Supply Analysis

EXERCISE [PAGES 44 - 45]

Exercise | Q 1.1 | Page 44

Complete the following statement:

When supply curve is upward sloping, it's slope is _____.

1. **positive**
2. negative
3. first positive then negative
4. zero

Solution: When supply curve is upward sloping, it's slope is **positive.**

Exercise | Q 1.2 | Page 44

Complete the following statement:

An upward movement along the same supply curve shows _____.

1. contraction of supply
2. decrease in supply
3. **expansion of supply**
4. increase in supply

Solution: An upward movement along the same supply curve shows **expansion of supply.**

Exercise | Q 1.3 | Page 44

Complete the following statement:

A rightward shift in supply curve shows _____.

1. contraction of supply
2. decrease in supply
3. expansion of supply
4. **increase in supply**

Solution: A rightward shift in supply curve shows **increase in supply.**

Exercise | Q 1.4 | Page 45

Complete the following statement:

Other factors remaining constant, when less quantity is supplied only due to a fall in price, it shows _____.

1. **contraction of supply**
2. decrease in supply
3. expansion of supply
4. increase in supply

Solution: Other factors remaining constant, when less quantity is supplied only due to a fall in price, it shows **contraction of supply.**

Exercise | Q 1.5 | Page 45

Complete the following statement:

Net addition made to the total revenue by selling an extra unit of a commodity is _____.

1. total Revenue
2. **marginal Revenue**
3. average Revenue
4. marginal Cost

Solution: Net addition made to the total revenue by selling an extra unit of a commodity is **marginal Revenue.**

Exercise | Q 2.1 | Page 45

Complete the Correlation:

Expansion of supply : Price rises :: Contraction of supply : _____

Solution: Expansion of supply : Price rises :: Contraction of supply : **Price fall.**

Exercise | Q 2.2 | Page 45

Complete the Correlation:

Total revenue : _____ :: Average revenue : TR/TQ

Solution: Total revenue : P×Q :: Average revenue : TR/TQ

Exercise | Q 2.3 | Page 45

Complete the Correlation:

Total cost : TFC + TVC :: Average revenue : _____

Solution: Total cost : TFC + TVC :: Average revenue : TC/TQ

Exercise | Q 2.4 | Page 45

Complete the Correlation:

Demand curve : _____ :: Supply curve : Upward

Solution: Demand curve : **downward** :: Supply curve : Upward

Exercise | Q 2.5 | Page 45

Complete the Correlation:

_____ : Change in supply :: Other factors constant : Variation of supply

Solution: Other factors changes : Change in supply :: Other factors constant : Variation of supply

Exercise | Q 3.1 | Page 45

Give economic term:

Cost incurred on fixed factor.

Solution: Total fixed cost

Exercise | Q 3.2 | Page 45

Give economic term:

Cost incurred per unit of output.

Solution: Average cost

Exercise | Q 3.3 | Page 45

Give economic term:

Net addition made to total cost of production.

Solution: Marginal cost

Exercise | Q 3.4 | Page 45

Give economic term:

Revenue per unit of output sold.

Solution: Average revenue

Exercise | Q 4.1 | Page 45

Distinguish between:

Stock and Supply.

Solution:

STOCK SUPPLY

STOCK	SUPPLY

Meaning Stock refers to the entire quantity of a commodity that is in the custody of the seller. So it is the potential supply.	Supply refers to the quantity of a commodity offered for sale at a given price and at a given time and place.
Dependence Stock depends on the production.	Supply depends on stock and price.
Relationship Stock can be greater than the supply. (a) For perishable commodities the stock and the supply can be the same. (b) For durables commodities, the stock can be more than the supply.	Supply cannot be greater than the stock. Supply is either equal or less than the stock.
Order of existence Stock comes before supply	Supply follows stock there cannot be supply without stock.

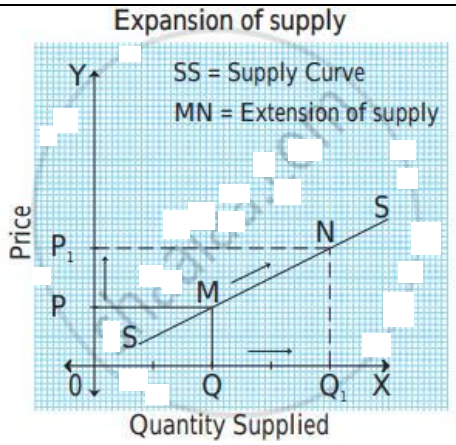
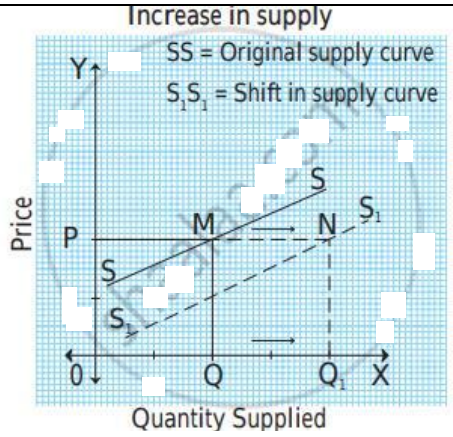
Exercise | Q 4.2 | Page 45

