Unit 5

I. Choose the correct answer (each question carries 1 mark)

1. In perfect competition, buyers and sellers are:
   a) Price makers
   b) Price takers
   c) Price analysts
   d) None of the above
2. A situation where the plans of all consumers and firms in the market match
   a) Inequilibrium
   b) Maximization
   c) Equilibrium
   d) Partial equilibrium
3. Because of increase in the number of firms there is an increase supply then supply curve
   a) Shifts towards left
   b) Shifts towards right
   c) Shifts towards both sides
   d) None of the above
4. The firms earn super normal profit if the profit in greater than the minimum of:
   a) Marginal cost
   b) Total cost
   c) Average cost
   d) Fixed cost
5. The government imposing upper limit on the price of goods and services is called:
   a) Price ceiling
   b) Selling price
   c) Price floor
   d) None of the above
6. The government imposed lower limit on the price of goods and services is called:
   a) Goods floor
   b) Service floor
   c) Price floor
   d) None of the above

II. Fill in the blanks (each question carries 1 mark)

1. In a perfectly competitive market, equilibrium occurs when market demand ________is equal to____ market supply
2. If the supply curve shifts rightward and demand curve shifts leftward equilibrium price will be____may increase, decrease or remain unchanged_______
3. ______Wage Rate_______ is determined at the point where the demand for labour and supply of labour curves intersect.

4. In labour market ______households__________ are the suppliers of labour.
5. Due to rightward shifts in both demand and supply curves the equilibrium price remands _________May increase, decrease or remain unchanged________
6. It is assumed that, in a perfectly competitive market an ____Invisible hand______ is at play.

III. Match the following (each question carries 1 mark)

A	B
Adam Smith	Attraction of new firms
Price ceiling	Operation of invisible hand
Market equilibrium	Lower limit on price
Possibility of supernormal profit	Upper limit on price
Price floor	QD = QS

A	B
Adam Smith	Operation of invisible hand
Price ceiling	Upper limit on price
Market equilibrium	QD = QS
Possibility of supernormal profit	Attraction of new firms
Price floor	Lower limit on price

IV. Answer the following in one sentence / word. (each question carries 1 mark)

1. Define market equilibrium

Market equilibrium is a market state where the supply in the market is equal to the demand in the market. The equilibrium price is the price of a good or service when the supply of it is equal to the demand for it in the market.

2. What is equilibrium price?

The price at which equilibrium is reached is called equilibrium price

3. When do we say that, there is an excess demand in the market?

If at a price, market supply is greater than market demand, we say that there is an excess supply in the market at that price and if market demand exceeds market supply at a price, it is said that excess demand exists in the market at that price.

4. What is price ceiling?

The government-imposed upper limit on the price of a good or service is called price ceiling.

5. What is price floor?

The government imposed lower limit on the price that may be charged for a good or service is called price floor.

6. Through which legislation, the government ensures that the wage rate of the labourers does not fall below a level?

Through the minimum wage legislation, the government ensures that the wage rate of the labourers does not fall below a level and here again the minimum wage rate is set above the equilibrium wage rate.

V. Answer the following questions in 4 sentences (each question carries 2 mark)

1. Define equilibrium price and quantity.

The price at which equilibrium is reached is called equilibrium price and the quantity bought and sold at this price is called equilibrium quantity. Therefore, (p^*, q^*) is an equilibrium if

