

**When: December 15<sup>th</sup>**

**Material to bring to Exam:** Calculator

**Grading:** Exam is worth 20% of your grade.

**Question 1: Price and Quantity Determination for a (Monopoly) Firm**

- Conditions for Profit Maximization (Hoyt, 3:38-44;7:151-156)
  - Solving algebraically for P and Q using  $MR = MC$ ,  
Example:  $Q = 200 - 5P \rightarrow P = 40 - (1/5)Q \rightarrow TR = PQ = 40Q - (1/5)Q^2 \rightarrow$   
 $MR = 40 - (2/5)Q$ . Let  $MC = 4$  then  $MR = MC \rightarrow 40 - (2/5)Q = 4 \rightarrow Q = 90$  and  
 $P = 40 - (1/5)(90) = 18$
- Markup Pricing and Elasticity (Hoyt, 3:45-48, Samuelson & Marks, 3:96-99)
  - The markup formula,  $\frac{P - MC}{MC} = \frac{\varepsilon}{(1 + \varepsilon)} - 1$  or  $P = \frac{\varepsilon}{(1 + \varepsilon)} MC$

**Question 2: The Role of Costs in Business Decisions -- Relevant Costs and Sequential Decisions**

- Given a description of costs (whether they are variable or not, for a product, common to a group of products, or overhead) suggest which ones affect which business decisions. Key here is to distinguish costs that are variable with respect to:
  - output of product
  - carrying of product line
  - operating a division/franchise
  - staying in business

**Question 3: Price versus Quantity Competition**

- When and where might you expect price competition? quantity competition?
  - Why is there such a difference between price and quantity competition?
  - If face with price competition, what strategy might a firm attempt to undertake?
- Discuss and explain why the dramatic differences between price and quantity competition and implications for strategy, particularly product differentiation.

**Question 4: Job Market Signaling**

- Education as a signal versus increasing productivity
- Explain how education beyond how it affects your productivity might enhance your earnings
- Why might there be such a premium for diplomas (high school graduate versus dropout after 11.5 years)?

**Question 5: Asset-Specificity**

- Explain and provide examples of asset specificity
- Following the example in the lecture on December 1<sup>st</sup> determine the quasi-rent and discuss the “hold-up” problem in reference to a simple numerical example
- Discuss the implications of the “hold-up” problem for contracting and asset-specific relationships

**Question 6: Vertical Integration and “Double-Marginalization”**

- Explain the concept of double-marginalization and how it arises
- Be able to solve a problem similar to the one done in class on December 8<sup>th</sup>.
- Explain arrangements that can reduce or eliminate the problem of double marginalization