1. The wine industry is a monopolistically competitive industry. The following firm operates in this monopolistically competitive wine industry.
    a. Find the profit maximizing output and price for this firm. Explain what you are doing. What is the profit for this firm? Show all these points on a graph.

Price	Quantity	Total Cost	Total revenue	Marginal revenue	Marginal cost
12	0	7			
10	1	9			
8	2	11			
6	3	13			
4	4	15			
2	5	17			
0	6	19			

    b. What happens to this industry in the long-run? What happens to the above firm's profit maximizing price, output and profits (your answer will not be numeric, it will be descriptive)? Explain fully.

2. Use supply and demand curves to show the change in the price of bread and the quantity sold, when these events occur:
    a. The population grows.
    b. People's incomes fall and unemployment increases, in a recession.
    c. The price of potatoes rises.
    d. The price of butter rises.
    e. A drought occurs in the wheat growing regions.
    f. To protect farmers' incomes, the government sets an effective price floor for wheat.
    g. To protect consumers from inflation, the government sets an effective price ceiling for bread.

3. These are the supply and demand schedules for good X:

Price	Quantity Supplied	Quantity Demanded
$10	18	3
9	16	4
8	14	5
7	12	6
6	10	7
5	8	8
4	6	9
3	4	10
2	2	11 -
1	0	12

    a. What is the equilibrium price and quantity? At this equilibrium, what is the producer's revenue?
    b. If the government sets a price of $8 for X, what will be the price, quantity and revenue? Will there be a shortage or surplus of X?

Calculate the deadweight loss.

c. If the government sets a price of $3, answer the same questions as in (b). Calculate the deadweight loss.
d. Suppose the demand for X increases, so that at each price, consumers want to buy 3 more units of the good. What happens to price, quantity and revenue? Why has the quantity sold not increased by 3 units?

4. Piers Ploughman is considering whether to buy a corn and soybean farm in Iowa. The farm will cost $800,000, and Piers will be able to pay this from profits his recently deceased mother made on the stock market and willed to him. He estimates that if he does not run the farm, and keeps his current job as an economic forecaster, he will be able to earn $40,000 a year. The prevailing interest rate is 9 percent. Piers' only motive is to maximize his income.

   Should he buy the farm and become a farmer if his accountant tells him the annual profit from the farm is likely to be:

   a. $160,000?
   b. $100,000?
   c. $50,000?

5. Fill in the values for the table below. Show work for partial credit.

	TC	TVC	TFC	MC	ATC	AVC	AFC
0	_____	_____	_____	N.A.	N.A.	N.A.	N.A.
1	_____	10	_____	_____	_____	_____	_____
2	_____	17	_____	7	_____	_____	_____
3	39	_____	_____	_____	_____	_____	_____
4	_____	_____	_____	15	_____	_____	_____
5	_____	_____	_____	_____	_____	12	_____
6	100	_____	_____	_____	_____	_____	2

6. Assume there are two firms in the market, and the below table provides the information regarding the market demand and the individual firm's cost functions.

1	2	3	4	5	6	7
Q	AC	TC	MC	P	TR	MR
0	…	120			0	
2	120	240	60	90	180	90
4	70	280	20	85	340	80
6	60	360	40	80	480	70
8	***55***	440	40	75	600	60
10	60	600	80	70	700	50
12	65	780	90	65	780	40
14	70	980	100	60	840	30

16	75	1200	110	***55***	880	20
18	80	1440	120	50	900	10
20	85	1700	130	45	900	0
22	90	1980	140	40	880	-10
24	95	2280	150	35	840	-20

a) When they act individually they act as if they are producing in a perfectly competitive market. Find their long-run equilibrium production level, profit and market price.

b) If they collude they act like a single monopoly in the market. Find their long-run equilibrium production level, profit and market price.

c) If one of these firms "colludes" and the other one "cheats", the one that cheats decides to go back to producing the perfectly competitive level of production, while the colluder continues producing the monopoly output. Find their production levels, market price and profit. According to all of your results, fill in the payoff matrix below (first terms are the payoffs of firm 1).

Firm II

Firm I

	CHEAT	COLLUDE
CHEAT		
COLLUDE		

d) Find the maximin strategy for each firm. Show whether this equilibrium is a Nash equilibrium.

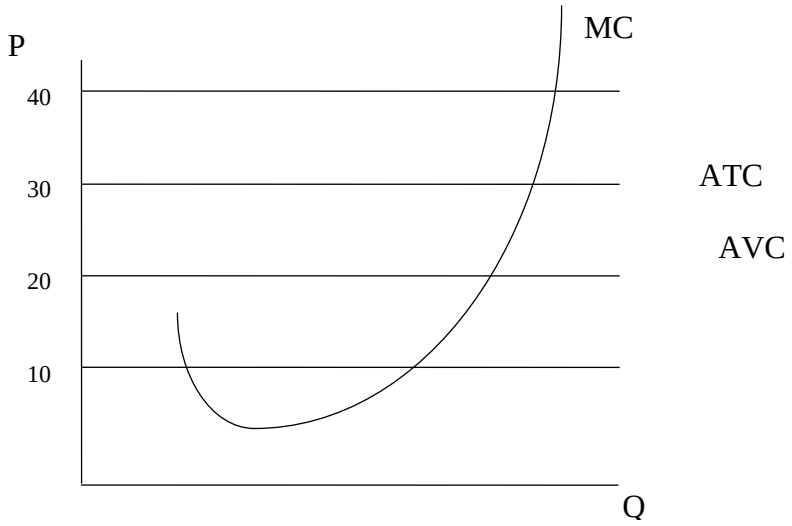
e) Is the equilibrium in (d) efficient? If not, what mechanism would you suggest to make it efficient? Show a case when your mechanism is better than the equilibrium in (d).

7. When the price of Widgets went from $0.80 to $0.90, the quantity of Gadgets demanded went from 140 to 155.

a) What is the (arc) cross-price elasticity between Widgets and Gadgets?

b) Are these compliment or substitute goods? Explain.

8. The graph below shows the cost curves for a perfectly competitive firm. Assume that this firm's cost curves are representative for all firms in the industry.



a) What is the long run equilibrium price for this industry? Explain why.

b) What is the minimum price at which this firm will continue to operate in the short run? Briefly explain why the firm would rather shutdown if the price falls below the minimum.

c) Show graphically the equilibrium quantity that the firm will produce if the market price is 30. Also show the region on the graph which shows the firm's profit or loss at this price.

d) At P = 30, over a period of time, there is likely to be entry of new firms into the market, exit of existing firms from the market, or no change in the number of firms. State which of the above statements is correct and clearly state why.

True/False questions

1. Demand for and input is affected by the demand for the product of that input.
2. Society benefits from monopolistic competition because firms are efficient.
3. Oligopolists almost always cooperate in making output and price decisions.
4. If TR < TC, a perfectly competitive firm will always shut down.
5. The law of diminishing marginal utility guarantees that demand curves will have positive slopes.
6. Without government intervention, there will be underproduction of a good with positive externality.