

# HS101 ASSIGNMENT

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(Marks obtained = 39.5/40)

Q1.

a) Given -  $|\Delta Q/Q \div \Delta P/P| = |10/(-5)| = 2$  (Elastic In Nature)

Correct. Marks allotted = 2

b) Percentage change in revenue =  $\frac{\Delta PQ}{PQ} \times 100$

$$\begin{aligned} &= \times 100 \frac{P_f Q_f - P_i Q_i}{P_i Q_i} \\ &= \frac{(0.95 P_i \times 1.10 Q_i) - (P_i \times Q_i)}{P_i \times Q_i} \times 100 \\ &= 4.5\% \end{aligned}$$

$\Rightarrow$  The Revenue Increases by Approximately 4.5%

Correct. Marks allotted = 2

c) Given  $\frac{\Delta Q_1}{Q_1} \div \frac{\Delta P_2}{P_2} = 1$

reduces prices by 5% prices by 5%, the demand of the substitute good reduces by 5%.

Correct. Marks allotted = 2

Q2.

a)

(Case1-

If the disease fatal to chicken has effects on other beings (i.e the disease is transmissible), especially humans or even if the disease has no such proven consequences but just false speculations, this **false speculations** lead to a **decrease in demand and prices** of chicken as was seen during the **Bird Flu outbreak**

(Case2-

If there is **no such speculation**, the **supply of chicken will reduce** the coming future, due to which the supply will fail to meet the demand **supply will fail to meet the demand** and the market **increase the prices** towards a new equilibrium with an increase in the market value.

Correct. Marks allotted = 2

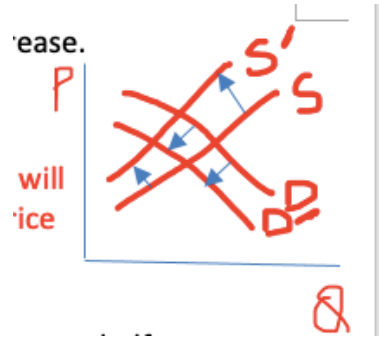


b)

If Thanos snapped half of human life out of existence, there would be less people to demand for chicken. So the demand for chicken will decrease. Demand for chicken would decrease. Demand for chicken won't keep up with supply. Demand for chicken won't keep up with the supply. A surplus of chicken in the market will be established in such a way that the prices of chicken fall.

Partially Correct. Marks allotted = 1.5

Reason – Demand for the good falls from D to D' → Supply will also fall from S to S' as the overall population falls → This leads to a fall in equilibrium quantity but the equilibrium price is ambiguous.



Q3.

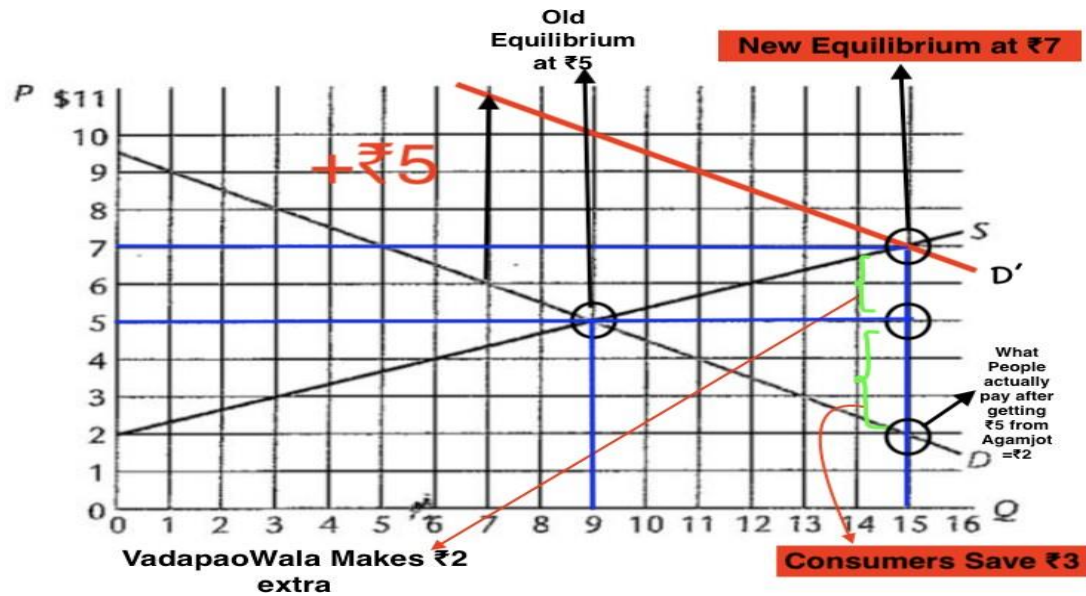
The law of demand states that the demand of a product varies inversely with price.

