Concept of Supply & Elasticity of Supply

1. What is market supply of product? (All India 2014)
or
Give the meaning of market supply. (All India 2013)

Ans. Quantities of a particular commodity offered for sale by all the firms at a given price in the market is known as market supply.

2. Give one reason for 'decrease' in supply of a commodity. (AH India 2013)

Ans. Rise in the price of substitute goods.

3. Give one reason for an 'increase' in supply of a commodity. (All India 2013)

Ans. Improvement in technology leading to a fall in the cost of production.

4. What is meant by increase in supply? (Delhi 2011)

Ans. When supply of a commodity increases due to factors other than price is called increase in supply. In this situation supply curve shifts rightward.

5. What is meant by decrease in supply? (All India 2011)

Ans. When supply of a commodity decreases due to factors other than price is called decrease in supply. In this situation supply curve shifts leftward.

6. Define supply. (All India 2009; Delhi 2009 C)
or
Give meaning of supply. (Delhi 2006 C)

Ans. Supply refers to various quantities of a commodity that the producers willing to sell at different possible prices of the commodity at a particular point of time.

7. What causes a downward movement along a supply curve? (Delhi 2009, 2008 C)

Ans. Downward movement along a supply curve happens when own price of the commodity falls.

8. Give one reason for a rightward shift in supply curve. (All India 2009)

Ans. Rightward shift in supply curve occurs due to reduction in factor prices, causing a fall in cost of production.

9. When is the supply of a commodity called elastic? (Delhi 2008)

Ans. When percentage change in quantity supplied is more than percentage change in price, it is called elastic or more than unit elastic supply.

10. What does an upward movement along a supply curve indicate? (All India 2008)

Ans. An upward movement along a supply curve indicates rise in the price of the commodity.

11.When is the supply of a commodity said to be perfectly inelastic? (All India 2008)

Ans. Perfectly inelastic supply is a situation when quantity supplied remains constant, irrespective of change in price.

12.What is meant by inelastic supply of a commodity? (All India 2008)

Ans. When percentage change in quantity supplied is less than percentage change in price, it is called inelastic or less than unit elastic supply.

13.What is meant by perfectly elastic supply of a commodity? (Delhi 2008 C)

Ans. Supply of a commodity is said to be perfectly elastic, when its quantity supplied expands or contracts to any extent without any change or with very little change in price.

14.Price Elasticity of Supply of a good is 0.8. Is the supply elastic or inelastic? Why? (All India 2006)

Ans. The supply is inelastic because Price Elasticity of Supply is less than one.

3 Marks Questions

15. Explain how technological progress is a determinant of supply of a good by a firm. (All India 2014)
or
Explain the effect of technological progress on supply of a commodity .(Delhi 2009 C, 2008; All India 2008)

Ans. Technological improvement tends to lower the Marginal Cost and Average Costs of production because better technology facilitates higher output with the same inputs. Accordingly, producers are willing to supply more at the existing price.

As a result profit of producer increases, and supply curve will shift to the right from 55 to 5_15_1 and quantity increases from O Q to O Q_v with same level of price.

Progress in technology
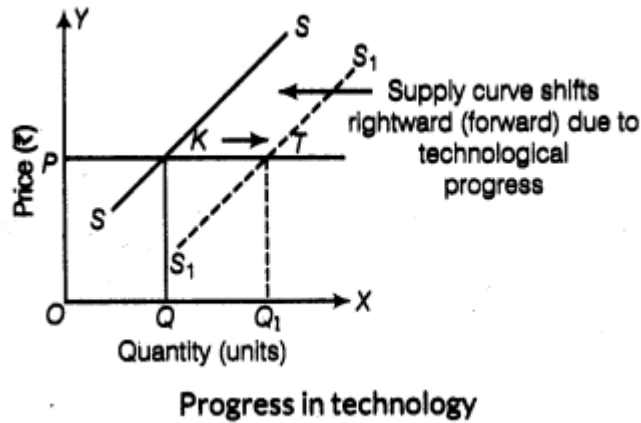
16. Explain how input prices are a determinant of supply of a good by a firm. (All India 2014)

Ans. In case of increase in input price, Marginal Cost tends to rise. Accordingly, producers will supply less of the commodity at its existing price. This implies a backward shift in supply curve or decrease in supply
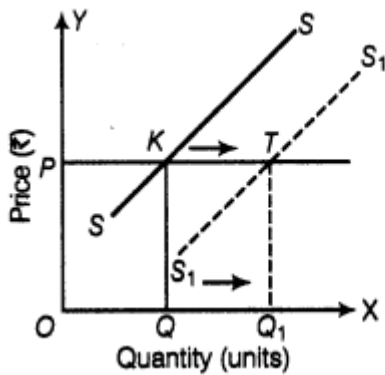
17. A firm's revenue rises from ₹ 400 to ₹ 500 when the price of its product rises from ₹ 20 to ₹ 25 per unit. Calculate the price elasticity of supply.(Delhi 2013)

Ans. Given,

Total Revenue (₹)	Price (₹)
400	20
500	25

$$\text{Quantity supplied} = TR/P$$
$$400/20 = 20$$
$$500/25 = 20$$

$P = 20 \qquad P_1 = 25 \qquad \Delta P = 5$

$Q = 20 \qquad Q_1 = 20 \qquad \Delta Q = 0$

$$E_s = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q} \quad \text{or} \quad \frac{0}{5} \times \frac{20}{20}$$

$E_s = 0$, the Price Elasticity of Supply is perfectly inelastic.

