Econ 0100 | Classwork D1

Due in Recitation

Question 1 (of 3) | Study Room Dynamics

Students in Ravenclaw and Hufflepuff share a secondary study room, which is open to all students from both houses at all hours. Every year the heads of house from both houses organize the sharing of cleaning duties. Cleaning improves the quality of the study room for members of both houses, but the chore is inconvenient. If both houses clean, the study room is a fantastic resource. But cleaning takes precious time away from studying, so neither house prefers doing it. The following matrix represents the benefits of each possible strategy combination.

		Hufflepuff: Clean	Hufflepuff: Don't Clean
Ravenclaw: Clean		$10, 10$	$6, 12$
Ravenclaw: Don't Clean		$12, 6$	$8, 8$

Q1.a | Ravenclaw's Best Response

What is Ravenclaw's best response?

Q1.b | Hufflepuff's Best Response

What is Hufflepuff's best response?

Q1.c | Nash Equilibrium

Find all Nash Equilibium.

Q1.d | Socially Efficient

Find the socially efficient strategies.

Question 2 (of 3) | Shrake Fishery

The Shrake is a powerfully magical fish with significant interest as a potent ingredient in potions. Since their spines easily damage fishing nets, only two massive cooporate firms (confidentially called Firm A and Firm B) remain in the market after independently developing highly secretive technology for harvesting Shrake. Both firms have the ability to harvest vast quantities of Shrake but can make substantial profit even with low harvests. At low capacities (L) the fishery could support both firms, but at high capacities (H) overfishing would lead to population collapse in future years. Following these two fishing strategies, the lifetime profits (in Galleons) for the are summarized by the following payoff matrix.

		Firm B: L	Firm B: H
Firm A	L	$10, 6$	$2, 10$
Firm A	H	$18, 1$	$3, 3$

Q2.a | Firm A's Best Response

What is Firm A's best response?

Q2.b | Firm B's Best Response

What is Firm B's best response?

Q2.c | Nash Equilibrium

Find all Nash Equilibium.

Q2.d | Socially Efficient

Find the socially efficient strategies.

Question 3 (of 3) | Enforceable Permits

Fearing a total collapse of the Shrake fishery, the Ministry of Magic hired Remus Lupin to develop a policy solution to the looming issue. Remus offered a few proposals but the policy chosen by the Ministry was to distribute a fishing permit to both Firm A and Firm B to harvest at low capacity (L) each season. This would lead to a sustainable population of Shrake into future seasons. Since there are only two firms supplying Shrake, the market is highly visible to regulators making the permits very enforceable. Any firm in violation, choosing a high capacity (H), would be required to pay a fine equal to half their seasonal profit. The following matrix summarizes the two firms' lifetime profits after the enforceable permits.

		Firm B	
		L	H
Firm A	L	$10, 6$	$2, 5$
	H	$9, 0.5$	$1.5, 1.5$

Q3.a | Firm A's Best Response

What is Firm A's best response?

Q3.b | Firm B's Best Response

What is Firm B's best response?

Q3.c | Nash Equilibrium

Find all Nash Equilibium.