Principle of Economics: Homework 3, Unit 11 - Unit 20

Multiple Choice Questions

Choose the most appropriate answer for each question.

1. Suppose Phillip and Mathew are the only tenants in a building. The building owner is considering installing surveillance cameras. The following table shows their willingness to pay (WTP) for each additional camera.

# of Cameras	Phillip's WTP	Mathew's WTP
1	$400	$300
2	$310	$200
3	$210	$110
4	$80	$30

   If the cost of installing each surveillance camera is $320, what is the socially optimal number of cameras to install?

   (A) 1
   (B) 2
   (C) 3
   (D) 4

2. Which of the following statements is **true**?

   (A) A monopolist with market power necessarily earns positive economic profits.
   (B) The IEPR implies that a monopolist should set higher prices in markets with more elastic demand.
   (C) A monopolist's supply curve is equivalent to their marginal cost curve above the shutdown price.
   (D) When a monopolist determines their profit-maximizing quantity, they simultaneously determine the market price.

3. Three players live in a town and each can choose to contribute to fund a street lamp. The value of having the street lamp is 3 for each player and the value of not having one is 0. The Mayor asks each player to either contribute 1 or nothing. If at least two players contribute then the lamp will be erected. If one or less people contribute then the lamp will not be erected, in which case any person who contributed will not get their money back. Which of the following statements is **false**?

(A) No player has a dominant strategy.

(B) There are many pure-strategy Nash equilibria in this game.

(C) It is possible that all three players contribute to the fund in a Nash equilibrium.

(D) In this scenario, the street lamp is a public good.

4. The Battle of Julu (鉅鹿之戰) occurred during the uprising against the Qin Dynasty (秦朝). Consider an extensive-form game between Chu (楚) and Qin (秦) with the following structure:

   i. Chu first decides whether to burn their boats.

   ii. Qin, after observing Chu's decision, chooses to attack or concede.

   iii. Chu, after observing Qin's action, chooses to attack or concede. Notice that if Chu burns their boats initially, retreat becomes impossible.

The payoff vector is denoted as (u_1, u_2), where u_1 and u_2 represent the payoffs for Chu and Qin respectively. Which of the following statements is **false**?
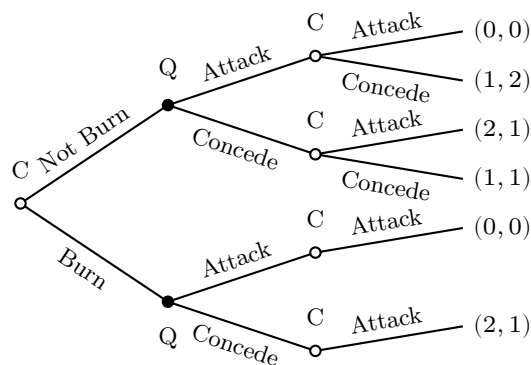
(A) If Chu does not burn their boats, Qin should choose to attack.

(B) To maximize their payoff, Chu should choose to burn their boats.

(C) The only Nash equilibrium is (Burn, Concede, Attack).

(D) Backward induction predicts that the outcome of this game is $(2, 1)$.

5. Which of the following statements is **true** regarding different market structures?

(A) In market structures with free entry and exit, economic profits will be driven to zero in the long run when firms have identical cost structures.

(B) Every firm faces a downward-sloping demand curve.

(C) All market structures except perfect competition can sustain positive economic profits in the long run.

(D) Perfect competition is the only market structure in which price equals marginal cost.

6. Consider a duopoly market with two firms, A and B, that produce identical products. They recognize that they will be playing this game over and over rather than just once. Which of the following statements about collusion is **false**?

   (A) Once firms form a cartel, they can sustain the collusive agreement as OPEC has done.
   (B) Collusion is more likely to be sustainable when the firms can easily detect deviations from the agreement.
   (C) A colluder who values future monopoly profits more than current cheating profits will abide by the collusive agreement.
   (D) If firms are patient enough, they can sustain a collusive agreement by threatening to punish deviations.

7. Marnie works at the guest check-in desk during nights at the hotel. She has the ability to determine how many hours she works each week. The hotel grants Marnie an increase in her hourly wage from $14 per hour to $20 per hour. How will Marnie respond?

   (A) Marnie will increase her hours worked if the income effect of the wage increase is positive.
   (B) Marnie will decrease her hours worked if the income effect of the wage increase is negative.
   (C) Marnie will not change her hours worked, as the income effect of the wage increase is zero.
   (D) We cannot determine how Marnie will respond without knowing her preferences.