18. The Price Elasticity of Supply of a good is 0.8. Its price rises by 50%. Calculate the percentage increase in its supply.(Delhi 2013)

Ans.

$$E_s = \frac{\text{Percentage Change in Quantity Supplied}}{\text{Percentage Change in Price}}$$

$$0.8 = \frac{\text{Percentage Change in Quantity Supplied}}{50}$$

Percentage change in quantity supplied = 0.8 x 50
Percentage increase in supply = 40%

19.The Price Elasticity of Supply of a commodity is 2.0. A firm supplies 200 units of it at a price of Rs 8 per unit. At what price will it supply 250 units. (All India 2013)

Ans. Given,

$E_s = 2.0$, $\quad P = ₹8$, $\quad P_1 = ?$ $\quad \Delta P = ?$

$Q = 200$ units, $\quad Q_1 = 250$ units, $\quad \Delta Q = 50$

$$E_s = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

$$2.0 = \frac{50}{\Delta P} \times \frac{8}{200}$$

$$2.0 = \frac{2}{\Delta P}$$

$$\Delta P = 1$$

$$\therefore \quad P_1 = P + \Delta P$$

$$= 8 + 1$$

$$P_1 = ₹9$$

20.A 15% rise in the price of a commodity raises its supply from 300 units to 345 units. Calculate its Price Elasticity of Supply.(All India 2013)

Ans.

Given, $\Delta Q = 45$, $Q = 300$ $\quad E_s = \dfrac{\%\ \text{Change in Quantity Supplied}}{\%\ \text{Change in Price}} = \dfrac{\dfrac{\Delta Q}{Q} \times 100}{\dfrac{\Delta P}{P} \times 100}$

$$E_s = \frac{\dfrac{45}{300} \times 100}{15} \qquad\qquad [\Delta Q = Q_1 - Q = 345 - 300]$$

$$E_s = \frac{15}{15} = 1$$

$$\therefore \quad E_s = 1 \ [\text{unitary elastic supply}]$$

21. When the price of a good rises from ? 20 per unit to ? 30 per unit, the revenue of the firm producing this good rises from ? 100 to ? 300. Calculate Price Elasticity of Supply. (All India 2013)

Ans. Given,

Price (₹)	Total Revenue (₹)
20	100
30	300

Quantity Supplied, $Q = \dfrac{TR}{P} = 100/20 = 5$

$Q = 300/30 = 10$

So, $P = 20$ $Q = 5$
$P_1 = 30$ $Q_1 = 10$
$\Delta P = 10$ $\Delta Q = 5$

$E_s = \dfrac{\Delta Q}{\Delta P} \times \dfrac{P}{Q}$ $E_s = \dfrac{5}{10} \times \dfrac{20}{5}$

$E_s = 2$ [more than unit elastic]

22. A firm supplies 10 units of a good at a price of 15 per unit. Price Elasticity of Supply is 1.25. What quantity will the firm supply at a price of ? 7 per unit. (All India 2013)

Ans. Given, $E_s = 1.25$

$P = ₹5$ $P_1 = ₹7$ $\Delta P = 2$
$Q = 10$ $Q_1 = ?$

$E_s = \dfrac{\Delta Q}{\Delta P} \times \dfrac{P}{Q}$

or $1.25 = \dfrac{\Delta Q}{2} \times \dfrac{5}{10}$

$\Delta Q = 1.25 \times 4 = 5$

$Q_1 = Q + \Delta Q$ or Actual Quantity + Change in Quantity

$= 10 + 5$

$Q_1 = 15$ units

23. At a price of X 5 per unit of a commodity A, Total Revenue is ? 800. When its price rises by 20%, Total Revenue increases by ? 400. Calculate its Price Elasticity of Supply. (Delhi 2010)

Ans. Given, $P = ₹5$,   Total Revenue = ₹ 800

$$P_1 = 5 + 20\% \text{ of } 5$$
$$P_1 = 5 + 1 = 6$$
$$\text{New Total Revenue} = ₹\,800 + ₹\,400 = ₹1200$$
$$Q = 800 \div 5 = 160$$
$$Q_1 = 1200 \div 6 = 200$$
$$\Delta Q = Q_1 - Q$$
$$\Delta Q = 200 - 160 = 40$$
$$\Delta P = P_1 - P$$
$$\Delta P = 6 - 5 = 1$$

$$E_s = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

$$E_s = \frac{40}{1} \times \frac{5}{160}$$

$$E_s = \frac{5}{4}$$

$$E_s = 1.25 \quad \text{(more than unit elastic)}$$

24. Price of commodity A is Rs 10 per unit and Total Revenue at this price is Rs 1600. When its price rises by 20%, Total Revenue increases by 1 Calculate its Price.(Delhi 2010)

Ans. Given,

$$P = ₹10$$
$$P_1 = 10 + 20\% \text{ of } 10$$
$$= 10 + 2 = ₹12$$
$$\text{Initial Total Revenue} = ₹1600$$
$$\text{New Total Revenue} = 1600 + 800 = ₹2400$$

When $P = ₹10$

$$Q = 1600 \div 10 = 160$$

When $P_1 = ₹12$

$$Q = 2400 \div 12 = 200$$

Now, $P = ₹10; P_1 = ₹12;\ \Delta P = 12 - 10 = ₹2;$
$$Q = 160, Q_1 = 200,\ \Delta Q = 200 - 160 = 40$$

$$\text{Price Elasticity of Supply } (E_s) = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q} = \frac{40}{2} \times \frac{10}{160} = \frac{5}{4} = 1.25$$

∴   Price Elasticity of Supply (E_s) = 1.25 (more than unit elastic)

25. Total Revenue at a price of Rs 4 per unit of a commodity is ?Rs 480. Total Revenue increases by Rs 240 when its price rises by 25%. Calculate its Price Elasticity of Supply (Delhi 2010)

