

Write your name on the cover of the test booklet and nowhere else. Enclose this sheet with the booklet. Failure to follow these directions will cost you 1 point. The test has 100 points (to be scaled up to 170 points) and is scheduled to take 50 minutes. Therefore, expect to spend 1 minute for every 2 points. For example, a 14-point question should take 7 minutes. I cannot give extra time because some students have a class after your class.

1) (10 points) Answer EITHER Part A OR Part B.

A) Why doesn't the isoquant diagram for capital and labor's being perfect substitutes make economic sense?

B) If the TPL function is given by $TPL = 5Q + \frac{1}{2}Q^2 - 3Q^3$, then what are the MPL and APL functions? Show all work and briefly explain what you did.

L	TPL	APL	MPL
0			
2	8		
4		5	
	25		5

2) (16 points) Copy the table into your bluebook and fill it in. Show all work. If there is no work, then explain how you got the answer.

3) (16 points) Answer EITHER Part A OR Part B.

A) Draw four isoquant lines for a product which capital and labor are perfect complements, i.e, fixed proportions. Explain why the lines take their shape. Obviously, we have not added the other line on the graph

called the iso-cost line. Without knowing anything about that line, we can figure out the K/L ratio. Explain how we can figure it out knowing the shape of the graph, the wage rate, and the rental rate for capital.

B) Draw the TPL diagram and explain why it takes its shape.

4) (16 points) Answer EITHER Part A OR Part B.

A) Draw the indifference curve/budget line diagram of expected return vs. standard deviation of return which fits the following information. The short-term government bonds pay 3%, the market expected return is 11% with a standard deviation of 4 percentage points, and the person chooses a portfolio which is 80% in the market and 20% in the short-term government bonds. Explain how you used each bit of information. What is the expected return and standard deviation of the portfolio? How did you get that answer?

B) Draw the utility as a function of income for a risk averse person. Suppose that if nothing goes wrong, the person's income will be \$20,000.00, but if something goes wrong, their income will be \$10,000. Suppose that the probability of something going wrong is 20%. What is the expected payoff? How did you calculate that? Draw the situation on the diagram and use that to estimate how much this person would be willing to pay for insurance. Explain how you found the points and how you found out the most they would pay for insurance.

5) (20 points) Answer EITHER Part A OR Part B.

A) Suppose that if your Christmas sales are good, you can sell 500 items, but if they are bad, you can only sell 300 items. Their selling price is \$30.00 each. There is a 60% probability that they will be good. If you buy 300 items, they cost you \$20.00 each. However, if you buy 500, they cost you \$18.00 each. If you return an item, you get half of your money back. What is your expected profits if you buy 500 items? What is your expected profits if you buy 300 items? What would your expected profit be if you knew before hand whether or not it would be a good Christmas season? What is the value of the information? Briefly explain how you got all of your answers and show all work.

B) Suppose that you could buy two different lottery tickets. The first ticket has a 90% chance of paying nothing and a 10% chance of paying \$20. The second ticket has a 99% chance of paying nothing and a 1% chance of paying \$250. What are the expected payoffs and standard deviations for each? Show all work and briefly explained what you did. If they both cost \$3, which would you play or would you not play either one? Explain your logic.

6) (22 points) Answer EITHER part A OR Part B.

A) Draw the AVC/ATC/AFC/MC diagram. Illustrate the effects of an increase in the cost of shipping your product to your customers. Explain why the curve(s) moved as drawn.

B) Draw the AVC/ATC/AFC/MC diagram. Illustrate the effects of an increase in the cost of health insurance. Explain why the curve(s) moved as drawn.