

SAMPLE ONLY

DEPARTMENT OF ECONOMICS
SAN JOSE STATE UNIVERSITY
MASTER'S COMPREHENSIVE EXAMINATION

DECEMBER 3, 2004
6:30 P.M. TO 9:30 P.M.
PROCTOR: J. HUMMEL

INSTRUCTIONS:

1. Answer ONLY the specified number of questions from the options provided in each section. Do not answer more than the required number of questions.
2. Your answers must be on the paper provided. No more than one answer per page. Do not answer two questions on the same sheet of paper.
3. If you use more than one sheet of paper for a question, write "Page 1 of 2" and "Page 2 of 2."
4. Write ONLY on one side of each sheet using only pen. Answers written in pencil will be disqualified.
5. Write ----- **END** ----- at the end of each answer.
6. Write your 4-digit identification number in the upper right-hand corner of each sheet of paper.
7. Write the question number in the upper right hand corner of each sheet of paper.

Section 1: Microeconomic Theory—Answer Any Two Questions.

1A. Assume $U(M) = (M)^{0.5}$ and you have an initial wealth equal to \$10,000. You are offered a 50/50 bet to win \$700 or lose \$600.

- (a) Determine whether or not you would accept the bet.
- (b) Determine the amount you would pay to play the game or avoid the game.

1B. Assume $U = U(x, y) = x^2y^2$ and $P_x x + P_y y = M$.

- (a) Solve for the demand schedules of x and y .
- (b) Describe the impact of price, the other price, and income on each demand schedule.

1C. Rita's indifference curves are smooth and convex. Given that $P_1 = \$2$ and $P_2 = \$4$, Rita buys consumption bundle $(x_1, x_2) = (100, 50)$. Assume that Rita always makes a rational choice.

- (a) Write down Rita's budget constraint and then use the indifference curves and budget constraint to show Rita's choice.
- (b) If P_1 increases to \$3 and Rita's income increases by \$100, please show Rita's new budget line and new choice, i.e., the new consumption bundle.

From your answers to (a) and (b), can you tell whether she will be better off or worse off? Please explain verbally and graphically.

1D. An optimization problem without constraint—profit maximization by a price discriminating monopolist. Suppose a monopolist sells its products in two separate markets. The demand function in market 1 equals $P_1 = 20 - 2Q_1$, and the demand function in market 2 equals $P_2 = 15 - 1.5Q_2$. Total cost equals $TC = 5(Q_1 + Q_2)$.

- (a) Write the objective function of the monopolist.
- (b) What are the choice variables?
- (c) Use the first-order conditions to solve for the maximizing values of Q_1 and Q_2 .
- (d) Find the profit-maximizing prices in the two markets.
- (e) Verify that these are profit-maximizing choices by checking the second-order conditions.