory has the following production function: $Q=400L^{1/4}K^{1/2}$. The price of candy is \$0.5, the wage rate is \$10, and the rental rate for capital is \$100 per unit.
 - (a) What is the short-run profit maximizing level of labor demand if $k=1000$?
 - (b) What is the long-run profit maximizing level of labor demand?
 - (c) How much profit does the firm make in the short-run? And in the long-run? Does this change your answers in (a) or (b)?
 - (d) Now imagine that the wage rate rises to \$15. Does labor demand rise or fall?

- (2) Fred's Sewage Treatment Company has a production in which capital and labor are one-to-one (i.e. right shoe - left shoe) perfect complements in production. The wage rate is currently \$120 per day and the daily capital cost is \$100. Does the substitution effect dominate the scale effect and ensure that more capital is used if the wage rate falls by \$30 per day? Prove your answer graphically.

- (3) Carefully answer the following questions about labor demand. You must explain your answer in words or using a diagram.
 - (a) Why is labor demand downward sloping in the short-run?
 - (b) Why is labor demand downward sloping in the long-run?
 - (c) Is labor demand more elastic in the short-run or long-run, and why?

- (4) Consider a perfectly competitive economy with 10,000 people and labor demand and supply functions:
 $L^D = 10,000 - 2000w$ and $L^S = 1000 + 1000w$.
 - (a) What are the equilibrium wage and employment level?
 - (b) Draw the new equilibrium wage and employment level if 1000 people suddenly enter the economy (immigrate)? You can show this graphically, you do not need to solve it mathematically.
 - (c) How does your answer in part (b) relate to the findings of David Card with respect to the Marial boatlift?

- (5) A monopsonist has the following marginal revenue product of labor (labor demand) and labor supply functions: $MRP_L = 9 - 2w$ and $L^S = w$, with total potential labor force of 5 people, and where firms can only hire complete units of workers (i.e. 1, 2, 3, 4, or 5 workers).
 - (a) What would the wage and employment levels be if this was a competitive industry?
 - (b) What are the monopsony wage and employment levels?
 - (c) Over what wage-range could the government impose a minimum wage that would result in an employment level above the monopsony employment level?