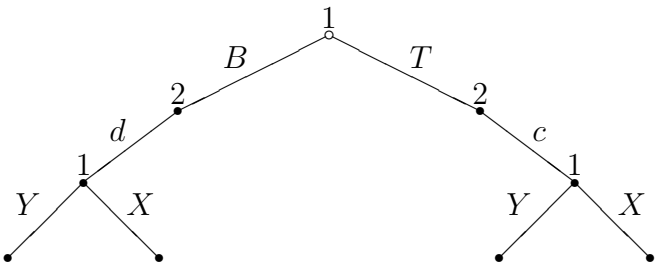
Microeconomía II
Problem Set I

La fecha límite para entregar las respuestas es el jueves 3 de Marzo, 13:30 hrs.
Cada problema vale 1/5 de la calificación final

1. Consider the game represented below and suppose that player 1 uses a mixed strategy β_1 that assigns equal probability of 1/3 to the three following pure strategies TXY, TYY, and BXX. Determine the behavior strategy which allows to obtain the same expected payoff as β_1. Analogously, for the mixed strategy β_1' that assigns equal probability of 1/2 to the pure strategies TXT and TYY, determine the behavioral strategy that allows for the same expected payoff as β_1.



2. Consider an extensive-form game with two players, 1 and 2, and perfect recall. Let $\Gamma = \langle \{1,2\}, \Delta(S_1) \times \Delta(S_2), (U_1, U_2) \rangle$ be the mixed extension of the strategic-form game associated with that extensive-form game. Let β_1 be a mixed strategy for player 1 and let s_2 be a pure strategy for player 2. Show that there exists a behavior strategy ρ_1 for player 1 such that

$$U_2(s_2, \rho_1) = U_2(s_2, \beta_1).$$

3. Consider the following two-player game. First, player 1 selects a number x, which must be greater than or equal to zero. Player 2 observes x. Then, simultaneously and independently, player 1 selects a number y_1 and player 2 selects a number y_2. Player 1's payoff is $u_1 = y_1 y_2 + x y_1 - y_1^2 - (x^3/3)$ and player 2's payoff is $u_2 = -(y_1 - y_2)^2$. Represent this game in extensive form.

4.

5.