Ans. Given, $P = ₹4$

$$P_1 = ₹4 + 25\% \text{ of } 4$$
$$P_1 = ₹4 + ₹1 = ₹5$$

Initial Total Revenue $(P \times Q) = ₹480$

New Total Revenue $(P_1 \times Q_1) = 480 + 240 = ₹720$

When $P = ₹4$; $Q = 480 \div 4 = 120$

When $P_1 = ₹5$; $Q_1 = 720 \div 5 = 144$

Now, $P = ₹4$; $P_1 = ₹5$; $\Delta P = 5 - 4 = ₹1$

$Q = 120$; $Q_1 = 144$; $\Delta Q = 144 - 120 = 24$

$$\text{Price Elasticity of Supply } (E_s) = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q} = \frac{24}{1} \times \frac{4}{120} = \frac{4}{5} = 0.8$$

∴ Price Elasticity of Supply $= 0.8$ (less than unit elastic)

26. Total Revenue is Rs 400 when the price of the commodity is Rs 2 per unit. When price rises to Rs 3 per unit, the quantity supplied is 300 units. Calculate the Price Elasticity Of (All India 2010)

Ans. When price $(P) = ₹2$; Total Revenue $= ₹400$

∴ Quantity Supplied $(Q) = 400 \div 2 = 200$ units

Now, $P = ₹2$; $P_1 = ₹3$; $\Delta P = 3 - 2 = ₹1$

$Q = 200$; $Q_1 = 300$; $\Delta Q = 300 - 200 = 100$ units

$$\text{Price Elasticity of Supply } (E_s) = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q} = \frac{100}{1} \times \frac{2}{200} = \frac{2}{2} = 1$$

∴ Price Elasticity of Supply $= 1$ (unit elastic)

27. Explain any two causes of decrease in supply of a commodity.(Delhi 2010 C)

Ans. Two causes of decrease in supply pf a commodity are:

(i) Increase in factors price Increase in price of factors of production will increase the cost of production due to which profit decreases. In this situation, supplier will stop producing this particular commodity and starts producing other commodity whose factor inputs are available at lower price. As a result, supply of this commodity decreases.

(ii) Increase in taxation Increase in taxes by government will also increase the cost of production due to which profit decreases. In this situation, supplier will stop producing this particular commodity and starts producing other commodity on which imposed taxes are not high. As a result, supply of this commodity decreases.

28. What is increase in supply? State any two factors that can cause it. (All India 2010 c)

Ans. **Increase in supply** When supply of a commodity increases due to factors other than price is called increase in supply. In this situation supply curve shifts rightward.

Two factors that causes increase in supply are:
(i) Reduction in factor price It will decrease the cost of production due to which profit increases. In this situation, the supplier will increase the supply of the commodity.
(ii) Decrease in taxation Decrease in taxes by government will also decrease the cost of production due to which profit increases. In this situation, the supplier will increase the supply of the commodity.

29. Explain the effect of fall in prices of inputs on the supply of a good.(All India 2009,2008)

Ans. In case of fall in input price, Marginal Cost will decline. Accordingly, producer will supply more of the commodity at its existing price. This implies a forward shift in supply curve or increase in supply, at same level of price.
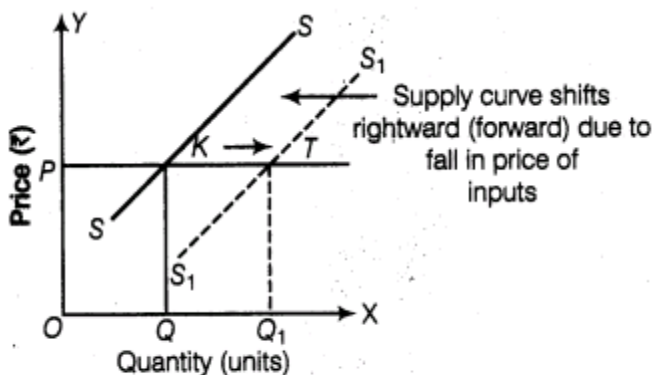
Fall in prices of inputs on supply of goods

30.Explain the meaning of increase in supply and increase in quantity supplied with the help of a schedule. (Delhi 2009)

Ans. When supply of a commodity increases due to factors other than price is called increase in supply. In this situation supply curve shifts rightward.

Price (₹)	Quantity supplied (units)
10	100
10	200
10	300
10	400

Increase in quantity supplied When supply of a commodity increases due to increase in price of a commodity and other factors are remaining constant, it is called increase in quantity supplied. In this situation, supply curve moves upward.

Price (₹)	Quantity supplied (units)
10	100
20	200
30	300
40	400

31. Commodities X and Y have equal Price Elasticity of Supply. The supply of X rises from 400 units to 500 units due to a 20% rise in its price. Calculate the percentage fall in supply of Y if its price falls by 8%. (Delhi 2009)

Ans. Given,

E_s of $X = E_s$ of Y, $Q = 400$, $Q_1 = 500$, $\Delta Q = 500 - 400 = 100$

Percentage change in price of $X = 20$

Percentage change in price of $Y = 8\%$

$X \rightarrow$

$$E_s = \frac{\text{Percentage Change in Quantity Supplied}}{\text{Percentage Change in Price}}$$

or

$$\frac{\frac{\Delta Q}{Q} \times 100}{20}$$

or

$$\frac{\frac{100}{400} \times 100}{20} \text{ or } \frac{25}{20}$$

$$E_s = 1.25$$

$Y \rightarrow$

$$E_s = \frac{\text{Percentage Change in Quantity Supplied}}{\text{Percentage Change in Price}}$$

or

$$1.25 = \frac{\text{Percentage Change in Quantity Supplied}}{8}$$

Percentage fall in quantity supplied $= 1.25 \times 8 = 10\%$

32. A firm supplies 200 units of a good at a price of Rs 5 per unit. When price changes it supplies 100 units less. Price Elasticity of Supply is 2.5. Calculate price after change. (All India 2009)

