

Place your name on the back of this sheet of paper and nowhere else. Staple your answers on the front of this sheet of paper. Failure to follow these directions will cost you 1 point. Your assignment will be typed, except graphs can be drawn by hand and mathematical equations can be done by hand. Failure to type it will cost you 10 points. If you use double-sided printing or print on the back of scrap paper, I will give you one additional point.

- 1) (25 points) Draw an isoquant diagram with three isoquants and showing that capital and labor are perfect complements. Each machine needs three people to operate it. Explain how your graph shows they are perfect complements and are used in a three-to-one ratio.
- 2) (25 points) Draw a normally shaped isoquant diagram with three isoquants. Draw it such that between the first two isoquants, there is increasing returns to scale but between the last two isoquants, there is decreasing returns to scale. Prove your returns to scale are what I requested.
- 3) (10 points) What is the slope of the isoquant? Prove that formula is correct.
- 4) (15 points) Explain how we could have diminishing marginal productivity of labor and still have increasing returns to scale.
- 5) (15 points) Draw a normally shaped indifference curve. Explain why it takes its shape.
- 6) (10 points) In Question #2, why did we find the returns to scale in the method you used?