Foundations of Game Theory

Game Theory · Practice Test · 12 Questions

1. Who is widely considered the 'father of Game Theory' and co-authored 'Theory of Games and Economic Behavior'?

A) John von Neumann
B) John Nash
C) Leonid Kantorovich
D) Oskar Morgenstern

2. In what year was the seminal book 'Theory of Games and Economic Behavior' published?

A) 1944
B) 1951
C) 1932
D) 1949

3. Which famous game, illustrating a conflict between rational self-interest and mutual benefit, is a central concept in Game Theory?

A) The Prisoner's Dilemma
B) Rock, Paper, Scissors
C) Chess
D) Go

4. The concept of a 'Nash Equilibrium', a state where no player can improve their outcome by unilaterally changing their strategy, is named after which mathematician?

A) John Nash
B) John von Neumann
C) Emil Borel
D) Alvin E. Roth

5. Which mathematician, besides John von Neumann, co-authored 'Theory of Games and Economic Behavior'?

A) Oskar Morgenstern
B) John Nash
C) Kenneth Arrow
D) Gerard Debreu

6. The 'Minimax Theorem', which states that in a two-person zero-sum game, there is a value such that one player can guarantee a payoff of at least that value, was proven by whom?

A) John von Neumann
B) John Nash
C) Emil Borel
D) Leonid Kantorovich

7. Game Theory found early applications beyond pure mathematics, notably in which field during World War II?

A) Military strategy
B) Medicine
C) Agriculture
D) Literature

8. Which of these is an example of a zero-sum game, where one player's gain is exactly another player's loss?

A) Chess
B) A business partnership
C) A charity drive
D) A cooperative board game

9. The development of the concept of the 'core' of a game, which represents stable outcomes that cannot be improved upon by any coalition of players, is credited to which group of mathematicians?

A) Bondareva and Shapley
B) Nash and Von Neumann
C) Arrow and Debreu
D) Kreps and Wilson

10. Which Nobel Prize in Economics was awarded in part for contributions to the theory of auctions, a significant application of Game Theory?

A) 1996
B) 1972
C) 1983
D) 2001

11. The concept of 'repeated games' in Game Theory explores how strategies can evolve over time through interaction. Which famous economist extensively studied this area, earning a Nobel Prize?

A) Robert Aumann
B) John Maynard Keynes
C) Milton Friedman
D) Paul Samuelson

12. In the context of Game Theory, what does 'rationality' typically imply about a player's behavior?

A) They aim to maximize their own payoff
B) They act randomly
C) They prioritize fairness above all else
D) They are influenced by emotions