

REVIEW QUESTIONS FOR CHAPTERS 13, 14, 15 AND 20 (NOTE THAT FINAL EXAM IS COMPREHENSIVE)

1. Describe how a market supply curve relates to a firm's supply curve. How does the short-run market supply curve differ from the long run market supply curve?

Answer:

- (a) In the short run, when the number of firms in the market is fixed, the market supply curve is the horizontal summation of all the firms' Marginal Cost Curves, taking into account any changes in input prices that might occur. To move from individual firm's Marginal Cost Curves to the market supply curve, we add the quantities all firms will supply at each possible price. Since all firms have identical Marginal Cost Curves, a quick way of doing this is to multiply the quantities from the cost curve of any firm by the number of firms in the market.
- (b) As the short run evolves into the long run, the number of firms can change. If more firms enter the market, the supply curve will shift to the right. If some firms exit the market, the supply curve will shift to the left.

2. Why will perfectly competitive firms make zero profits in the long run? How are normal profits related to economic profits?

Answer:

- (a) In the short run, the number of firms is fixed and the firm can either make a profit or a loss. In the long run however, firms will enter markets where other firms are earning short run profits. They will keep on entering until prices fall to the point where all economic profits are competed away and firms earn nothing but normal profits. In the long run, firms also will exit from markets where firms are making short run losses. They will keep on exiting until prices rise to a level where all economic losses are eliminated and the remaining firms earn normal profits.
- (b) Normal profit means that the resources provided by the owners of the firm are earning their opportunity cost (the amount the owners of the business would receive in the next-best alternative use of their resources). Economic profit occurs when revenue exceeds all costs, including the opportunity cost of resources provided by the owners (normal profits). When firms earn economic profits, it means that the owners are earning more than their opportunity costs.

3. Consider the following table of numbers, which represents demand and cost conditions for a competitive firm. The price of the product this firm produces is \$50.

Q	TFC	MC	TVC	TC	TR	MR	Total Profit
0	30	0					
1		20					
2		30					
3		40					
4		50					
5		60					
6		70					

(a) Fill in the missing values.

(b) What level of output should the firm produces? Why?

(c) What do you predict will happen to the number of firms in the industry? Why?

(d) What do you predict will happen to supply and the market price?

(e) At which price must the firm shut down?

Answer:

(a) The completed table:

Q	TFC	MC	TVC	TC	TR	MR	Total Profit
0	30	0	0	30	0	0	-30
1	30	20	20	50	50	50	0
2	30	30	50	80	100	50	20
3	30	40	90	120	150	50	30
4	30	50	140	170	200	50	30
5	30	60	200	230	250	50	20
6	30	70	270	300	300	50	0

(b) The firm should produce 4 units. This is where $MR = MC$, where profit is maximized.

(c) The number of firms in the industry is expected to rise because existing firms are earning positive economic profit.

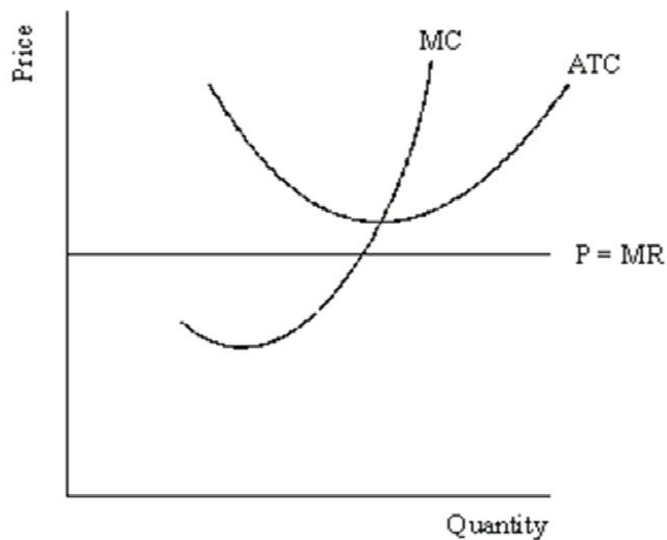
(d) The supply in the industry will increase as more firms enter the industry. As a result, and holding demand constant, the market price will decline.