Distinguish between:

Expansion of Supply and Increase in Supply

Solution:

Expansion of Supply	Increase in Supply
Expansion of supply refers to a rise in the quantity supplied due to a rise in the price of a commodity, other factors remaining constant.	Increase in supply refers to rise in the supply of a given commodity due to favourable changes in other factors such as fall in the price of inputs, fall in tax rates, technological upgradation etc., while price remains constant.
Expansion in supply leads to an upward movement on the same supply curve due to a rise in price.	The supply curve shifts to the right of the original supply curve.

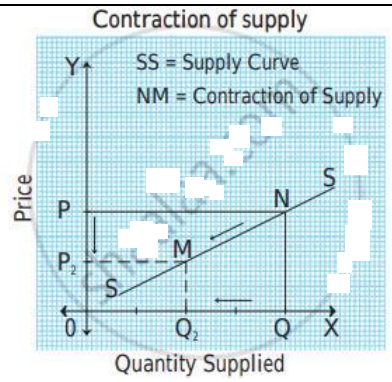
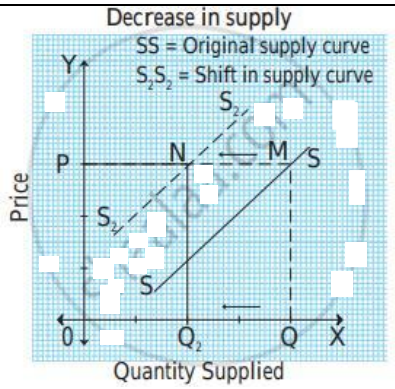
	

Exercise | Q 4.3 | Page 45

Distinguish between:

Contraction of Supply and Decrease in Supply

Solution:

Contraction of Supply	Decrease in Supply
Contraction of supply refers to a fall in the quantity supplied, due to fall in the price of a commodity, other factors remaining constant.	Decrease in supply refers to a fall in the supply of a given commodity due to unfavourable changes in other factors.
In case of contraction of supply, there is a downward movement on the same supply curve.	The supply curve shifts to the left of the originals supply curve.
	

Exercise | Q 4.4 | Page 45

Distinguish between the following:

Average revenue and Average cost.

Solution:

Sr.No.	Average Revenue	Average Cost
(i)	Average Revenue (AR) refers to total revenue per unit of output sold.	Average Cost (AC) refers to total cost of production per unit.
(ii)	It is obtained by dividing the total revenue by the number of units sold.	It is calculated by dividing total cost by total quantity of production.
(iii)	It is calculated as : Average Revenue=Total Revenue / Quantity	It is calculated as : Average cost = Total cost/Total Quantity Output

Exercise | Q 5.1 | Page 45

Observe the following table and answer the question:

Supply schedule of chocolates

Price in ₹	Quantity supplied in units
10	200
15	
20	300
25	350
30	
35	
40	

Complete the above supply schedule.

Solution:

Price in ₹	Quantity supplied in units
10	200
15	**250**
20	300
25	350
30	**400**
35	**450**
40	**500**

Exercise | Q 5.1 | Page 45

Observe the following table and answer the question:

State the relationship between price and quantity supplied.

Solution:

Price in ₹	Quantity supplied in units
10	200
15	**250**
20	300
25	350
30	**400**
35	**450**
40	**500**

1. There is a direct relationship between price and quantity supplied.
2. The supply curve is a positive slope.
3. As the price increases quantity supplied also increases.
4. At the lowest price 10 quantity supplied is less 200, at the highest price 40 the quantity supplied us the highest 500.
5. Supply curve moves upward from left to right.

