2025

AP® Microeconomics

Free-Response Questions

Set 2

MICROECONOMICS

SECTION II

TIME – 1 HOUR

Directions:

Section II has 3 questions and lasts 1 hour.

You may use the available paper for scratch work and planning, but you must write your answers in the free-response booklet. Label parts (e.g., A, B, C) and sub-parts (e.g., i, ii, iii) as needed. Use a pencil or a pen with black or dark blue ink to write your responses.

Include correctly labeled graphs, if useful or required, in explaining your answers. A correctly labeled graph must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

A calculator is allowed in this section. You may use a handheld calculator that is approved for this exam or the calculator available in this application.

You may pace yourself as you answer the questions in this section, or you may use these optional timing recommendations:

It is suggested that you spend the first 10 minutes reading all of the questions and planning your answers. Then, it is suggested that you spend about 25 minutes on question 1 and about 12 minutes each on questions 2 and 3.

You can go back and forth between questions in this section until time expires. The clock will turn red when 5 minutes remain—**the proctor will not give you any time updates or warnings.**

Note: This exam was originally administered digitally. It is presented here in a format optimized for teacher and student use in the classroom.

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1. Deskward is a typical profit-maximizing firm that produces and sells wooden desks in a constant-cost, perfectly competitive market that is in long-run equilibrium.

A. Draw correctly labeled side-by-side graphs for the wooden desk market and for Deskward and show each of the following.

i. The market equilibrium price and quantity, labeled P_M and Q_M, respectively

ii. Deskward's profit-maximizing price and quantity, labeled P_F and Q_F, respectively

iii. Deskward's average total cost curve consistent with long-run equilibrium, labeled ATC

B. If the monthly rent, a fixed cost, on Deskward's factory building increases, what will happen to the firm's profit-maximizing quantity in the short run? Explain.

C. Suppose the government is considering granting a per-unit subsidy to producers of wooden desks. On your market graph in part A, show the short-run effect of a per-unit subsidy on each of the following.

i. The new market equilibrium price and quantity of wooden desks, labeled P* and Q*, respectively

ii. The area representing the total cost of the subsidy to the government, shaded completely

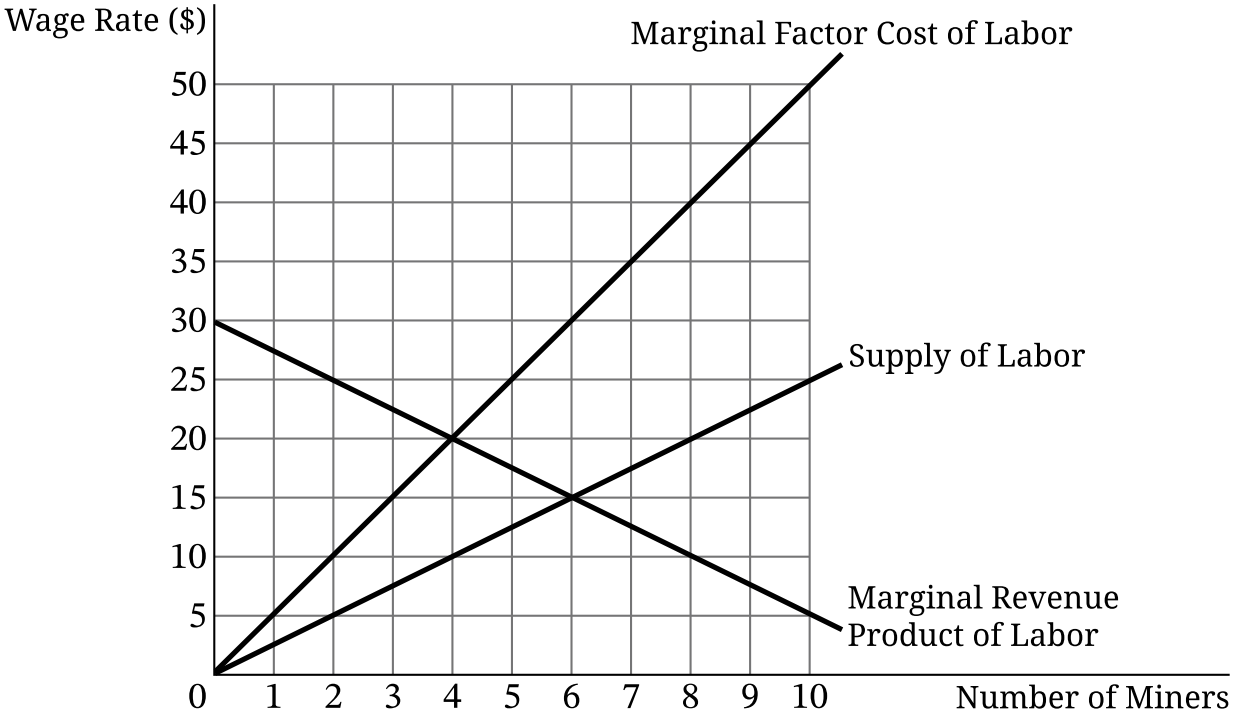
D. Instead of the per-unit subsidy, suppose the government imposes a binding price floor in the market for wooden desks. Will the price floor result in a shortage of wooden desks, a surplus of wooden desks, or neither? Explain.