Yes, this case is an exception to the law of demand. Potato is a necessary good for the family. Even if the price of potatoes rise, the family can't stop buying potatoes. The increase in demand is due to negative cross price elasticity. If potato prices increase, the

demand of chicken will reduce. As due to the financial constraints the family has to buy potatoes instead of chicken (which becomes a luxury for them). Chicken being a luxury for the family ,which they can't afford due to increase in prices of potatoes ,will in turn increase the demand of potatoes in that village. Note that if the village is well off financially,the chicken won't be a luxury good anymore and the potato demand won't increase on increasing prices because the family won't have to give up on chicken.

Correct. Marks allotted = 3

Q4.



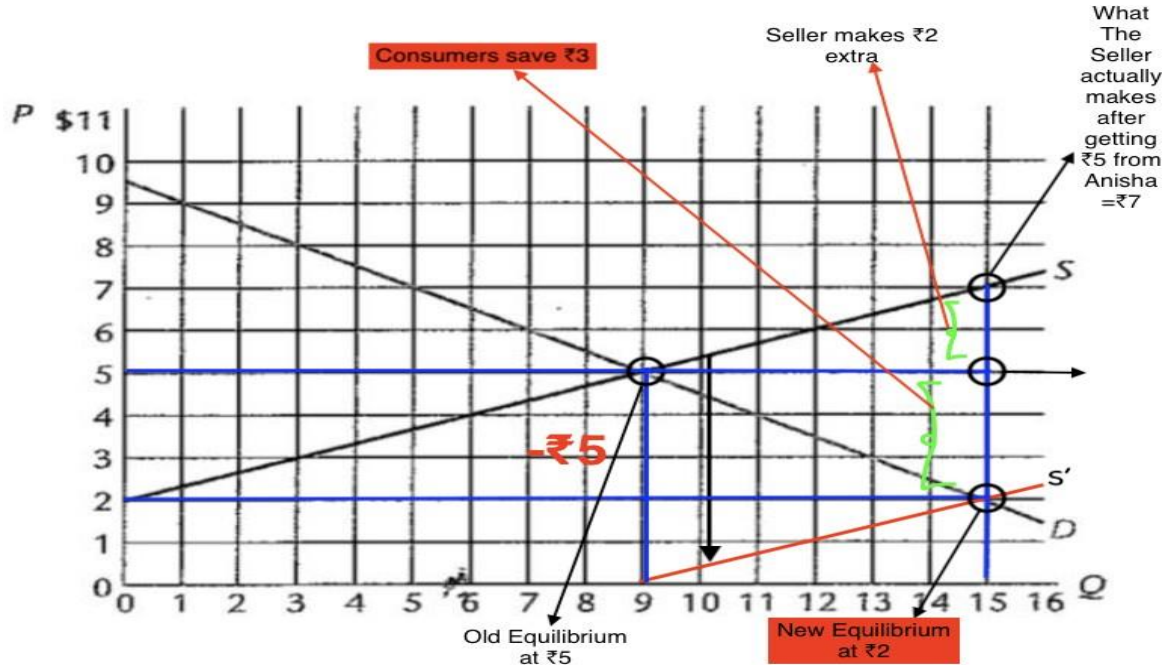
a)

Suppose the equation of price  $P$  and quantity  $Q$  after maximization of Utility comes out to be  $P + Q = \text{constant}$ . This is the equation for the demand curve. If Agamjot gives ₹5 to everyone who buys

vadapav, the equation becomes  $(P-5)+Q=\text{constant}$  as the consumers are subsidized ₹5. Hence, the demand curve shifts upwards by ₹5 and outwards. The new price equilibrium sets at ₹7 as shown in the figure. So the price increases by ₹2. The consumers save ₹3 and the government increases by ₹2 extra as shown in the diagram.