Exercise | Q 5.1 | Page 45

Observe the following table and answer the question:

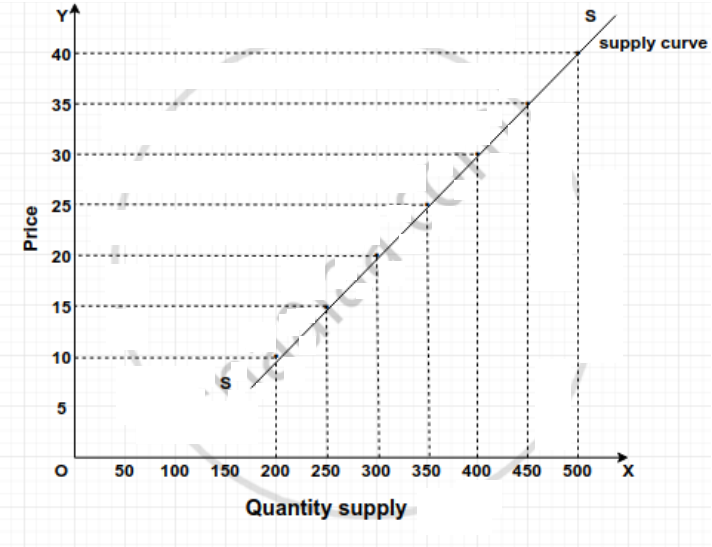
Supply schedule of chocolates

Price in ₹	Quantity supplied in units
10	200
15	_____
20	300
25	350
30	_____
35	_____
40	_____

Draw a diagram for the above supply schedule.

Solution:

Price in ₹	Quantity supplied in units
10	200
15	**250**
20	300
25	350
30	**400**
35	**450**
40	**500**



Exercise | Q 5.2 | Page 45

Observe the market supply schedule of potatoes and answer the following question:

Price in ₹	Firms			Market supply (kg)
	A	B	C	
1	____	20	45	100
2	37	30	45	_____
3	40	____	55	155
4	44	50	_____	154

Complete the quantity of potato supplied by the firms to the market in the above table.

Solution:

Price in ₹	Firms			Market supply (kg)
	A	B	C	
1	**35**	20	45	100
2	37	30	45	**112**
3	40	**60**	55	155
4	44	50	**60**	154

Exercise | Q 5.2 | Page 45

Observe the market supply schedule of potatoes and answer the following question:

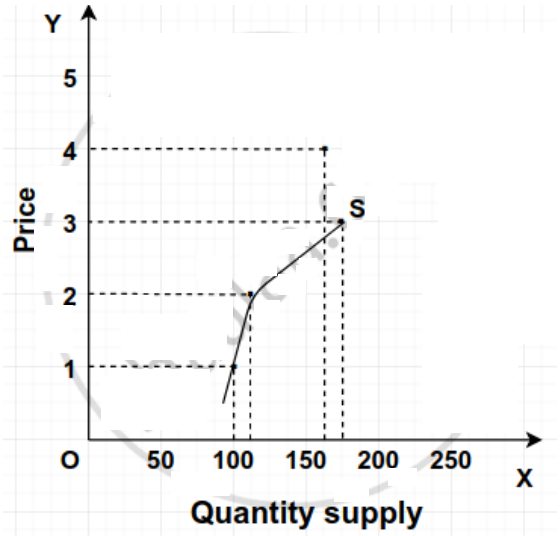
Price in ₹	Firms	

	A	B	C	Market supply (kg)
1	_____	20	45	100
2	37	30	45	_____
3	40	_____	55	155
4	44	50	_____	154

Draw the market supply curve from the schedule and explain it.

Solution:

Price in ₹	Firms			Market supply (kg)
	A	B	C	
1	**35**	20	45	100
2	37	30	45	**112**
3	40	**60**	55	155
4	44	50	**60**	154



- X-axis represents quantity supplied and Y-axis represents the price of the commodity.
- Supply curve 'SS' slopes upwards from left to right which has a positive slope.
- It indicates a direct relationship between price and quantity supplied.

NOTES: I think there is a printing mistake in question table because the supply curve is always increased.

Exercise | Q 6.1 | Page 45

Answer the following question:

Explain the concept of total cost and total revenue.

Solution:

A) Cost Concepts:

When an entrepreneur undertakes an act of production, he has to use various inputs like raw material, labour, capital etc. He has to make payments for such inputs. The expenditure incurred on these inputs is known as the cost of production. Cost of production increases with an increase in need of output. There are three types of costs which are as follows:

1) Total Cost (TC):
Total cost is the total expenditure incurred by a firm on the factors of production required for the production of goods and services. Total cost is the sum of total fixed cost and total variable cost at various levels of output.

TC = TFC + TVC

TC = Total cost
TFC = Total Fixed Cost
TVC = Total Variable Cost

- **Total Fixed Cost (TFC):**
Total fixed costs are those expenses of production which are incurred on fixed factors such as land, machinery etc.
- **Total Variable Cost (TVC):**
Total variable costs are those expenses of production which are incurred on variable factors such as labour, raw material, power, fuel etc.

