Q23. Considering the same demand curve as in exercise 22, now let us allow for free entry and exit of the firms producing commodity X. Also assume the market consists of identical firms producing commodity X. Let the supply curve of a single firm be explained as

$$q_f^s = 8 + 3p \text{ for } p \geq 20$$

$$= 0 \text{ for } 0 \leq p < 20$$

(a) What is the significance of p = 20?
(b) At what price will the market for X be in equilibrium? State the reason for your answer.
(c) Calculate the equilibrium quantity and number of firms.

Ans: $q_f^s = 8 + 3\,p \text{ for } p \geq \text{Rs } 200$

$= 0 \text{ for } 0 \leq p < \text{Rs } 20.$

$q_d = 700 - p$

(a) For the price between 0 to 20, no firm is going to produce anything as the price in this range is below the minimum of LAC. So, at the price of Rs 20, the price line is equal to the minimum of LAC.

(b) As there exists the freedom of entry and exit of firms, the minimum of AVC is at Rs 20, also, the price of Rs 20 is the equilibrium price. This is because in the long run, all firms earn zero economic profit, which implies that the price of Rs 20 is the equilibrium price and at any price lower than Rs 20, the firm will move out of the market.

(c) At equilibrium price of Rs 20

Quantity supplied = q_s = 8 + 3p

= 8 + 3 (20)

q_s = 68 units

Quantity demanded q_d = 700 – p

= 700 – 20

q_d = 680

Number of firms (n)= $\frac{q_d}{q_f^s}$

$n = \frac{680}{68}$

n = 10 firms

Therefore, the number of firms in the market is 10 and the equilibrium quantity in 680 units.

********** END **********