(e) The firm must shut down if the market price is less than the minimum of average variable cost. The following table shows the calculation of AVC.

Q	TVC	AVC
0	0	0
1	20	20
2	50	25
3	90	30
4	140	35
5	200	40
6	270	45

The firm should shut down if the market price falls to \$20 or lower.

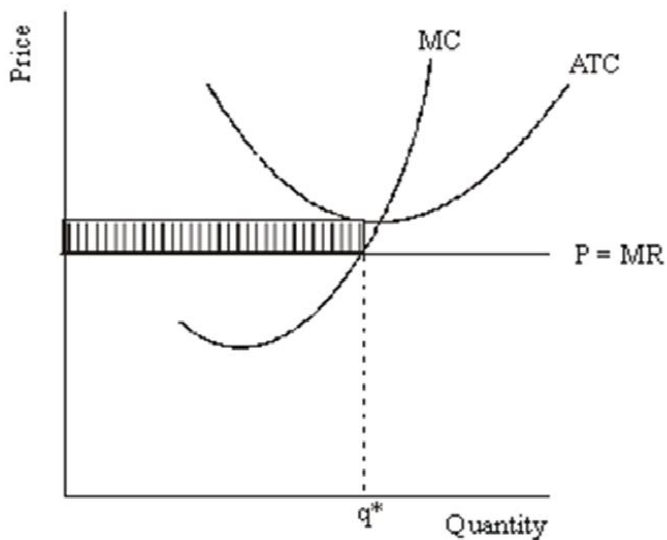
4. Consider the following diagram of a representative competitive firm:



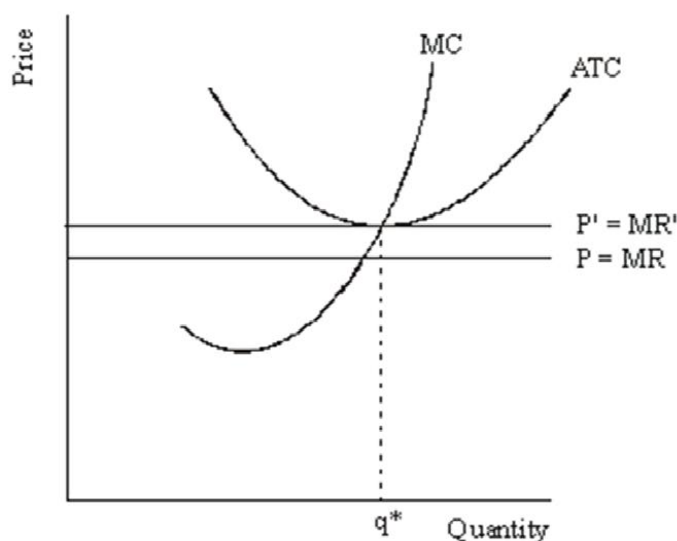
Is this a long-run equilibrium situation? If yes, explain why it is. If no, explain what will happen to transform it into a long-run equilibrium situation.

Answer:

The diagram does not show a competitive long-run equilibrium situation, because at the $MC = MR = P$ output level, the firm is suffering a loss. The amount of the loss is illustrated below:



This will lead to some firms to exit the industry, which will shift the market supply curve to the left. The decrease in market supply will bring about an increase in the market price, which will cause a shift up of the $P = MR$ line for the firms. The firms will continue to exit until the price increases enough so that the remaining firms earn zero economic profit. The end result is shown in the diagram below:



5. How and why are the decisions facing a monopolist different from the collective decisions of firms in a perfectly competitive market?

Answer:

Since a competitive firm is too small to affect the price, it does not take into account the effect of its output decision on the price it receives. A competitive firm's marginal revenue is for all intents and purposes the given market price. A monopolistic firm takes into account that its output decision can affect price and that its marginal revenue is less than the price. (Because an increase in output lowers the price on all previous units, a monopolist's marginal revenue is always below its price.) For industries with inelastic demand, increasing production doesn't make the suppliers better off. Competitive firms are, however, unable to collectively restrict output. Each individual competitive firm, responding to its self-interest, does what is not in the collective interest of the firms. In monopolistic markets, the firm does what is in its own best interest, which is also the interest of the entire market since it controls the market. It restricts supply.

