BEE2017
UNIVERSITY OF EXETER
SCHOOL OF BUSINESS AND ECONOMICS
Mockeam 2007
Intermediate Microeconomics II
Duration : TWO HOURS

Answer ALL questions from Part 1 and up to SIX questions of Part 2. Part 1 counts for 30 out of 90 marks and Part 2 counts for 60 out of 90 marks.
Use a single answer book and fix all scrap paper used at the back.
Materials to be supplied: None.
Materials to be supplied on request: None.
Approved calculators are permitted.
This is a closed note examination.
Full work must be shown on your script. Please write legibly.

Part 1: Each of the following eight questions is worth 5 marks.

1. Which of the following statement is false

   I) IEPR states that the monopolist's optimal markup of price above marginal cost expressed as a percentage of price is equal to minus the inverse of the price elasticity of demand.
   II) IEPR tells us that the price elasticity of demand plays a vital role in determining what price a monopolist should charge to maximize profits .
   III) The relationship between marginal revenue and marginal cost is another way to express monopolist's profit-maximization condition.

   a) I and II are true.
   b) I and III are false.
   c) I is true; II is false.
   d) all the above is true.

2. Suppose a monopolist faces demand $P = 400 - 4Q^d$ and has constant marginal cost $MC = 80$. If this monopolist engages in first-degree price discrimination, total output will equal

   a) 20 units.
   b) 40 units.
   c) 60 units.
   d) 80 units.

3. Suppose that firms A and B are Cournot duopolists in the salt industry. The market demand curve can be specified as $P = 200 - Q_A - Q_B$. The marginal cost to each firm is \$40. Suppose that firm A is producing 100 units. What is firm B's profit-maximizing quantity?

   a) 100
   b) 60
   c) 30

d) 20

Game 3

		Player B		
		B1	**B2**	**B3**
Player A	**A1**	10, 12	8, 8	12, 10
	A2	9, 3	7, 6	11, 8
	A3	8, 10	9, 4	14, 5

4. In Game 3 above,

   a) Player A choosing A1 and Player B choosing B1 is a Nash equilibrium.
   b) Player A choosing A1 and Player B choosing B3 is a Nash equilibrium.
   c) Player A choosing A3 and Player B choosing B1 is a Nash equilibrium.
   d) Player A choosing A3 and Player B choosing B3 is a Nash equilibrium.

5. A decision-maker is faced with a choice between a lottery with a 30% chance of a payoff of \$30 and a 70% chance of a payoff of \$80, and a guaranteed payoff of \$65. If the decision maker's utility function is $U = \sqrt{I}$, what is the risk-premium associated with this choice?

   a) \$1.59
   b) \$2.52
   c) \$0
   d) \$4

6. Two individuals, A and B, consume two goods, x and y. Together they have 4 units of x and 8 units of y. For Consumer A the $MRS^{A}_{x,y} = {}^{5x}\!/_{3y}$ and for Consumer B the $MRS^{B}_{x,y} = {}^{3x}\!/_{y}$. Which of the following allocations is an efficient allocation of goods x and y?

   a) Consumer A has 5 units of x and 3 units of y, and Consumer B has 3 units of x and 1 unit of y.
   b) Consumer A has 3 units of x and 5 units of y, and Consumer B has 1 unit of x and 3 units of y.
   c) Consumer A has 2 units of x and 6 units of y, and Consumer B has 6 units of x and 2 units of y.
   d) Consumer A has 7 units of x and 2 units of y, and Consumer B has 1 unit of x and 6 units of y.

Part 2: Answer up to six out of seven questions. Each question is worth 10 marks.

1. Suppose a monopolist faces demand $Q^d = 200 - 5P$ and has a constant marginal cost of \$5.

a) What price should the monopolist charge to maximize its profits?
b) What is the Lerner Index of Market Power for this monopolist?

2. Suppose a monopolist faces demand $P = 225 - Q$ and has marginal cost $MC = 25 + 3Q$. Complete the following table identifying consumer surplus, producer surplus, total surplus, and deadweight loss for two situations: (1) the monopoly charges a uniform price and (2) the monopoly engages in first-degree price discrimination.

	Uniform Price	First-degree Price Discrimination
Consumer Surplus		
Producer Surplus		
Total Surplus		
Deadweight Loss		

3. Consider a simple bundling problem in which a producer sells two products to three potential customers. The customer's reservation prices for the two products and the firm's marginal costs are given in the following table.

	Reservation Prices	
	Product A	*Product B*
Customer 1	50	40
Customer 2	75	30
Customer 3	100	10
Marginal Cost	10	5

a) If the firm does not bundle the products, what price should it charge for Product A and for Product B to maximize profit? How much profit will the firm expect to earn?
b) If the firm can bundle the products, what price should it charge to maximize profit and how much profit can it expect to earn? How does this compare to result in part a)?

4. Suppose that the market demand for a good is given by $P = 894 - 6Q$.
Suppose that the industry consists of 5 firms, each with a marginal cost of $30 per unit. What is the Cournot equilibrium quantity for each firm? What is the equilibrium market price?

5. Two players, Player 1 and Player 2, are playing a game with three possible strategies, Small, Medium, and Large. The strategies represent potential advertising budgets. Profits for each possible outcome are shown in the following table.

		Player 1		
		Small	**Medium**	**Large**
	Small	6, 6	18, 14	24, 15
Player 2	**Medium**	14, 18	22, 22	26, 21
	Large	15, 24	21, 26	24, 28

a) Does Player 1 have a dominant or a dominated strategy?
b) Does Player 2 have a dominant or a dominated strategy?
c) What is the Nash equilibrium for this game?

6. Two consumers, Sammy and Spencer, have two goods, pizza and ice cream. Sammy and Spencer have an equal allocation of the two goods: each has 5 slices of pizza and 4 gallons of ice cream. However, Sammy and Spencer have very different preferences for these two goods. Sammy loves ices cream but derives no utility from pizza. Spencer loves pizza but derives no utility from ice cream.

a) Is this an efficient allocation of pizza and ice cream?
b) Draw the Edgeworth box, the initial allocation, and the indifference curves for Sammy and Spencer.
c) Identify the contract curve.

7. Consider a product, Y, that generates a positive externality. Demand for product Y is given by

$$MPB = 5,000 - Q$$

where MPB is the marginal private benefit when Q units are consumed. In addition to the marginal private benefit, each unit consumed yields a marginal external benefit equal to

$$MEB = 1,000$$

The marginal cost of supplying product Y is $MC = Q$.

a) What are the equilibrium price and quantity for product Y with no government intervention?
b) How many units of product Y should be consumed at the social optimum?