Correct. Marks allotted = 4

b)



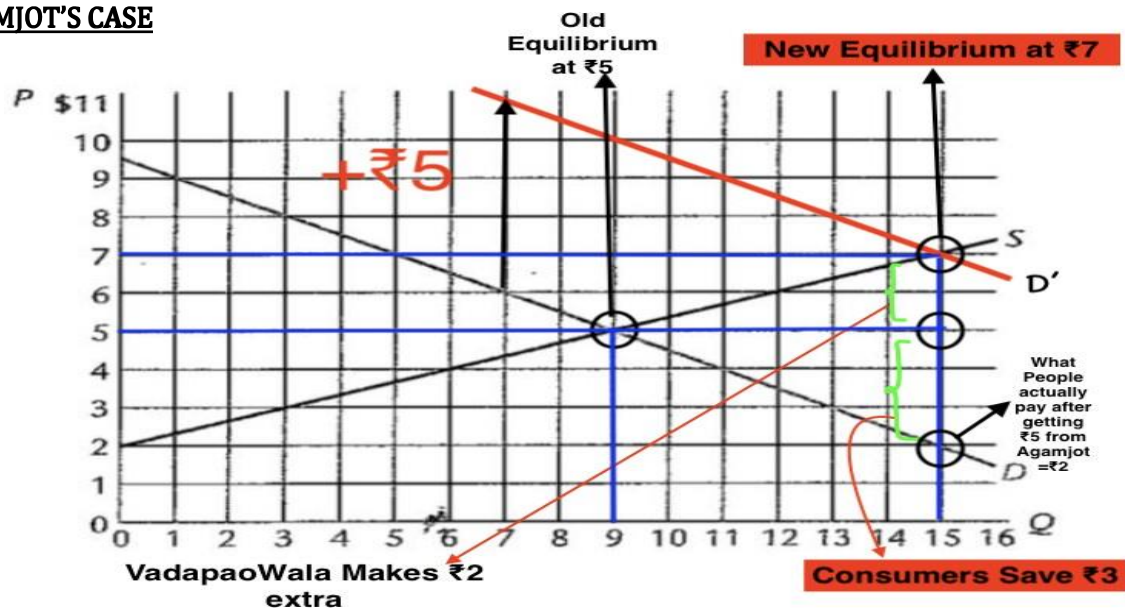
Let the equation for the supply curve be  $P = Q + \text{constant}$ . The equation now becomes  $(P+5) = Q + \text{constant}$  as the vadapao wala gets subsidized ₹5 from Anisha so there is eagerness to sell. Hence, the demand curve shifts ₹5 downwards and outwards. The new price equilibrium sets at ₹2 as in the diagram. So, the price decreases by ₹3. The consumers save ₹3 and the vadapao wala makes ₹2 extra as shown in the diagram.

Correct. Marks allotted = 4

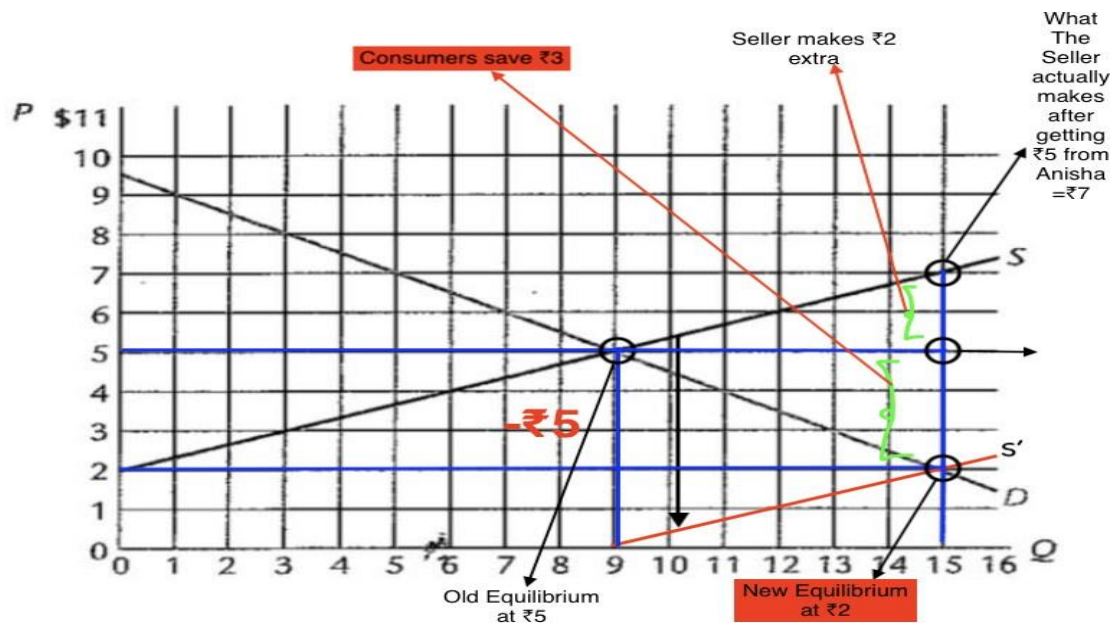


c)

AGAMJOT'S CASE



## ANISHA'S CASE



Without consideration of purchase limit or convenience both the cases result in the consumer paying the same end price for vadapav.