$q^d(p^*) = q^s(p^*)$

2. How is price determined, when fixed number of firms exist in perfect competition?

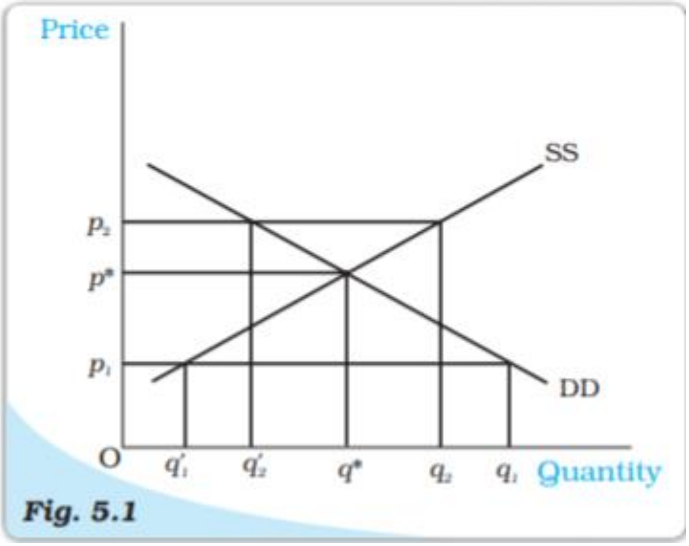

Fig. 5.1

The market supply curve SS shows how much of the commodity firms would wish to supply at different prices, and the demand curve DD tells us how much of the commodity, the consumers would be willing to purchase at different prices. Graphically, an equilibrium is a point where the market supply curve intersects the market demand curve because this is where the market demand equals market supply. At any other point, either there is excess supply or there is excess demand. The point at which the SS and DD curve intersect, is the point where the price is determined

3. Write any two possible ways in which simultaneous shift of both demand and supply curves.

The simultaneous shifts can happen in four possible ways:

(i) Both supply and demand curves shift rightwards.
(ii) Both supply and demand curves shift leftwards.
(iii) Supply curve shifts leftward and demand curve shifts rightward.
(iv) Supply curve shifts rightward and demand curve shifts leftward.

4. What is marginal revenue product of labour (MRP_l)

The firm being a profit maximiser will always employ labour upto the point where the extra cost she incurs for employing the last unit of labour is equal to the additional benefit she earns from that unit.

The extra cost of hiring one more unit of labour is the wage rate (w). The extra output produced by one more unit of labour is its marginal product (MP_l) and by selling each extra unit of output, the additional earning of the firm is the marginal revenue (MR) she gets from that unit. Therefore, for each extra unit of labour, she gets an additional benefit equal to marginal revenue times marginal product which is called Marginal Revenue Product of Labour (MRP_L).

Thus, while hiring labour, the firm employs labour up to the point where

w = MRPL

and $MRP_L = MR \times MP_L$

5. Distinguish excess demand and excess supply.

If at a price, market supply is greater than market demand, we say that there is an excess supply in the market at that price and if market demand exceeds market supply at a price, it is said that excess demand exists in the market at that price.

Therefore, equilibrium in a perfectly competitive market can be defined alternatively as zero excess demand-zero excess supply situation. Whenever market supply is not equal to market demand, and hence the market is not in equilibrium, there will be a tendency for the price to change. In the next two sections, we will try to understand what drives this change.

6. How wage is determined in the labour market?

The basic difference between a labour market and a market for goods is with respect to the source of supply and demand. In the labour market, households are the suppliers of labour and the demand for labour comes from firms whereas in the market for goods, it is the opposite.

Here, it is important to point out that by labour, we mean the hours of work provided by labourers and not the number of labourers. The wage rate is determined at the intersection of the demand and supply curves of labour where the demand for and supply of labour balance.

VI. Answer the following questions in 12 sentences (each question carries 4 marks)

1. What is the implication of free entry and exit of firm on market equilibrium. Briefly explain.

This assumption implies that in equilibrium no firm earns supernormal profit or incurs loss by remaining in production; in other words, the equilibrium price will be equal to the minimum average cost of the firms.

The possibility of earning supernormal profit will attract some new firms which will lead to a reduction in the supernormal profit and eventually supernormal profit will be wiped out when there is a sufficient number of firms. At this point, with all firms in the market earning normal profit, no more firms will have incentive to enter.

Similarly, if the firms are earning less than normal profit at the prevailing price, some firms will exit which will lead to an increase in profit, and with sufficient number of firms, the profits of each firm will increase to the level of normal profit. At this point, no more firm will want to leave since they will be earning normal profit here. Thus, with free entry and exit, each firm will always earn normal profit at the prevailing market price.

2. Write a table to show the impact of simultaneous shifts in equilibrium.

The simultaneous shifts can happen in four possible ways:

(i) Both supply and demand curves shift rightwards.
(ii) Both supply and demand curves shift leftwards.
(iii) Supply curve shifts leftward and demand curve shifts rightward.
(iv) Supply curve shifts rightward and demand curve shifts leftward.

Shift in demand	Shift in supply	Quantity	Price
Leftward	Leftward	Decreases	May increase, decrease or remain unchanged
Rightward	Rightward	Increases	May increase, decrease or remain unchanged
Leftward	Rightward	May increase, decrease or remain unchanged	Decreases
Rightward	Leftward	May increase, decrease or remain unchanged	Increases

3. Write a note on price ceiling and price floor

It is not very uncommon to come across instances where government fixes a maximum allowable price for certain goods. The government-imposed upper limit on the price of a good or service is called price ceiling. Price ceiling is generally imposed on necessary items like wheat, rice, kerosene, sugar and it is fixed below the market-determined price since at the market-determined price some section of the population will not be able to afford these goods.