6. What is the key difference between a perfectly competitive firm and a monopolist with respect to the relationship between price and marginal revenue?

Answer:

The key difference has to do with the relationship between price and marginal revenue. For a perfectly competitive firm these two are the same. For a monopolist they are not (in fact price is always greater than marginal revenue).

7. The law of demand states that the greater the quantity of a good purchased, the lower its price will have to be, other things held constant. Explain why monopoly firms see this law in action but perfectly competitive firms do not.

Answer:

A monopoly firm faces the entire market demand, which is downward sloping. Thus, as stated in the law of demand, in order for a monopolist to induce consumers to buy more of its product, it must lower the product price. In contrast to this, a perfectly competitive firm does not face the entire market demand curve. Rather, as a price taker, a competitive firm faces a horizontal demand curve; indicating that the firm can sell as much or as little as it wants at the prevailing market price. This is so because each competitive firm is, by definition, a small part of the entire market, so that any production changes it undertakes do not have any impact on the market supply (and so do not have any impact on the market equilibrium price).

8. What does it mean to say that a monopolist is practicing price discrimination?

Answer:

A monopolist is practicing price discrimination when it charges different prices for an identical product to different individuals or groups of individuals.

9. What are the two keys that enable a monopolist to successfully price discriminate?

Answer:

(1) The monopolist must be able to separate customers into different groups based upon their differences in demand elasticity and (2) the monopolist must be able to keep customers from reselling the product to others.

10. What is a natural monopoly?

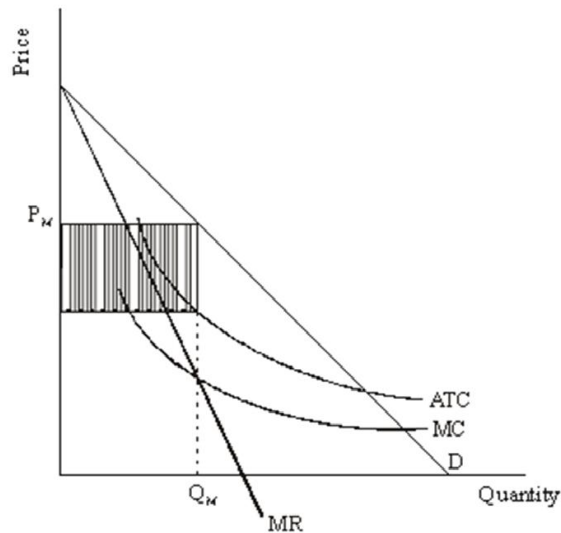
Answer:

A natural monopoly is an industry in which a single firm can produce at a lower cost than can two or more firms.

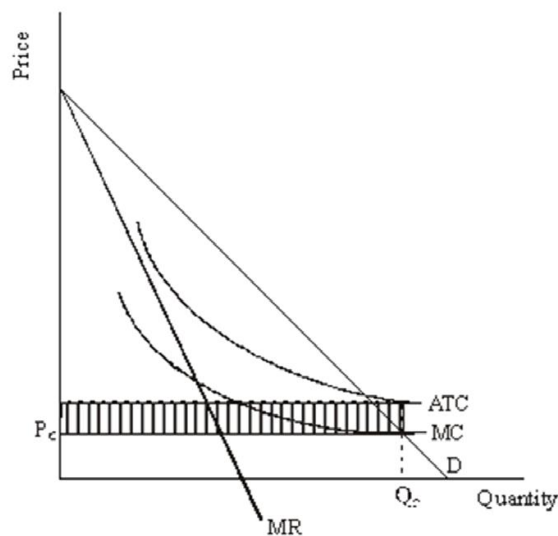
11. Demonstrate graphically the price and quantity a natural monopolist would choose in the absence of regulation. Shade the area representing profit. In a diagram show what happens to that profit if the monopolist is required to charge a price equal to marginal cost, PC.