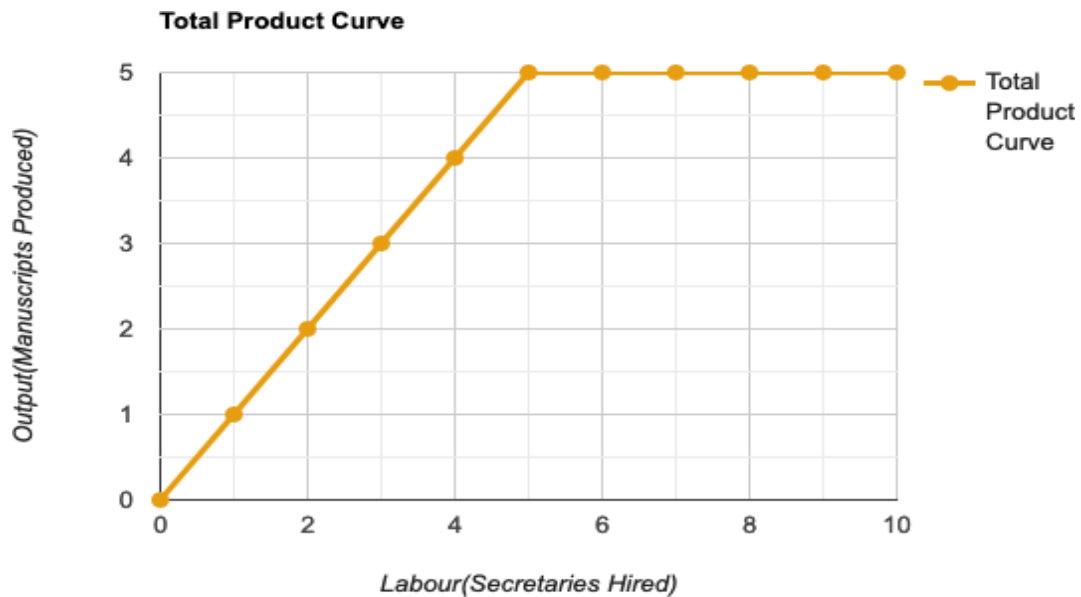
But if we consider the income-limit of vadapav lovers as a factor then Anisha's plan where consumers have to pay ₹2 to buy vadapav as opposed to Agamjot's case where the initial price to buy the vadapav is ₹ 7. Is more beneficial to vadapav lovers as people with purchase limit less than ₹7 will also be able to buy the vadapav. In general, a lower market equilibrium will favour the customers. Also, if Agamjot and Anisha stop subsidizing , lower market prices will be beneficial for the customers.

**Hence Aastha should implement Anisha's plan as it would be more beneficial to vadapav lovers Given purchase limit is a factor.**

Marks allotted = 4. Does not matter. In both the plans, the sellers get paid Rs. 7.00, and buyers pay only Rs. 2.00. The Rs. 5.00 gap gets paid to the buyers in Agamjot's plan, and the sellers in Anisha's plan. The buyers and sellers enjoy the subsidy in the ratio 3:2.

Q5.

a)



The output rises linearly with secretaries hired along the line  $y=x$ .

However, after 5 secretaries are hired, any number of secretaries hired after that won't increase the output.

Hence, the graph becomes a straight line parallel to the labour axis, passing through  $y=5$ .