Ans. Given, $P = ₹5$

$\Delta P = ?$

$Q = 200$ units

$E_s = 2.5$

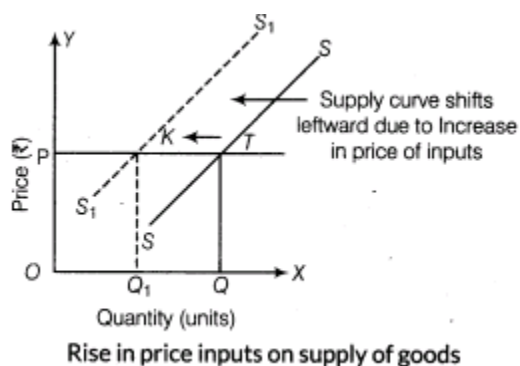Price Elasticity of Supply $(E_s) = \dfrac{\Delta Q}{\Delta P} \times \dfrac{P}{Q}$ $\qquad\qquad [\Delta Q = Q_1 - Q]$

$2.5 = \dfrac{100}{\Delta P} \times \dfrac{5}{200}$

$\Delta P = \dfrac{5}{2.5 \times 2} = \dfrac{5}{5} = 1$

New Price $(P_1) = P - \Delta P = ₹5 - ₹1 = ₹4$

33. Explain the effect of rise in input prices on supply of a commodity.(Delhi 2009 c, 2008)

Ans. In case of increase in output price, Marginal Cost tends to rise. Accordingly, producers will supply less of the commodity at its existing price. This implies a backward shift in supply curve or decrease in supply, quantity falls from O Q to O Qt with same price level.

Rise in price inputs on supply of goods

34. Explain the geometric method of measuring Price Elasticity of Supply. (Delhi 2008 C)

Ans. Geometrically, Elasticity of Supply depends on the origin of the supply curve. Assuming the supply curve to be a straight line and positively sloped.

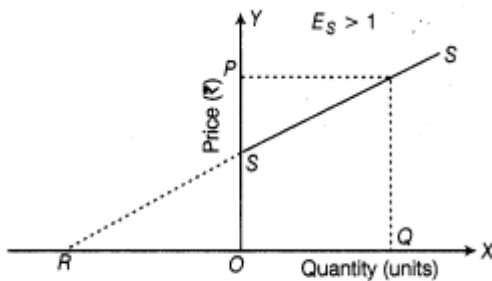We can have three possible situations of elasticity of supply as in the following diagrams:

$$E_s = \frac{\text{Intercept on } X-\text{axis}}{\text{Quantity at that Price}} = \frac{OQ}{OQ} = 1$$

(i) $E_s = 1$, when a straight line, positively sloped supply curve starts from the point of origin.
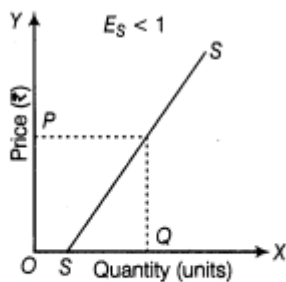

(ii) $E_s > 1$, when a straight line, positively sloped supply curve starts from Y-axis.

$$E_s = \frac{RQ}{OQ} \quad [RQ > OQ]$$
$$E_s > 1$$

(iii) $E_s < 1$, when a straight line, positively sloped supply curve starts from X-axis.

$$E_s = \frac{OS}{OQ} \quad [OS < OQ]$$
$$E_s < 1$$

35. A 15% rise in the price of a commodity results in a rise in its supply from 600 units to 735 units. Calculate its Elasticity of Supply. (All India 2008)

Ans.   Percentage change in price = 15%

$$\text{Percentage Change in Quantity} = \frac{\Delta Q}{Q} \times 100$$

$$= \frac{735 - 600}{600} \times 100 = \frac{135}{600} \times 100 = 22.5\%$$

$$\text{Price Elasticity of Supply} = \frac{\text{Percentage Change in Quantity}}{\text{Percentage Change in Price}}$$

$$= \frac{22.5}{15} = 1.5$$

∴   Price Elasticity of Supply $(E_s) = 1.5$ (more than unit elastic)

36. State three causes of decrease in supply.(All India 2007)
or
State any three causes of a leftward shift of supply curve.(All India 2006)

Ans. Three causes of decrease in supply are:
(i)Increase in factor prices, causing increase in cost of production.
(ii) Decrease in number of firms in the industry.
(iii)Increase in price of a competing product or substitute product.

