

Algorithmic Game Theory

Assignment 1

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1. Which one of the following is not a game theoretic behavioral assumption?

- (a) selfishness
- (b) intelligence
- (c) rationality
- (d) trust

The correct answer is (d).

2. Which one of the following games is a strictly competitive game?

- (a) prisoner's dilemma
- (b) rock-paper-scissor
- (c) battle of sexes
- (d) congestion games

The correct answer is (b).

3. What is the maximum number of strongly dominant strategy equilibria that a normal form game with at least two players can have?

- (a) at most one
- (b) exactly one
- (c) zero
- (d) infinite

The correct answer is (a).

4. What is the maximum number of weakly dominant strategy equilibria that a normal form game with at least two players can have?

- (a) at most one
- (b) exactly one
- (c) zero
- (d) infinite

The correct answer is (a).

5. What is the maximum number of very weakly dominant strategy equilibria that a normal form game with at least two players can have?

- (a) at most one
- (b) exactly one
- (c) zero
- (d) infinite

The correct answer is (d).

6. In the first price auction, bidding valuation is

- (a) a very weakly dominant strategy equilibrium but not a weakly dominant strategy equilibrium
- (b) a weakly dominant strategy equilibrium but not a strongly dominant strategy equilibrium
- (c) a pure strategy Nash equilibrium
- (d) not an equilibrium

The correct answer is (d).

7. In the second price auction, bidding valuation is a

- (a) very weakly dominant strategy equilibrium but not a weakly dominant strategy equilibrium
- (b) weakly dominant strategy equilibrium but not a strongly dominant strategy equilibrium
- (c) strongly dominant strategy equilibrium
- (d) not an equilibrium

The correct answer is (b).

8. Which one of the following games does not have a pure strategy Nash equilibrium?

- (a) prisoner's dilemma
- (b) battle of sexes
- (c) matching pennies
- (d) tragedy of commons

The correct answer is (c).

9. Which one of the following games has a strongly dominant strategy equilibrium?

- (a) prisoner's dilemma
- (b) battle of sexes
- (c) matching pennies
- (d) tragedy of commons

The correct answer is (a).

10. Which one of the following is correct?

- (a) every weakly dominant strategy equilibrium is also a strongly dominant strategy equilibrium
- (b) every very weakly dominant strategy equilibrium is also a weakly dominant strategy equilibrium
- (c) every pure strategy Nash equilibrium strategy equilibrium is also a weakly dominant strategy equilibrium
- (d) every pure strategy Nash equilibrium strategy equilibrium is also a mixed strategy Nash equilibrium

The correct answer is (d).