

Fundamentals of Game Theory

Mathematics And Economics · Answer Key · 20 Questions

1. What is the primary study focus of Game Theory?

- A) The history of video games
- B) Strategic decision-making**
- C) The physics of dice rolls
- D) Probability in card games

2. In a 'Zero-Sum Game', what is true about the total gains and losses?

- A) The total equals zero**
- B) The total is always positive
- C) The total is always negative
- D) One person gains without another losing

3. Who is credited with being a founding father of Game Theory?

- A) Isaac Newton
- B) John von Neumann**
- C) Albert Einstein
- D) Charles Darwin

4. What term describes a player's plan of action that determines their move in any situation?

- A) A guess
- B) A strategy**
- C) A reaction
- D) A gamble

5. In Game Theory, what are the participants involved in a strategic interaction called?

- A) Spectators
- B) Players**
- C) Referees
- D) Coaches

6. Which classic dilemma demonstrates why two rational individuals might not cooperate?

- A) The Monty Hall Problem
- B) The Prisoner's Dilemma**
- C) The Birthday Paradox
- D) The Knight's Tour

7. What represents the 'outcome' or numerical result of a game for a player?

A) A payoff

- B) A forfeit
- C) A penalty
- D) A jackpot

8. If a game has 'perfect information', what do players know?

A) Nothing about other players

B) Everything about the state of the game

- C) Only their own moves
- D) The final result before starting

9. What is a 'Nash Equilibrium'?

A) A state where no player benefits by changing their strategy

- B) A game where everyone wins
- C) A game where everyone loses
- D) A rule that makes a game fair

10. In a non-cooperative game, how do players make their decisions?

A) By forming alliances

B) Independently

- C) By flipping a coin
- D) By asking an opponent

11. Which of these is typically considered a 'sequential game'?

A) Chess

- B) Rock Paper Scissors
- C) Poker
- D) Rolling dice

12. What do we call a game where players can form binding agreements?

A) Cooperative game

- B) Unfair game
- C) Random game
- D) Solo game

13. In the context of Game Theory, what is a 'move'?

A) Changing your seat

B) A decision made by a player

- C) A physical exercise
- D) The speed of a game

14. Which field of study often uses Game Theory to model market competition?

A) Economics

- B) Biology
- C) Geology
- D) Chemistry

15. What is a 'dominant strategy' in a game?

A) A strategy that is always best regardless of what others do

- B) A strategy that is chosen randomly
- C) A strategy that always leads to a loss
- D) A strategy that requires a team

16. What does 'rationality' imply in Game Theory?

A) Players always act in their own best interest

- B) Players are always kind
- C) Players always lose
- D) Players never think about the future

17. What type of game is Rock Paper Scissors, where one player's gain is the other's loss?

A) Zero-sum

- B) Non-zero-sum
- C) Cooperative
- D) Infinite

18. What are the 'rules' of a game in Game Theory?

A) Guidelines that define the options and payoffs

- B) Suggestions for how to play
- C) Optional tips for winning
- D) The physical equipment needed

19. Which game is a common example of 'simultaneous' decision-making?

- A) Chess
- B) Tic-Tac-Toe

C) Rock Paper Scissors

- D) Checkers

20. What does a 'payoff matrix' display in a game?

A) The history of the game

B) All possible outcomes for players

- C) The equipment list
- D) The player rankings