Marginal Product=

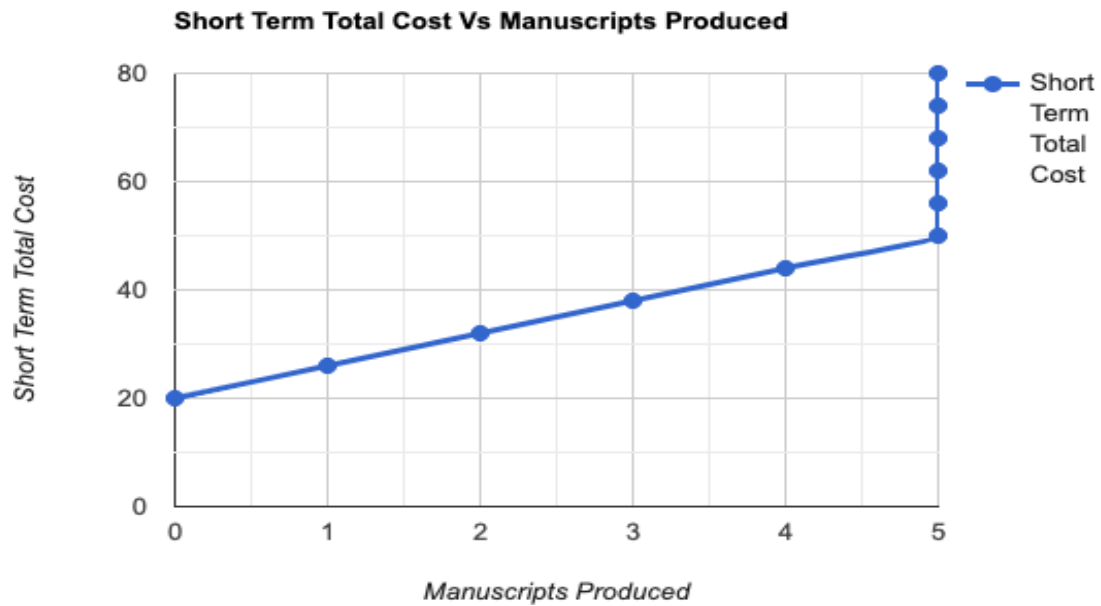
$$\frac{\Delta \text{Production Output}}{\Delta \text{Input Labour}}$$

Each Secretary hired helps produce one extra manuscript. After 5 secretaries are hired, the output remains constant even after hiring more secretaries. So, the marginal product goes to zero.

Correct. Marks allotted = 4

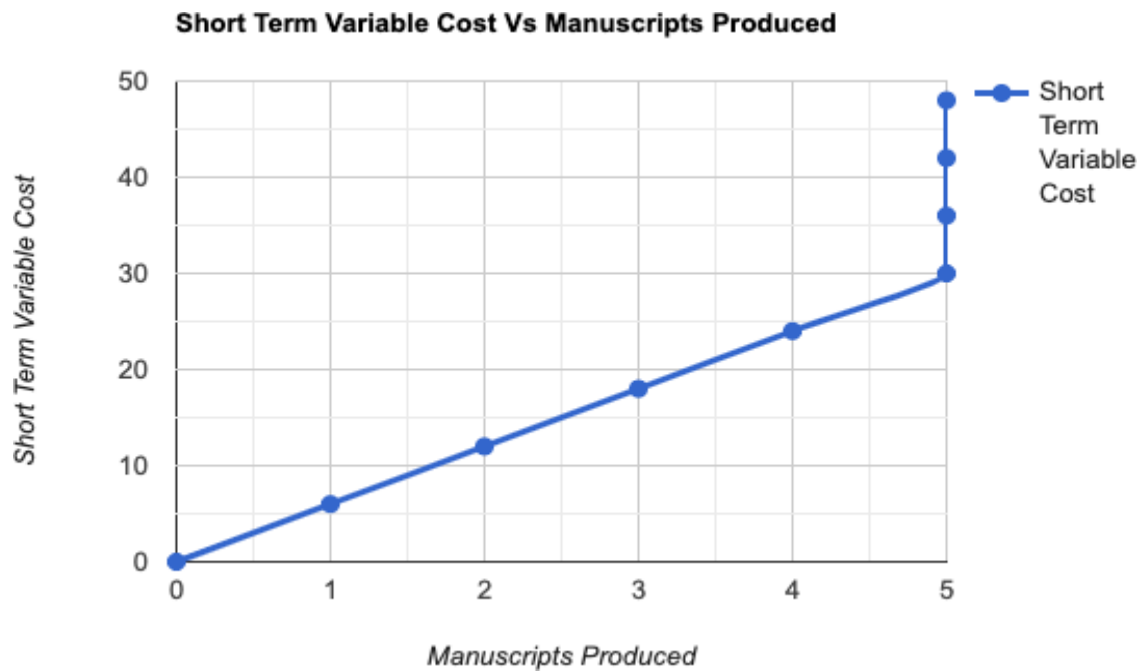
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b) *Short Term implies that the capital expenditure is Fixed*

