

INSTRUCTIONS:

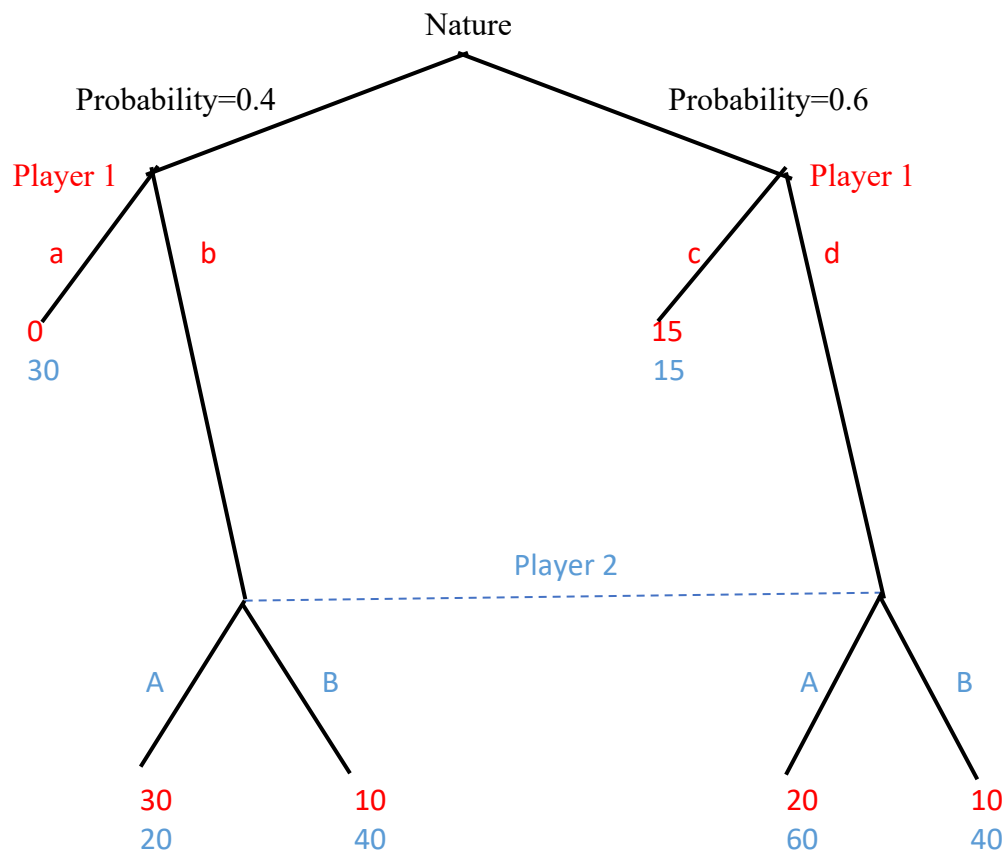
1. Answer ONLY the specified number of questions from the options provided in each section. Do not answer more than the required number of questions. Each section takes one hour.
2. Your answers must be on the paper provided. No more than one answer per page. Do not answer two questions on the same sheet 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. Use only pen. Answers in pencil will be disqualified.
5. Write ----- **END** ----- at the end of each answer.
6. Write your exam 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. (ECON 201) Grace's preferences are described by the utility function $U(x_1, x_2) = x_1x_2 + x_1$. Her income is I , and the prices of both goods are p_1 and p_2 , respectively.

- a. Find her uncompensated demand functions for x_1^* and x_2^* using the Lagrangian method.
- b. Calculate the compensated demand functions for x_1 and x_2 .

1B. (ECON 201) Find and describe the Bayesian–Nash equilibrium in the following game. There are two players in this game: Player 1 and 2. The top and bottom payoffs belong to Player 1 and Player 2, respectively.



1C. (ECON 104) Suppose that the monopolist faces the demand functions:

$$P_1 = 200 - 2Q_1$$

$$P_2 = 180 - 4Q_2$$

and that the cost function is $C = 20(Q_1 + Q_2)$.

- a. How much should be sold in the two markets to maximize total profit? What are the corresponding prices?
- b. What is the monopolist's pricing strategy if it becomes illegal to discriminate?
- c. Discuss the consequences of imposing a tax of 2 per unit on the product sold in market 1

(over)