Directions: Please answer all items on this homework. You must show all your work. Unless otherwise stated, please simplify your answer.

1. Suppose you have the following game: **(10 Points)**

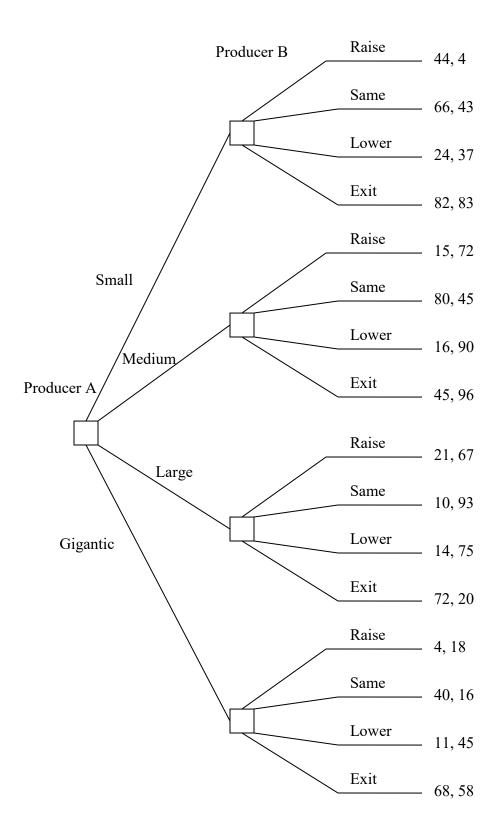|		Farmer B	
		Harvest	Don't Harvest
Farmer A	Small	(41, 42)	(25, 35)
	Large	(36, 26)	(29, 31)

  a. Are there any dominant or dominated strategies?
  b. What are the Nash Equilibriums? Please explain. (Hint: There are two.)

2. Suppose you have the following game: **(10 Points)**

		Processor B		
		Raise Price	Keep Prices Constant	Lower Prices
Processor A	Small	(80,89)	(2,16)	(42,17)
	Medium	(56,95)	(52,69)	(17,28)
	Large	(53,83)	(66,73)	(7,10)

  a. Are there any dominant or dominated strategies?
  b. What are the Nash Equilibriums? Please explain.

3. Suppose you have two large meat processors trying to decide what size processing plant they should build. Assume that they are making their choice on plant size simultaneously. Each has the same strategy set—build a small plant, build a medium size plant, or build a large plant. Suppose you have the following strategy sets that map to the following payoffs: **(20 Points)**

  —If both firms choose small, they equally split $240 million
  —If both firms choose medium, they equally split $200 million
  —If both firms choose large, the equally split $120 million
  —If one firm chooses small and the other chooses medium, the firm that chooses small gets $80 million and the firm that chooses medium gets $130 million
  —If one firm chooses small and the other chooses large, the firm that chooses small gets $70 million and the firm that chooses large gets $110 million
  —If one firm chooses medium and the other chooses large, the firm that chooses medium gets $65 million and the firm that chooses large gets $75 million

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a. Please put this game in Matrix form.
b. Are there any dominant or dominated strategies? Please explain.
c. What is the Nash Equilibrium? Please explain
d. Does this game have a Prisoner's Dilemma? Please explain.

4. Please answer the following questions given the game below: **(10 Points)**

    a. What is the Subgame Perfect Nash Equilibrium? Please explain how you found your answer.
    b. Would you get the same outcome if this was a simultaneous move game? Please explain. (Hint: you could solve this game using the matrix form of a game.)

Producer B

Small

Raise — 44, 4
Same — 66, 43
Lower — 24, 37
Exit — 82, 83

Medium

Raise — 15, 72
Same — 80, 45
Lower — 16, 90
Exit — 45, 96

Producer A

Large

Raise — 21, 67
Same — 10, 93
Lower — 14, 75
Exit — 72, 20

Gigantic

Raise — 4, 18
Same — 40, 16
Lower — 11, 45
Exit — 68, 58

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