37. Draw straight line supply curves with Price Elasticity of Supply (i) Equal to one (ii)Less than one (iii) More than one (All India 2007)
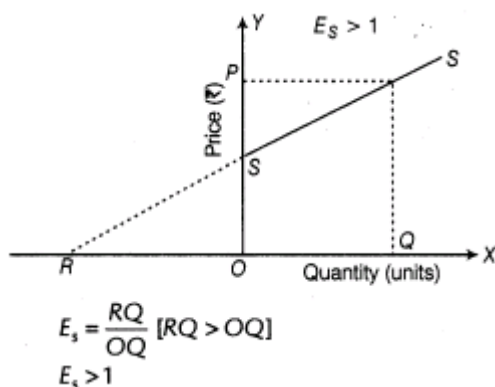
Ans. Geometrically, Elasticity of Supply depends on the origin of the supply curve. Assuming the supply curve to be a straight line and positively sloped.
We can have three possible situations of elasticity of supply as in the following diagrams:

$$E_s = \frac{\text{Intercept on X-axis}}{\text{Quantity at that Price}} = \frac{OQ}{OQ} = 1$$
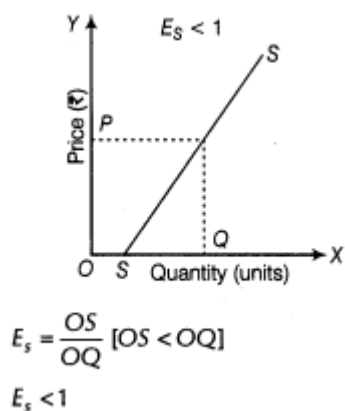
(i) $E_s = 1$, when a straight line, positively sloped supply curve starts from the point of origin.

(ii)$E_s > 1$, when a straight line, positively sloped supply curve starts from Y-axis.

$$E_s = \frac{RQ}{OQ} \quad [RQ > OQ]$$
$$E_s > 1$$

(iii)$E_s < 1$, when a straight line, positively sloped supply curve starts from X-axis.

$$E_s = \frac{OS}{OQ} \quad [OS < OQ]$$
$$E_s < 1$$

38.State three causes of increase in supply. (Delhi 2007 c)
or
State any three causes of a rightward shift of supply.(Delhi 2006)

Ans. Three causes of increase in supply are:
(i) Improvement in technology leading to a fall in cost of production.
(ii) Reduction in factor prices, causing a fall in cost of production.

(iii)Decrease in the price of a competing product or substitute.

4 Marks Questions

39.Explain how changes in price of other products influence the supply of a given product. (Delhi 2012; All India 2009)
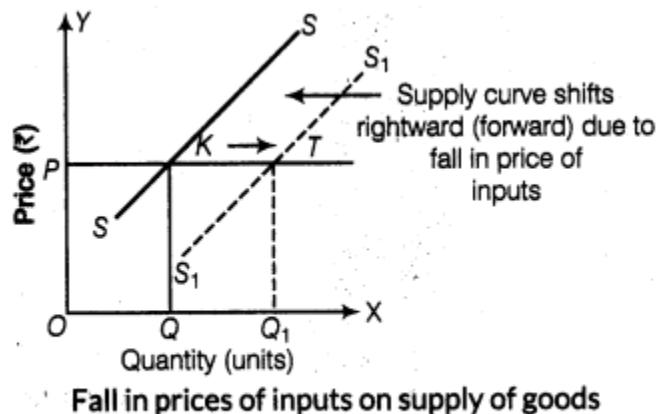
Ans. As resources have alternative uses, the quantity supplied of a commodity depends not only on its price, but also on the price of other commodities. Increase in the price of other goods makes them more profitable in comparison to the given commodity. As a result, the firm shifts its limited resources from production of the given commodity to production of other goods, as a result supply of concerned commodity falls.

For example, increase in the price of wheat will induce the farmer to use land for cultivation of wheat in place of rice.


Increase in prices of other goods   Decrease in prices of other goods
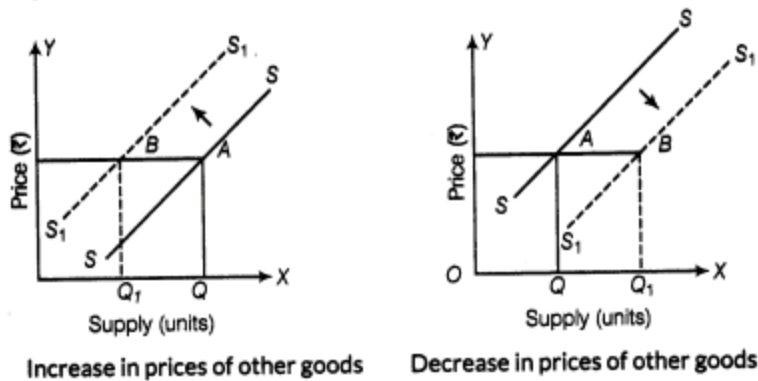
40.Explain how changes in prices of inputs influence the supply of a product.(All India 2012)

Ans. In case of fall in input price, Marginal Cost will decline. Accordingly, producer will supply more of the commodity at its existing price. This implies a forward shift in supply curve or increase in supply, at same level of price.

Fall in prices of inputs on supply of goods

In case of increase in output price, Marginal Cost tends to rise. Accordingly, producers will supply less of the commodity at its existing price. This implies a backward shift in supply curve or decrease in supply, quantity falls from OQ to OQt with same price level.

Rise in price inputs on supply of goods
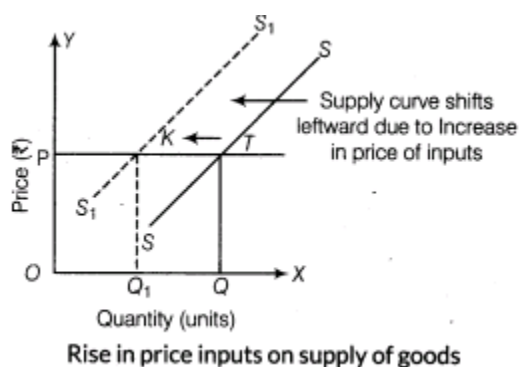
41.Define market supply. What is the effect on the supply of a good, when government imposes a tax on the production of that good? Explain. (Delhi 2011; All India 2009,2008)

Ans. Quantities of a particular commodity offered for sale by all the firms at a given price in the market is known as market supply.

