Questions on Competitive market and Monopoly

1. In the long run equilibrium, all firms in the industry earn zero economic profit. Why is this true?

2. Suppose that a competitive firm's marginal cost of producing output q is given by $MC = 3 + 2q$. Assume that the market price of the firm's product is Rs 9.

   (a) What level of output will the firm produce?

   (b) Suppose that the average variable cost of the firm is given by $AVC(q) = 3 + q$. Suppose that the firm's fixed costs are known to be Rs 3. Will the firm be earning a positive, negative, or zero profit in the short run?

3. Suppose you are given the following information about a particular industry:
   $Q^D = 6500 - 100p$, market demand
   $Q^S = 1200p$, market supply
   $C(q) = 722 + \frac{q^2}{200}$, total cost function of a firm.
   $MC(q) = \frac{2q}{200}$, Marginal cost of a firm.
   Assume that all firms are identical and that market is characterized by perfect competition.

   (a) Find the equilibrium price, the equilibrium quantity, output supplied by a firm and the profit of each firm.

   (b) Will there be entry or exit in the industry in the long run? Explain. What effect will entry or exit have on market equilibrium?

   (c) What is the lowest price at which each firm would sell its output in the long run?

   (d) What is the lowest price at which each firm would sell its output in the short run?

4. A monopolist is producing at a point at which marginal cost exceeds marginal revenue. How should it adjust its output to increase profit?

5. A firm faces the following average revenue (demand) curve:
   $p = 120 - .02q$, where q is the output, and p is the price. The firm's cost function is given by $C(q) = 25,000 + 60q$. Assume that firm maximize profit.

   (a) What is the level of production, price and total profit?

   (b) If the government wants to levy a tax of Rs 14 per unit of this product, what will be the new level of production, price and profit?

6. Suppose the market demand function is $A - bq = p$, where $A > 0, b > 0$ q is output, p is price. The cost of production is zero. Suppose a firm can do first degree price discrimination. what is the lowest price it will charge, what will its total output be?

7. Can third degree price discrimination be effective if the different groups of consumers have different level of demand but the same price elasticities?