E. Deskward also produces chairs. Deskward increases its production from 500 chairs to 600 chairs, and its long-run total cost increases from $80,000 to $108,000.

i. Calculate Deskward's long-run average total cost of producing 500 chairs. Show your work.

ii. As Deskward increases production from 500 chairs to 600 chairs, is Deskward experiencing economies of scale, diseconomies of scale, or the efficient scale? Explain using numbers.

2. Quartz Excavations is a profit-maximizing firm and the only employer of miners of quartz in a small town. The graph provided shows the labor market for miners.



A. Identify Quartz Excavations' profit-maximizing number of miners to hire.

B. Will Quartz Excavations pay its profit-maximizing number of miners a wage rate that is equal to $15, greater than $15, or less than $15? Explain using numbers.

C. Suppose the government sets a minimum wage (a price floor on wages) at $25. Calculate the total wage bill for Quartz Excavations at the resulting profit-maximizing number of miners. Show your work.

D. Suppose that instead of a minimum wage, there is now an increase in the demand for quartz.

i. Will the marginal revenue product of miners increase, decrease, or remain the same? Explain.

ii. After the demand for quartz increases, Quartz Excavations hires the new profit-maximizing number of miners. Will the marginal factor cost of the last miner hired be greater than, less than, or equal to the marginal factor cost of the last miner hired before the demand for quartz increased?

3. The table provided shows the marginal utility for Lucy when she consumes Good X and Good Y.

Quantity of Good X	Marginal Utility of Good X (utils)	Quantity of Good Y	Marginal Utility of Good Y (utils)
1	20	1	28
2	16	2	24
3	12	3	16
4	8	4	8
5	4	5	–4
6	–2	6	–8

A. If Good X and Good Y are free, how many units of each good will maximize Lucy's total utility?

B. Calculate Lucy's total utility if she consumes 2 units of Good X and 2 units of Good Y. Show your work.

C. Suppose instead that the price of each unit of Good X is \$2 and the price of each unit of Good Y is \$4. Lucy has a budget of \$20 to spend on the two goods.

i. If Lucy purchases 2 units of Good X, what is the maximum quantity of Good Y Lucy can purchase?

ii. What is Lucy's optimal combination of Good X and Good Y? Explain your answer using marginal analysis and numbers.

D. Suppose the price elasticity of demand for Good X is -2.0, the price elasticity of demand for Good Y is -0.8, and the cross-price elasticity of demand between Good X and Good Y is $+1.6$. Are goods X and Y complementary goods, substitute goods, normal goods, or inferior goods? Explain.

STOP

END OF EXAM