1. Determine whether the following statements are True or False and EXPLAIN. Most marks are for your explanations. (5 points each)

   (a) Players make optimal choice at every information set in a subgame perfect Nash equilibrium.

   (b) Provided consumers' preferences satisfy Local non-satiation, only relative prices matters in the economy.

   (c) A Nash equilibrium is normal-form perfect if and only if no players play dominated strategies.

   (d) The First-price sealed bid auction and the Dutch auction yield the same expected revenue if and only if all bidders are risk neutral.

2. For the game given below:

		b_1	b_2	b_3	b_4
Player 1	A_1	(0, 6)	(3, 1)	(7, 0)	(3, 7)
	A_2	(5, 0)	(-5, 1)	(0, 7)	(1, 5)
	A_3	(0, 6)	(10, 2)	(0, 0)	(2, -8)
	A_4	(7, 3)	(0, 0)	(5, 1)	(2, 2)

   (a) Does any player have any dominated strategies? What are they? (5 points)

   (b) Find all pure strategy NE of the game. (5 points)

   (c) Does the game have any mixed strategy NE? If yes, please also give the mixed strategy NE. (10 points)

3. The two divisions of a large corporation, 1 and 2 decide simultaneously whether to develop a new product. Both divisions can get a benefit of 1 if at least one division develops the new product. A division's cost of development is c_i. While the benefit is common knowledge, each division's cost c_i is known only to itself. However, it is common knowledge that, c_1 is drawn from a uniform distribution on [0,2] while c_2 is drawn from a uniform distribution on $[0, \frac{3}{2}]$. Identify the Bayesian Nash equilibria of this game. (20 points)

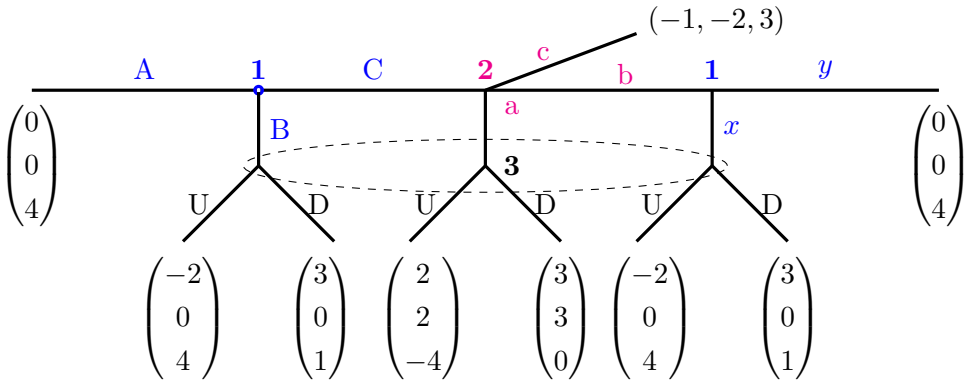
4. An exchange economy consists of two consumers. Consumer A is endowed with 90 units of good x and 10 units of good y, while B is endowed with 10 units of good x and 90 units of good y. Their utility functions are, respectively, $U_A(x, y) = \sqrt{(x-20)(y-10)}$, and $U_B(x, y) = \ln(x-10) + \ln(y-20)$.

   (a) Find the two consumer's demand functions; (5 points)

   (b) Find the excess demand functions, and show the Walras' law holds; (5 points)

   (c) Determine the competitive equilibrium. (10 points)

5. For the extensive form game below:



(a) Write down the strategic form and identify all pure strategy NE; (5 points)

(b) Identify all sequential equilibria; (10 points)

(c) Identify all normal-form perfect equilibria of the game. (5 points)