For certain goods and services, fall in price below a level is not desirable and hence the government sets floors or minimum prices for these goods and services. The government imposed lower limit on the price that may be charged for a good or service is called price floor. Most well-known examples of imposition of price floor are agricultural price support programmes and the minimum wage legislation.

Shift in demand	Shift in supply	Quantity	Price
Leftward	Leftward	Decreases	May increase, decrease or remain unchanged
Rightward	Rightward	Increases	May increase, decrease or remain unchanged
Leftward	Rightward	May increase, decrease or remain unchanged	Decreases
Rightward	Leftward	May increase, decrease or remain unchanged	Increases

In the first two cases which are shown in the first two rows of the table, the impact on equilibrium quantity is unambiguous but the equilibrium price may change, if at all, in either direction depending on the magnitudes of shifts.

In the next two cases, shown in the last two rows of the table, the effect on price is unambiguous whereas effect on quantity depends on the magnitude of shifts in the two curves.

VII. Answer the following questions in 20 sentences (each question carries 6 marks)

1. Explain the simultaneous shifts of demand and supply curve in perfect competition.

The simultaneous shifts can happen in four possible ways:

(i) Both supply and demand curves shift rightwards.
(ii) Both supply and demand curves shift leftwards.
(iii) Supply curve shifts leftward and demand curve shifts rightward.
(iv) Supply curve shifts rightward and demand curve shifts leftward.

Each row of the table describes the direction in which the equilibrium price and quantity will change for each possible combination of the simultaneous shifts in demand and supply curves. For instance, from the second row of the table, we see that due to a rightward shift in both demand and supply curves, the equilibrium quantity increases invariably but the equilibrium price may either increase, decrease or remain unchanged. The actual direction in which the price will change will depend on the magnitude of the shifts.

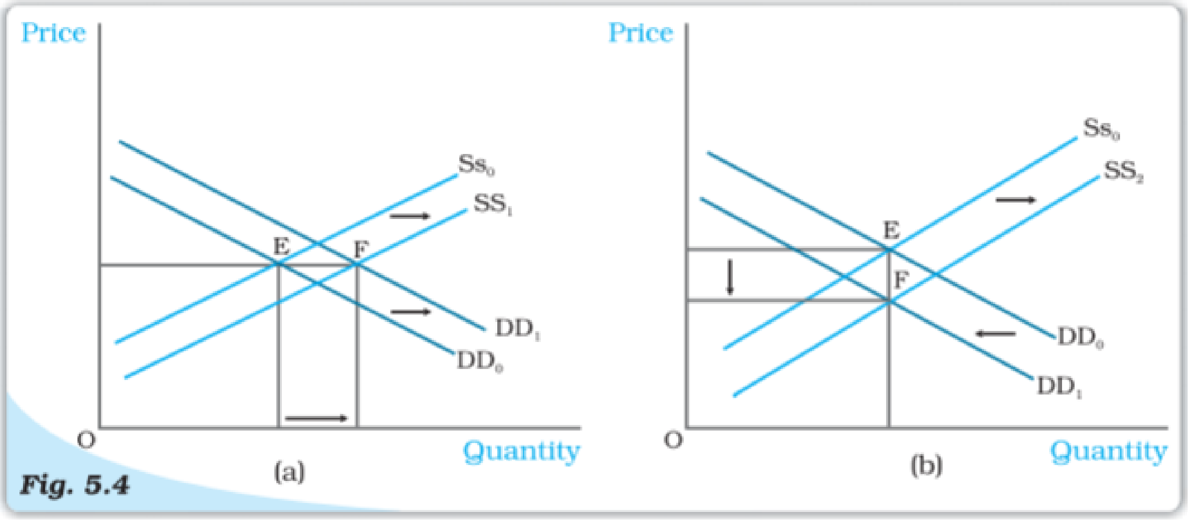

Fig. 5.4

Simultaneous Shifts in Demand and Supply. Initially, the equilibrium is at E where the demand curve DD_0 and supply curve SS_0 intersect.

In panel (a), both the supply and the demand curves shift rightwards leaving price unchanged but quantity getting increased.

In panel (b), the supply curve shifts rightward and demand curve shifts leftward leaving quantity unchanged, but price decreased.