Answer:

The natural monopolist will produce Q_M and charge P_M , as shown below. (Its profit is shown by the filled-in rectangle.)



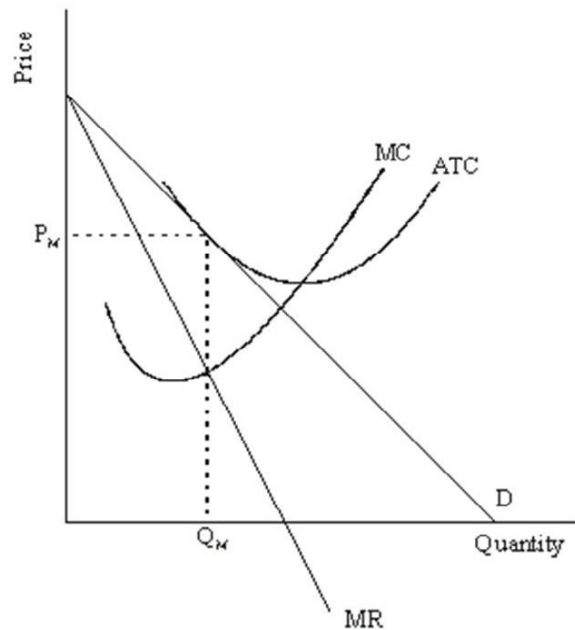
If the monopolist is forced to charge a price equal to marginal cost, it will no longer earn a profit. Rather it will be losing money. This situation is depicted in the diagram below. The monopolist's loss is indicated by the filled-in rectangle.



12. Demonstrate graphically and explain verbally the long-run equilibrium for a monopolistically competitive firm. How does this differ from the long run equilibrium of a monopoly firm?

Answer:

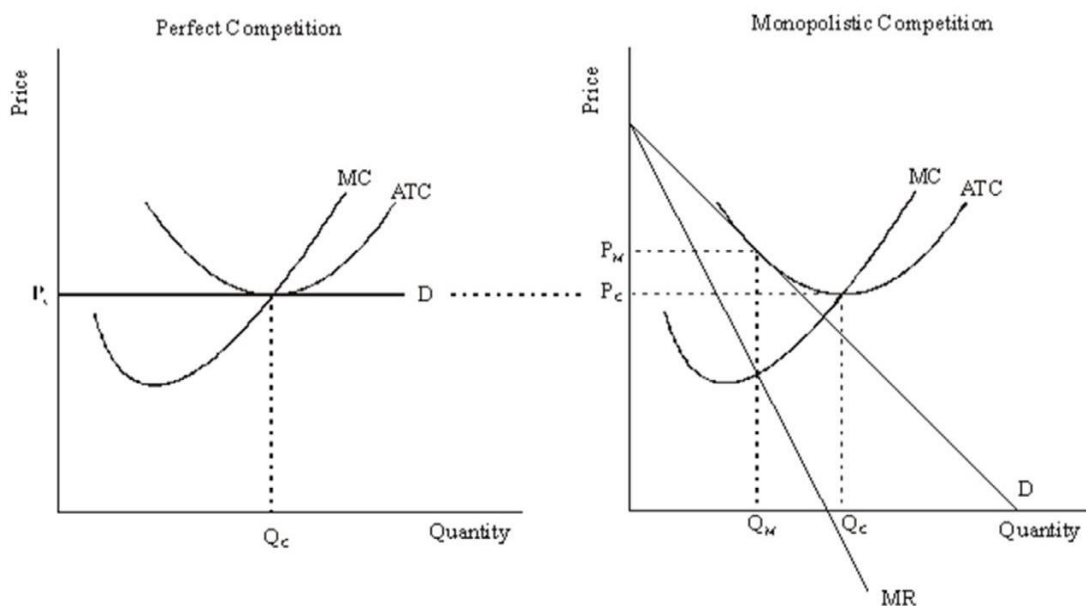
In the long run, as a result of the ease of entry, a monopolistically competitive firm will earn zero economic profit. This is shown in the diagram above since at the profit maximizing output level of Q_M we see that $P_M = ATC$. Unlike a monopolistic competitor, a monopoly firm can earn profits in the long run. That is because barriers to entry prevent other firms from coming in and competing away the monopoly's profits.



