

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.

1A) (25 points) Draw an isoquant/iso-cost diagram with at least three of each line. Have the wage rate be \$5/L and the rental rate be \$15/K. Assume that in the short-run, the firm has 10 units of capital. Explain how you know that you have the correct wage and rental rates.

B) (20 points) Use the diagram in Part A to find three points on the SRTC curve. Plot that graph. Explain how you found the points.

C) (20 points) Use the diagram in Part A to find three points on the LRMC curve. Plot that graph. Explain how you found the points.

2) (10 points) Suppose that if you produce only pies, it costs you \$2/pie. If you produce only cakes, it costs you \$3/cake. If you produce both of them at the same place, it costs you \$5.50 to get one pie and one cake. Calculate the economies of scope. Given your calculation, is there economies of scope or diseconomies of scope? Explain your logic.

3) (10 points) Explain the difference between *economies of scale* and *the learning curve*.

4) (15 points) If the total cost function is given by  $TC = 20 + 4Q + Q^2/10$ , then find TVC, TFC, ATC, AVC, AFC, and MC. Show all work and if there is no work, state how you found it.