Section B

1. **[25 marks]**

Consider the following stage game G:

		Player 2 C	Player 2 D
Player 1	C	3,3	0,4
	D	5,0	0,0

(a) Find all Nash equilibria of game G, including those where one or both players play mixed strategies (if any).

Consider now the infinitely repeated game $G(\infty, \delta)$ with a discount factor $\delta \in (0, 1)$.

(b) Find the minmax payoffs of Players 1 and 2. Explain briefly. Draw the set of all possible payoffs. Indicate the area that contains all the subgame perfect equilibrium payoffs of the repeated game $G(\infty, \delta)$ for high enough δ, according to Fudenberg and Maskin's Folk Theorem.

(c) What is the smallest value of δ such that cooperation can be achieved in a subgame perfect equilibrium (SPE) of the repeated game $G(\infty, \delta)$? Provide an example of such an SPE.

2. **[25 marks]**

Anne is ordering a takeaway dinner for herself and her roommate Beth (who is not home yet). Anne can either order a pepperoni pizza or a parmesan-and-leek quiche. Anne is pretty sure (with probability 0.9) that Beth likes leek, but there is a chance of 0.1 that Beth hates leek and would be very disappointed the order of quiche. If Beth hates leek, then she can either pretend that she likes it (in order not to upset Anne) or angrily throw away the dinner.

If Anne orders the pizza, the payoffs will be $(2, 2)$ for Anne and Beth. If Anne orders the quiche and Beth likes it, the payoffs will be $(3, 3)$; if Beth does not like the quiche but pretends she does, the payoffs will be $(3, -3)$; and if Beth throws away the dinner, the payoffs will be $(-1, -1)$.

(a) Draw this game in the tree form.

(b) What type of game is this? What would be an appropriate solution concept to solve this game? Motivate your choice by briefly comparing and contrasting different solution concepts (iterated deletion of dominated strategies, Nash equilibrium, subgame perfect equilibrium, perfect Bayesian equilibrium). Solve the game using your chosen solution concept.