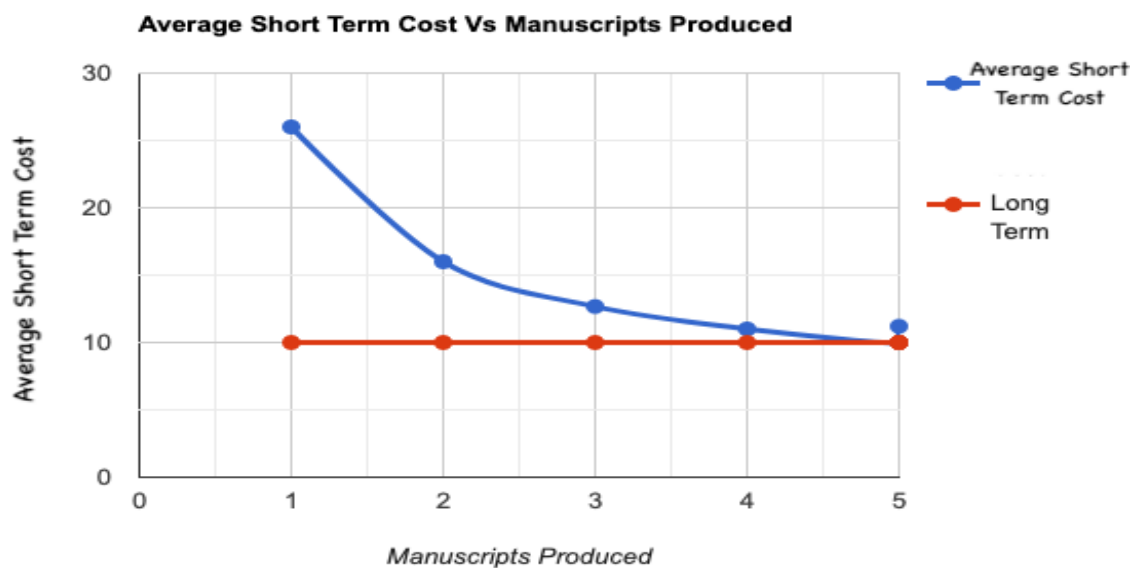


**Short Term Total Cost** curve starts from \$20 and rises up to \$50 uniformly on total output 5 as shown. It then becomes parallel to y axis i.e. the cost will rise but no more output will be produced because of the constraint of limited typewriters (5).

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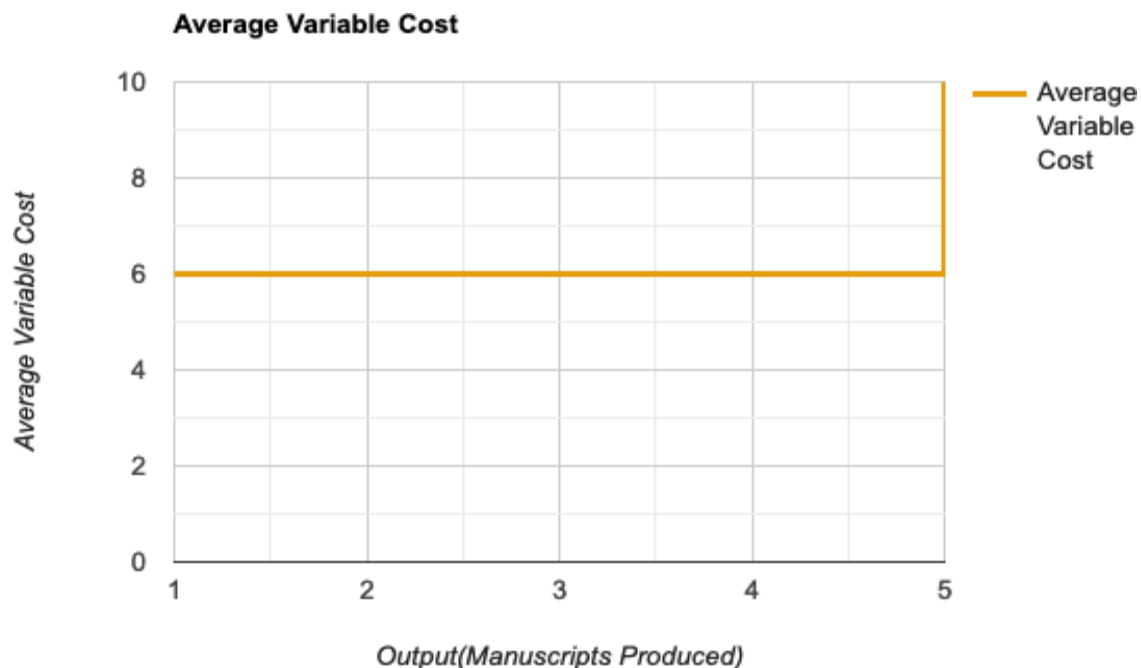