If government imposes heavy taxes on the production of a particular commodity, the cost of production will increase and price remaining constant, it will result in reduction in profits. In this situation, the producer will shift his resources towards producing those commodities, on which government has imposed less taxes. As a result, supply of a particular commodity decreases.

Increase in tax rate
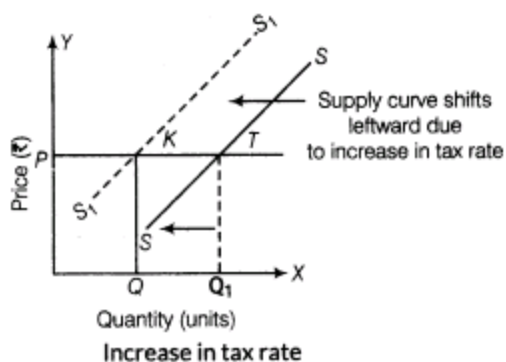
42.What is a supply schedule? What is the effect on the supply of a good, when government gives a subsidy on the production of that good? Explain. (Delhi 2011)

Ans. (i) It is a table showing a relationship between price and quantity supplied of a commodity.

(ii) If government gives subsidy on the production of a particular commodity, the producer will earn higher revenues due to fall in cost, price remaining constant. This results in higher profits. In this situation, supply of a particular commodity increases.

Increase in subsidies by the government
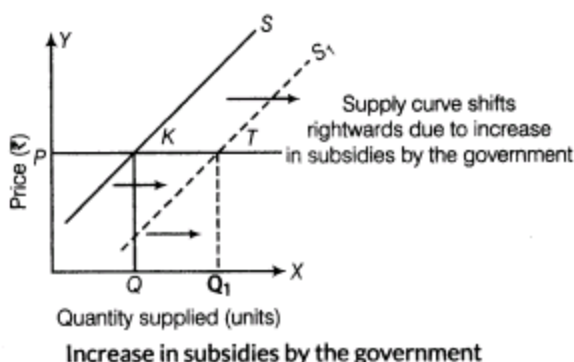
43. The Price Elasticity of Supply of commodity X and Y are equal. The price of X falls from ? 10 to ? 8 per unit and its quantity supplied falls by 16%. The price of Y rises by 10%. Calculate the percentage increase in its supply. (Delhi 2009)

Ans. $P = 10, P_1 = 8, \Delta P = 2$ Price Elasticity of Supply of X, $E_s = \dfrac{\text{Percentage Change in Supply of } X}{\text{Percentage Change in Price of } X}$

Percentage Change in Price of $X = \dfrac{\Delta P}{P} \times 100$

or $\dfrac{2}{10} \times 100 = 20\%$

$\therefore$ E_s of $X = \dfrac{16}{20} = 0.8$

According to the question, E_s of $X = E_s$ of Y

$\therefore$ E_s of $Y = 0.8$

Now, Price Elasticity of Supply E_s of $Y = \dfrac{\text{Percentage Change in Supply of } Y}{\text{Percentage Change in Price of } Y}$

$0.8 = \dfrac{\text{Percentage change in supply of } Y}{10}$

$0.8 \times 10 = $ Percentage change in supply of $Y = 8\%$

$\therefore$ Percentage change (increase) in supply of $Y = 8\%$

44. The Price Elasticity of Supply of commodity Y is half the Price Elasticity of Supply of commodity X. 16% rise in the price X result in a 40% rise in its supply. If the price of Y falls by 8%, calculate the percentage fall in its Supply. (All India 2009)

Ans. Price Elasticity of Supply of X $(E_s) = \dfrac{\text{Percentage Change in Supply of X}}{\text{Percentage Change in Price of X}} = \dfrac{40}{16} = 2.5$

According to the question, Price Elasticity of Supply of Y $= \dfrac{2.5}{2} = 1.25$

Now, E_s of Y $= \dfrac{\text{Percentage Change in supply of Y}}{\text{Percentage Change in price of Y}}$

$1.25 = \dfrac{\text{Percentage change in supply of Y}}{8}$

Percentage change in supply of Y $= 1.25 \times 8$

Percentage change in supply of Y $= 10\%$

45. A producer supplies 200 units of a good at Rs 10 per unit. Price Elasticity of Supply is t How many units will the producer supply at Rs 11 per unit? (Delhi 2009 c)

Ans. Given, $P = ₹10$; $P_1 = ₹11$; $\Delta P = 11 - 10 = ₹1$

$Q = 200$ units; $Q_1 = ?$ $E_s = 2$

$$E_s = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

$\Rightarrow$
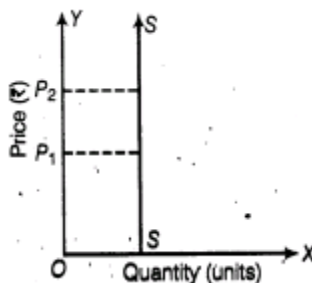
$$2 = \frac{\Delta Q}{1} \times \frac{10}{200}$$

or

$$40 = \Delta Q$$

Now, new quantity supplied $= Q + \Delta Q$

$200 + 40 = 240$ units

46. Draw supply curves with Price Elasticity of Supply throughout equal to (i) 0 (ii) 1 (iii) Infinity (iv) Less than 1. (All India 2008)
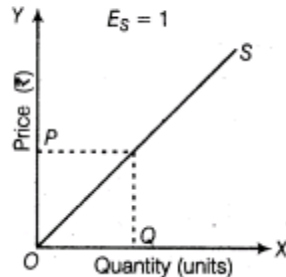
Ans. *(i)* $E_s = 0$

