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

MAY 6, 2022
6:00 P.M. TO 9:30 P.M.
PROCTOR: LIU & RIETZ

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. (Hajikhameneh) Grace's preferences are described by the utility function $U(x_1, x_2) = x_1x_2 + x_2$. Her income is I and prices of both good 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. (Hajikhameneh) Alice and Bob are participants in a televised game show, seated in separate booths with no possibility of communicating with each other. Each one of them is asked to submit, in a sealed envelope, one of the following two requests for the show (requests are guaranteed to be honored): (1) Give me \$1000 and (2) Give the other participant \$4000.

a. Find the Nash equilibrium of this game.
b. Suppose the stage game is repeated infinitely many times. Compute the discount factor required for Alice and Bob to be able to cooperate on give the other participant \$4000 each period.

1C. (Fakhruddin) A producer has the possibility of discriminating between domestic and foreign market for a product where the demand respectively is

$$Q_1 = 21 - 0.1P_1$$

$$Q_2 = 50 - 0.4P_2$$

and total cost (TC) = 2000 + 10Q, where $Q = Q_1 + Q_2$.

a. What price will the producer charge in order to maximize profits with discrimination between markets?
b. What price will the producer charge in order to maximize profits without discrimination?
c. Compare the profit differential between discrimination and non-discrimination.

(over)