**Short term Variable Cost** curve starts from origin (i.e 0 variable cost) and rises uniformly upto \$30 and then becomes parallel to y axis i.e. the variable cost will rise but no more output will be produced because of the constraint of limited typewriters (5).



$$\text{Average Total Cost} = \frac{\text{Total Cost of Production}}{\text{Quantity Of Output Produced}}$$

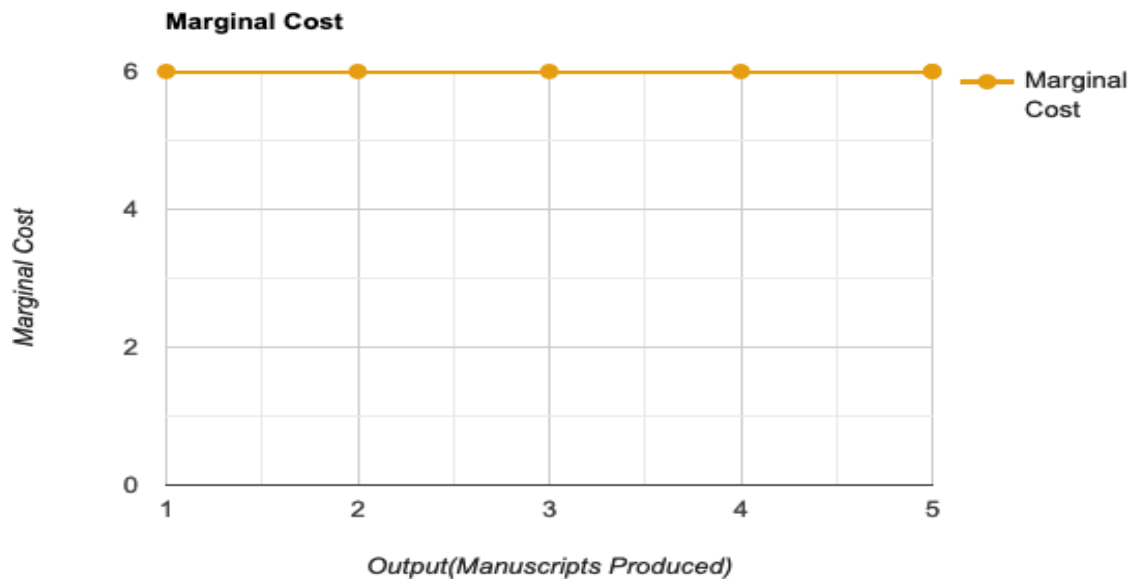
The **Average Short Term Cost** curve starts from \$26 as shown in the figure. It decreases upto \$10 as shown in the figure after which it becomes parallel to y axis i.e. the average cost will rise as no more output will be produced even if we put in more money on labour because of the constraint of limited typewriters (5). The **Average Short Term Cost** curve touches the **Average Long Term Cost** Curve at its minima(\$10 in our case).



$$\text{Average Variable Cost} = \frac{\text{Variable Cost of Production}}{\text{Quantity Of Output Produced}}$$

**Variable Cost in Short Term= Total Cost Of Labour**

The average variable cost has a constant value of \$6 . After 5 Secretaries are hired, the curve becomes parallel to y axis i.e. the average variable cost will rise as no more output will be produced even if we put in more money on labour because of the constraint of limited typewriters (5).



$$\text{Marginal Cost} = \frac{\Delta \text{Total Cost}}{\Delta \text{Input}}$$

The marginal cost curve has a constant value of \$6. But, after the total manuscripts produced reaches a value of 5, no more manuscripts can be produced and hence the curve is not defined after that.



Output (Manuscripts produced)	No. of Secretaries (Labour Input)	Total Cost	Fixed Cost	Variable Cost	Average Fixed Cost	Average Variable Cost	Average Total Cost	Marginal Cost
0	0	\$20	\$20	\$0	-	-	-	-
1	1	\$26	\$20	\$6	\$20	\$6	\$26	\$6
2	2	\$32	\$20	\$12	\$10	\$6	\$16	\$6
3	3	\$38	\$20	\$18	\$6.67	\$6	\$12.67	\$6
4	4	\$44	\$20	\$24	\$5	\$6	\$11	\$6
5	5	\$50	\$20	\$30	\$4	\$6	\$10	\$6
5	6	\$56	\$20	\$36	\$4	\$7.2	\$11.2	-
5	7	\$62	\$20	\$42	\$4	\$8.2	\$12.2	-