$E_s = 0$, when supply does not respond to change in price of the commodity.
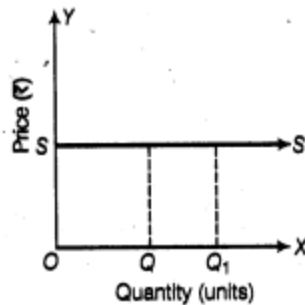
(ii) $E_s = 1$,

$$E_s = \frac{\text{Intercept on } X-\text{axis}}{\text{Quantity at that Price}} = \frac{OQ}{OQ} = 1$$

(i) $E_s = 1$, when a straight line, positively sloped supply curve starts from the point of origin.
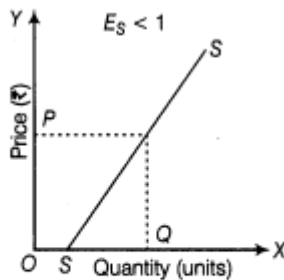

(iii) $E_s = \infty$ (infinity)

When $E_s = \infty$, even a minute change in price will cause an infinite change in supply.

(iv) $E_s < 1$,

$E_s < 1$, when a straight line, positively sloped supply curve starts from X-axis.

$E_s = \dfrac{OS}{OQ}$ [$OS < OQ$]

$E_s < 1$

47. Explain any two factors that causes a shift of supply curve. (All India 2008)

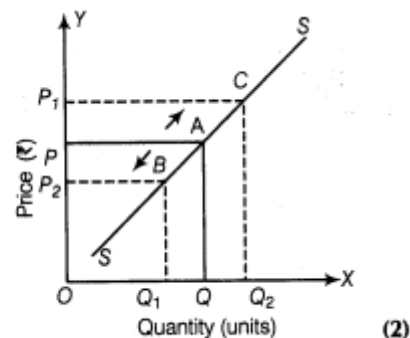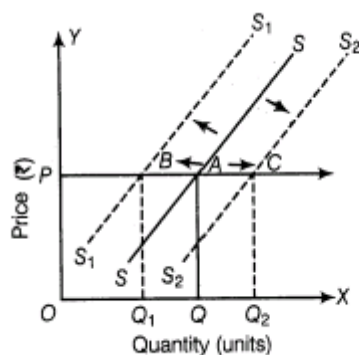**Ans.** Two factors that causes a shift of supply curve are:

(i) Change in technology Technological improvement tends to lower the Marginal Cost and Average Cost of production. As, better technology facilitates higher output with the same inputs. Accordingly, producers are willing to supply more at the existing price. This implies a rightward shift in supply curve.

(ii) Change in input price Input price may increase or decrease. In case of increase in input price, Marginal Cost and Average Cost tend to rise. Accordingly, producers will supply less of the commodity at its existing price. This implies a backward shift in supply curve and vice-versa.

48. Distinguish between change in supply and change in quantity supplied. Which of these causes a shift of supply curve? (All India 2008)

Ans. Difference between change in supply and change in quantity supplied

| Basis	Change in supply	Change in Quantity supplied
Meaning	When supply of a good changes due to change in other factors keeping price constant is called change in supply.	When quantity supplied of a commodity changes due to change in own price is called change in quantity supplied.
Reason/Factors	Change in other factors include price of related goods, number of firms in the industry, goal of the firm, price of factors of production, state of technology, business confidence, government policy.	Change in own price of the commodity is the only cause.
Diagrammatic presentation	Diagrammatically, it is shown as a forward and backward shift in supply curve.	Diagrammatically, it is shown as a downward and upward movement on the same supply curve.

Change in supply causes a shift of supply curve, i.e. due to change in other factors keeping price constant

**49.Explain briefly the following determinants of supply**
(i) Increase in the prices of inputs
(ii) Decrease in tax on the product
(iii)Technological change (Delhi 2008)

Ans.(i)Increase in the prices of inputs :
In case of increase in output price, Marginal Cost tends to rise. Accordingly, producers will supply less of the commodity at its existing price. This implies a backward shift in supply curve or decrease in supply, quantity falls from OQ to OQt with same price level.


Rise in price inputs on supply of goods
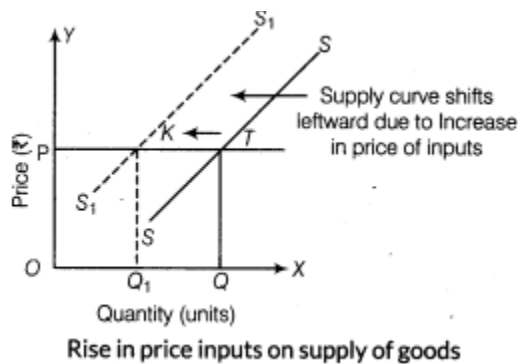
(ii)Decrease in tax on the product: If government reduces taxes on the production of a particular commodity, the cost of production decreases. This results in higher profits. As a result, supply of a particular commodity increases and supply curve shifts rightward.

Decrease in tax on the product
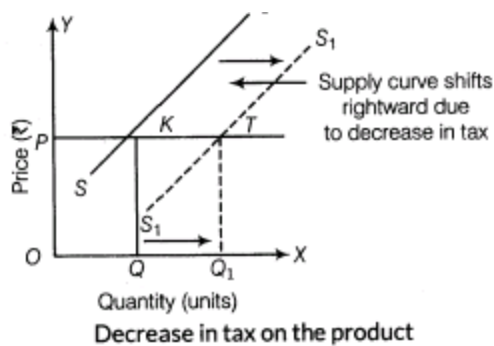
(iii)Technological change:

Technological improvement tends to lower the Marginal Cost and Average Costs of production because better technology facilitates higher output with the same inputs. Accordingly, producers are willing to supply more at the existing price.