13. Demonstrate graphically and explain verbally the difference between long-run equilibrium for a perfectly competitive firm and a monopolistically competitive firm.

Answer:

In perfect competition the firm produces output level Q_C and sells it for P_C . (Illustrated in the diagram above on the left.) This occurs where $P = MR = MC$. In the long run there is zero economic profit so that $P = ATC$. Combining these two tells us that for the long run in perfect competition we have $P = MR = MC = ATC$.



In monopolistic competition the firm produces output level Q_M and charges a price of P_M . (Illustrated in the diagram above on the right.) This occurs where $P > (MR = MC)$ and in the long run there is zero economic profit so that $P = ATC$. Combining these two tells us that in the long run we have $(P = ATC) > (MR = MC)$ for a monopolistically competitive firm.

14. What is the central characteristic of oligopoly?

Answer:

The central characteristic of oligopoly is that there are such a small number of firms in an industry that, in any decision a firm makes, it must take into account the expected reaction of other firms. Oligopolistic firms are mutually interdependent and oligopolies can be collusive or non-collusive.

15. What are the three main differences between the monopolistic competition and oligopoly market structures with respect to the following: (a) the number of firms, (b) barriers to entry and (c) the interactions between firms?

Answer:

1. The number of firms: many in monopolistic competition; few in oligopoly.
2. Barriers to entry: few in monopolistic competition; often significant in oligopoly.
3. Nature of firm interaction: independence in monopolistic competition; interdependence in oligopoly.

16. What is the contestable market model?

Answer:

The contestable market model is a model of oligopoly in which barriers to entry and barriers to exit, not the structure of the market, determine a firm's price and output decisions.

17. Given the market share information in the table below, calculate the four firm concentration ratio and the Herfindahl index.

Firm Number	Market Share (%)
1	35
2	25
3	15
4	15
5	10

Answer:

The four firm concentration ratio is 90. (Calculation: the sum of the market shares from firms 1 through 4.) The Herfindahl index is 2,400. (Calculation: $35^2 + 25^2 + 15^2 + 15^2 + 10^2 = 2,400$.)

18. What is antitrust policy? What does “trust” mean in this context?

Answer:

Antitrust policy is the government's policy toward the competitive process. A trust (or a cartel) is a combination of firms that haven't merged, but act as a single entity. A trust sets a

common price and decides on the share of output for each firm in the group. In this sense, a trust can, and often does, act like a monopoly.

19. Why is game theory more flexible than standard models of market behavior?

Answer:

Game theory is a highly flexible tool that can be applied to many situations without making the restrictive assumptions of the supply and demand model or the variants of it, such as monopoly and monopolistic competition. Game theory allows us to develop more precise models of oligopolistic markets and of all situations that involve strategic interaction.

It offers a new set of models that can be better tailored to fit the actual problems economists face, and thus are more flexible than standard models. A different game theory model can be developed for each different situation and for each different set of assumptions. So rather than have a single model with a single equilibrium solution, in game theory there are many models that often have multiple solutions.

20. What is a “non-cooperative” game?

Answer:

Non-cooperative games are games in which each player is out for him or herself and agreements are either not possible or not enforceable. The prisoner's dilemma game is a non-cooperative game.

21. What is a cooperative game?

Answer:

Cooperative games are games in which players can form coalitions and can enforce the will of the coalition on its members.

22. Explain what is meant by Nash equilibrium. Must it be the solution that is jointly best for all players?

Answer:

A Nash equilibrium is a set of strategies for each player in a game in which no player can improve his or her payoff by changing his or her strategy unilaterally. A Nash equilibrium is the predicted outcome of a non-cooperative game if each player follows his best strategy and assumes that the other players are following their best strategies. The solution to the prisoner's dilemma is a Nash equilibrium.

A Nash equilibrium is not the solution that is jointly best for all player.