2. Explain the market equilibrium with the fixed number of firms with the help of diagram.

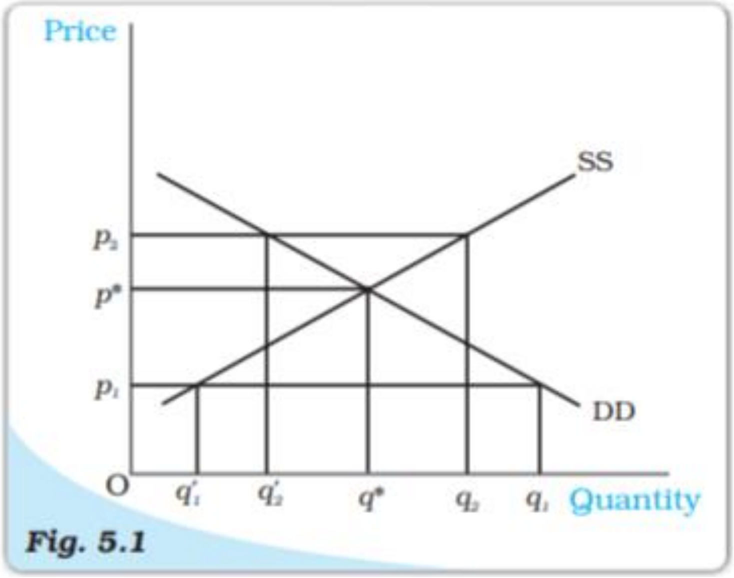

Fig. 5.1

Here SS denotes the market supply curve and DD denotes the market demand curve for a commodity. The market supply curve SS shows how much of the commodity firms would wish to supply at different prices, and the demand curve DD tells us how much of the commodity, the consumers would be willing to purchase at different prices.

If the prevailing price is p_1, the market demand is q_1 whereas the market supply is q'_1. Therefore, there is excess demand in the market equal to q'_1q_1. Some consumers who are either unable to obtain the commodity at all or obtain it in insufficient quantity will be willing to pay more than p_1.

The market price would tend to increase. All other things remaining constant as price rises, quantity demanded falls, quantity supplied increases and the market moves towards the point where the quantity that the firms want to sell is equal to the quantity that the consumers want to buy. At p^*, the supply decisions of the firms match with the demand decisions of the consumers. Similarly, if the prevailing price is p_2, the market supply (q_2) will exceed the market demand (q'_2) at that price giving rise to excess supply equal to q'_2q_2.

Under such a circumstance, some firms will not be able to sell their desired quantity; so, they will lower their price. All other things remaining constant as price falls, quantity demanded rises, quantity supplied falls, and at p^*, the firms can sell their desired output since market demand equals market supply at that price. Therefore, p^* is the equilibrium price and the corresponding quantity q^* is the equilibrium quantity.

3. Suppose the demand and supply curves of wheat are given by

   $\boldsymbol{q^D = 200 - P}$ and $\boldsymbol{q^S = 120 + P}$

   a) Find the equilibrium price
   b) Find the equilibrium quantity of demand and supply
   c) Find the quantity of demand and supply when P > equilibrium price
   d) Find the quantity of demand and supply when P < equilibrium price]

$q^D(p^*) = q^S(p^*)$

$200 – p^* = 120 + p^*$

Rearranging terms, $2p^* = 80$ $p^* = 40$

Therefore, the equilibrium price of wheat is Rs 40 per kg. The equilibrium quantity (denoted by q^*) is obtained by substituting the equilibrium price into either the demand or the supply curve's equation since in equilibrium quantity demanded and supplied are equal.

$q^D = q^* = 200 – 40 = 160$

Alternatively,

$q^S = q^* = 120 + 40 = 160$

Thus, the equilibrium quantity is 160 kg.

At a price less than p^*, say $p^1 = 25$

$q^D = 200 – 25 = 175$

$q^S = 120 + 25 = 145$

Algebraically, excess demand (ED) can be expressed as

$ED(p) = q^D – q^S$

$= 200 – p – (120 + p)$

$= 80 – 2p$

Similarly, at a price greater than p^*, say $p^2 = 45$

$q^D = 200 – 45 = 155$

$q^S = 120 + 45 = 165$

Therefore, there is excess supply at this price since $q^S > q^D$. Algebraically, excess supply (ES) can be expressed as

$ES(p) = q^S – q^D$

$= 120 + p – (200 – p)$

$= 2p – 80$