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. (Liu) An American university has enough places for 9000 students. Government restrictions mean that at least 75% of the places must be given to US students but the remainder may be given to non-US citizens. There are 5000 residential places available on campus.

All overseas students and at least one-quarter of the US students must be given places on campus. The university get $12000 in tuition fees for each US student and $15000 for each overseas student. It wants to maximize the fees received.
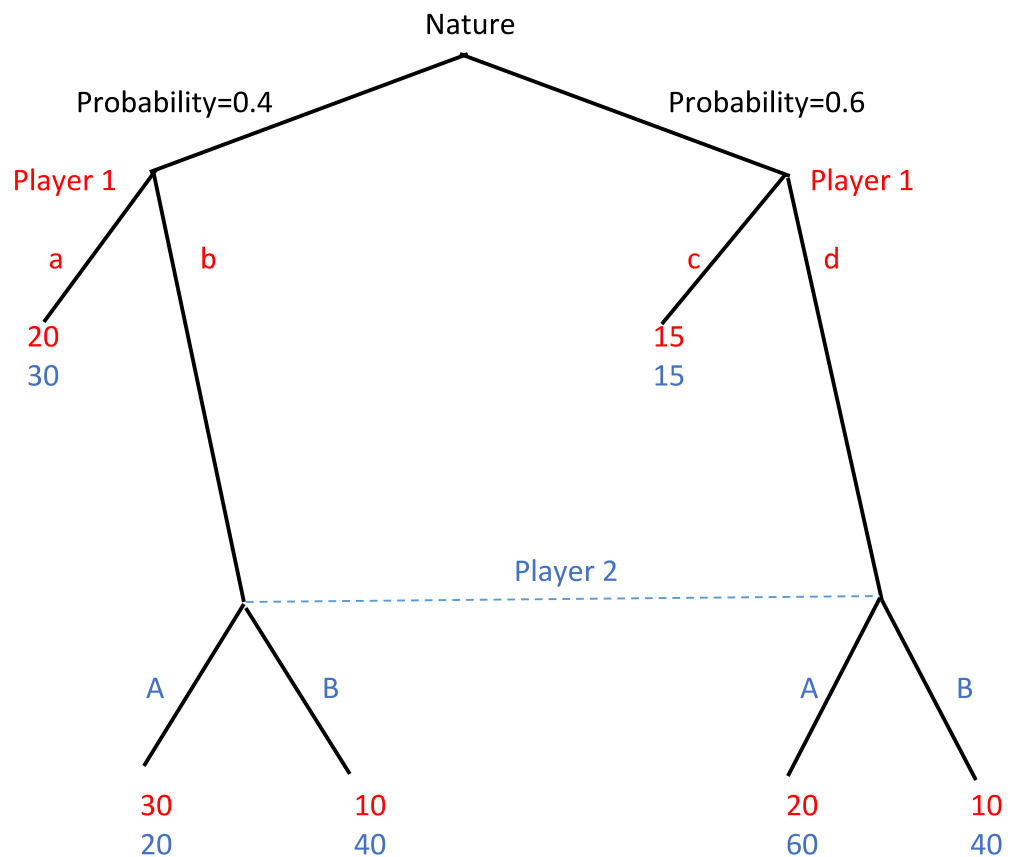
Using the letter x for the number of places given to US students and y for the number of places for overseas students,

(1) write down an expression for the objective function and state whether it is to be maximized or minimized;

(2) write down the constraints that define the feasible region and explain your reasoning carefully;

(3) identify which aspect of the original problem has been overlooked in parts (a) and (b);

(4) graph the feasible region.

1B. (Hajikhameneh) Grace's preferences are described by the utility function $U(x_1, x_2) = 2lnx_1 + 2lnx_2$. Her income is I and prices of both good are p_1 and p_2, respectively.

     i.   Find her uncompensated demand functions for x_1^* and x_2^* using the Lagrangian method.

    ii.   Derive Grace's indirect utility and expenditure functions.

   iii.   Calculate the income and substitution effects for x_1.

1C. (Hajikhameneh) 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.

(over)