Game Theory 02-03

Exercise

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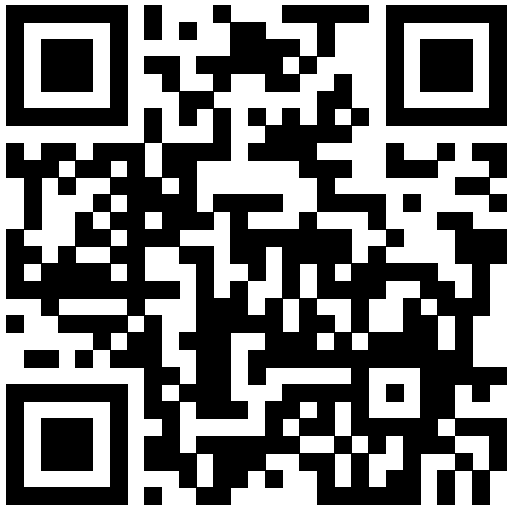
Answer on Google Slides



Use the QR code or the URL to open the shared Google Slides deck and submit your answers for each exercise.

https://sites.google.com/vju.ac.vn/bcse-gt

Notes

- Record the names of participants who are present today on your slide.
- Handwritten work is welcome—snap clear photos and upload them if that is easier.

Q1. Discrete First-Price Auction

Two bidders compete for a single item. Player 1 values it at 3 and Player 2 at 5.
Each may bid 0, 1, or 2. The highest bidder wins and pays her own bid; ties are broken by a fair coin toss. Answer the following.

1. Write the game in matrix form.
2. Identify any strictly dominated strategies.
3. Determine which strategies survive IESDS.

Q2. Proxy Bidding

In a second-price proxy auction, the highest bidder wins but pays the second-highest bid plus 0.01 USD.
You value the item at 100 USD and do not know others' valuations.

- Compare bidding 120 USD versus bidding your value of 100 USD.
- Compare bidding 80 USD versus bidding 100 USD.
- Explain the bid you would actually submit and why.

Q3. The $\frac{2}{3}$ Guessing Game

Consider an n-player $\frac{2}{3}$ average guessing game with range $\{0,1,2,\ldots,10\}$. Each player announces a number, and the winner is closest to $\frac{2}{3}$ times the average.

1. Show that if Player i believes everyone else chooses 10, then 90 is not the best response (for any n).
2. Show how the full set of best responses to everyone else choosing 90 depends on n.
3. What happens if we play this game repeatedly?

Q4. Applying IESDS

Apply iterated elimination of strictly dominated strategies to the following game.

		Player B		
		L	C	R
Player A	U	(6, 8)	(2, 6)	(8, 2)
	M	(8, 2)	(4, 4)	(9, 5)
	D	(8, 10)	(4, 6)	(6, 7)