As a result profit of producer increases, and supply curve will shift to the right from SS to S_1S_1 and quantity increases from O Q to O Q_v with same level of price.

Progress in technology
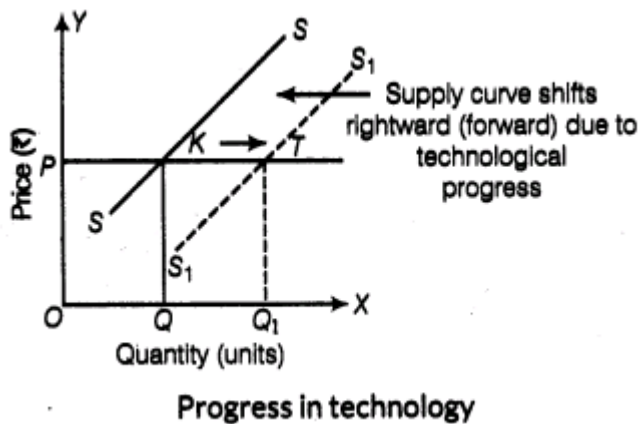
50. The Price Elasticity of Supply of a commodity is 2. When its price falls from Rs 10 to Rs 8 per unit, its quantity supplied falls by 500 units. Calculate the quantity supplied at the reduced price (Delhi 2006)

Ans. Given, $P = ₹10$; $P_1 = ₹8$; $\Delta P = 8 - 10 = (-) ₹2$

$Q = ?$; $\Delta Q = -500$; $E_s = 2$; $Q_1 = ?$

$$\text{Price Elasticity of Supply } (E_s) = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

$$2 = \frac{-500}{-2} \times \frac{10}{Q}$$

$$Q = \frac{-500 \times 10}{-2 \times 2}$$

$$Q = 1250 \text{ units}$$

∴ Quantity supplied at the reduced price, $Q_1 = Q - \Delta Q = 1250 - 500$

$$Q_1 = 750 \text{ units}$$

51.When the price of a commodity rises from Rs 10 to Rs 11 per unit, its quantity supplied rises by 100 units. Its Price Elasticity of Supply is 2. Calculate its quantity supplied at the increased price. (All India 2006)

Ans. Given, $P = ₹10$; $P_1 = ₹11$; $\Delta P = 11 - 10 = ₹1$

$Q = ?$; $\Delta Q = 100$ units; $E_s = 2$

Price Elasticity of Supply $(E_s) = \dfrac{\Delta Q}{\Delta P} \times \dfrac{P}{Q}$

$2 = \dfrac{100}{1} \times \dfrac{10}{Q}$

$Q = \dfrac{100 \times 10}{2}$

$Q = 500$

∴ Quantity supplied at the increased price $= Q + \Delta Q = 500 + 100 = 600$ units

52.A firm supplies 500 units of a good at a price of Rs 5 per unit. The Price Elasticity of Supply of a good is 2. At what price will the firm supply 700 units? (All India 2006)

Ans. Given, $P = ₹5$; $\Delta P = ?$ $Q = 500$ units;

$Q_1 = 700$ units; $\Delta Q = 700 - 500 = 200$ units; $E_s = 2$

Price Elasticity of Supply $E_s = \dfrac{\Delta Q}{\Delta P} \times \dfrac{P}{Q}$

$2 = \dfrac{200}{\Delta P} \times \dfrac{5}{500}$

$\Delta P = \dfrac{200 \times 5}{500 \times 2}$

$\Delta P = 1$

New Price $= P + \Delta P = 5 + 1 = ₹6$

∴ The firm will supply 700 units at ₹ 6 per unit.

53.Distinguish between change in Supply and change in quantity supplied. State two factors responsible for change in supply? (All India 2006)
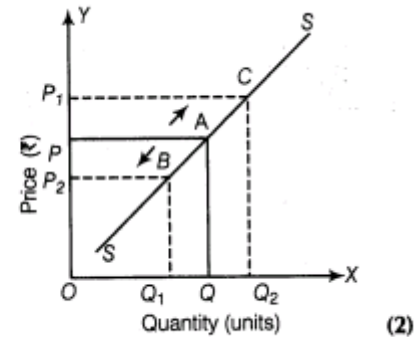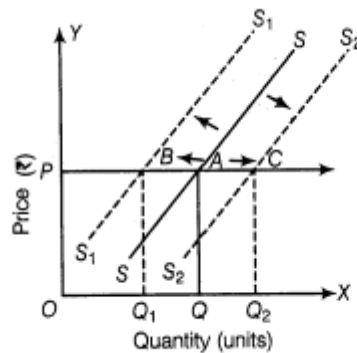
Ans. Two factors that causes a shift of supply curve are:

(i) Change in technology Technological improvement tends to lower the Marginal Cost and Average Cost of production. As, better technology facilitates higher output with the same inputs. Accordingly, producers are willing to supply more at the existing price. This implies a rightward shift in supply curve.

(ii)Change in input price Input price may increase or decrease. In case of increase in input price, Marginal Cost and Average Cost tend to rise. Accordingly, producers will supply less of the commodity at its existing price. This implies a backward shift in supply curve and vice-versa.

Difference between change in supply and change in quantity supplied

Basis	Change in supply	Change in Quantity supplied
Meaning	When supply of a good changes due to change in other factors keeping price constant is called change in supply.	When quantity supplied of a commodity changes due to change in own price is called change in quantity supplied.
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Diagrammatic presentation	Diagrammatically, it is shown as a forward and backward shift in supply curve.	Diagrammatically, it is shown as a downward and upward movement on the same supply curve.

Change in supply causes a shift of supply curve, i.e. due to change in other factors keeping price constant