2) Average Cost (AC):
Average cost refers to cost of production per unit. It is calculated by dividing total cost by total quantity of production.

AC = TC/TQ

AC = Average cost

TC = Total cost

TQ = Total quantity

3) Marginal cost (MC):
Marginal cost is the net addition made to total cost by producing one more unit of output.

$MC_n = TC_n - TC_{n-1}$

n = Number of units produced

MC_n = Marginal cost of the n^{th} unit

TC_n = Total cost of n^{th} unit

TC_{n-1} = Total cost of previous units

B) Revenue Concepts:

The term ‘revenue’ refers to the receipts obtained by a firm from the sale of certain quantities of a commodity at given price in the market. The concept of revenue relates to total revenue, average revenue and marginal revenue.

1) Total Revenue (TR):
Total revenue is the total sales proceeds of a firm by selling a commodity at a given price. It is the total income of a firm. Total revenue is calculated as follows:

Total revenue = Price × Quantity

2) Average Revenue (AR):
Average revenue is the revenue per unit of output sold. It is obtained by dividing the total revenue by the number of units sold.

AR = TR/TQ

AR = Average Revenue
TR= Total Revenue
TQ =Total Quantity

3) Marginal Revenue:
Marginal revenue is the net addition made to total revenue by selling an extra unit of the commodity.

$MR_n = TR_n - TR_{n-1}$

MR_n = Marginal revenue of n^{th} unit

TR_n = Total revenue of n^{th} unit

TR_{n-1} = Total Revenue of previous units

n = Number of units sold

Exercise | Q 6.2 | Page 45

Answer the following question:

What are the determinants of supply?

Solution:

According to Paul Samuelson, “Supply refers to the relation between market prices and the number of goods that producers are willing to supply.’’
Supply refers to the quantity of a commodity that a seller is willing and able to offer for sale at a given price, during a certain period of time.

The following are the determinants supply of a commodity:

i. **Price of commodity** - Other things remaining constant, at higher prices, the producers prefer to increase their sales by increasing their supply and vice-versa.

ii. **Price of related goods** - A rise in the prices of substitute goods will lead to a decrease in the supply of other goods and vice-versa. On the other hand, a rise in the price of complementary goods will lead to an increase in the supply of other goods.

iii. **Cost of production** - If the price of inputs increases, the cost of production also increases, other things remaining the same. An increase in the cost of production decreases the profits of the supplier and, consequently, lesser quantity is supplied at the given price.

iv. **State of technology** - Other things remaining the same, if the level of available technology appreciates, the per unit cost of production goes down, which implies higher supply of output and vice-versa.

v. **Government policy** - Other things remaining constant, if the government policies are more stringent and strict such as high rate of tax, the cost of production will rise. The high cost of production will discourage the producer and thereby, supply will decrease.

vi. **Goal of firm** - If a particular firm aims at maximizing its profit, more units of output will be supplied at a higher prices, which will result in a higher profit. On the other hand, if the firm aims at maximization of sales, more of the output will be sold at the same price to maximize sales.

vii. **Natural factors** - Other things remaining the same, in the event of any natural calamity, such as an earthquake, flood, etc., the supply of output will fall.

viii. **Government policy:** Favourable Government policies may encourage supply and unfavourable government policies may discourage the supply. Government policies like taxation, subsidies, industrial policies, etc. may encourage or discourage production and supply, depending upon government policy measures.

ix. **Future expectations about price:** If the prices are expected to rise in the near future, the producer may withhold the stock. This will reduce the supply and vice versa.

Exercise | Q 7 | Page 45

Answer in detail :

Explain the law of supply and its exceptions.

Solution:

The law of supply is also a fundamental principle of economic theory like law of demand. It was introduced by Prof. Alfred Marshall in his book, ‘Principles of Economics’ which was published in 1890. The law explains the functional relationship between price and quantity supplied.

Statement of the Law:

“Other things being constant, higher the price of a commodity, more is the quantity supplied and lower the price of a commodity less is the quantity supplied”.

In simple words, “other factors remaining constant, a rise in price results in a rise in the quantity supplied and vice-versa. Thus, there is a direct relationship between price and quantity supplied.

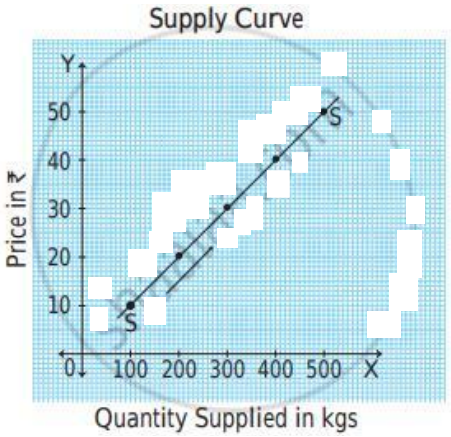
Symbolically,
$S_x = f(P_x)$

S = Supply
x = Commodity
f = Function
P = Price of commodity

Law of supply is explained with the help of the following schedule and diagram:

Price of commodity x (in ₹)	Supply of commodity x (in kgs.)
10	100
20	200
30	300
40	400
50	500

In the above table explains the direct relationship between price and quantity of commodity supplied. When price rises from ₹ 10 to 20, 30, 40 and 50, the supply also rises from 100 to 200, 300, 400 and 500 units respectively. It means, when price rises supply also rises and when the price falls supply also falls. Thus, there is a direct relationship between price and quantity supplied which is shown in following figure:



In the above figure, X-axis represents quantity supplied and Y-axis represents the price of the commodity. Supply curve 'SS' slopes upwards from left to right which has a positive slope. It indicates a direct relationship between price and quantity supplied.

Exceptions to the Law of Supply:

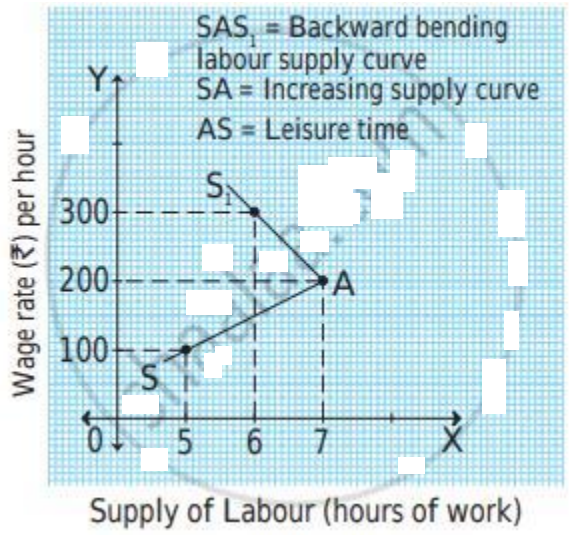
Following are the exceptions to the law of supply:

1) Supply of labour:
Labour supply is the total number of hours that workers to work at a given wage rate. It is represented graphically by a supply curve. In the case of labour, as the wage rate rises the supply of labour (hours of work) would increase. So supply curve slopes upward. Supply of labour (hours of work) falls with a further rise in wage rate and supply curve of labour bends backward. This is because the worker would prefer leisure to

work after receiving a higher amount of wages. Thus, after a certain point when wage rate rises the supply of labour tends to fall.

It can be explained with the help of a backward bending supply curve. The following table and diagram explain the backward bending supply curve of labour.

wage rate (₹) per hour	Hours of work per day	Total amount of wages (₹)
100	5	500
200	7	1400
300	6	1800



In the above figure, the supply of labour (hours of work) is shown on X-axis and wage rate per hour is shown on the Y-axis. The curve SAS represents backward bending supply curve of labour. Initially, when the wage rate is ₹ 100 per hour, the hours of work are 5. The total amount of wages received is ₹ 500. When wage rate rises from ₹ 100 to ₹ 200, hours of work will also rise from 5 hours to 7 hours and total amount of wages would also rise from ₹ 500 to ₹ 1400. At this point, labourer enjoys the highest amount i.e. ₹ 1400 and works for 7 hours. If the wage rate rises further from ₹ 200 to ₹ 300, the total amount of wages may rise, but the labourer will prefer leisure time and denies working for extra hours. Thus, he is ready to work only for 6 hours. At point A, the supply curve bends backward, which becomes an exception to the law of supply.

2) Agricultural goods: The law of supply does not apply to agricultural goods as they are produced in a specific season and their production depends on weather conditions. Due to unfavourable changes in weather, if the agricultural production is low, their supply cannot be increased even at a higher price.

3) Urgent need for cash: If the seller is in urgent need for hard cash, he may sell his product at which may even be below the market price.

4) Perishable goods: In case of perishable goods, the supplier would offer to sell more quantities at lower prices to avoid losses. For example, vegetables, eggs etc.

5) Rare goods: The supply of rare goods can not be increased or decreased according to its demand. Even if the price rises, supply remains unchanged. For example, rare paintings, old coins, antique goods etc.