—.....Correct. Marks allotted = 7

**c)** *Long Run Means all the costs are variable. No cost is a fixed cost.*

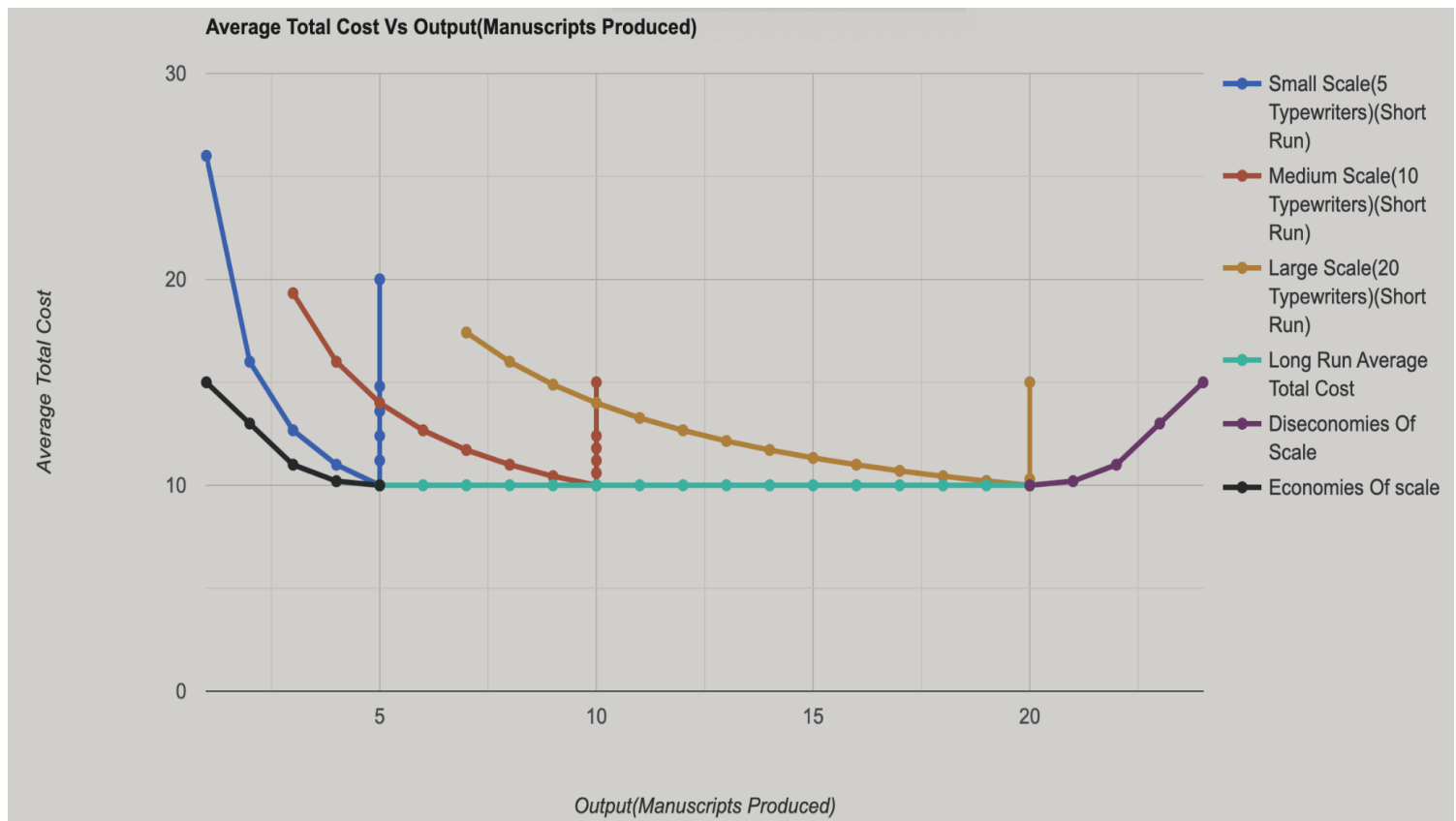
Long run total cost refers to the minimum cost of production. ~~The long-term total cost curve acts as a tangent to the short-term total cost curves at their minimas.~~ The LTC curve starts from the origin and **uniformly increases along a straight line with slope 10 (1 typewriter and 1 secretary used for one manuscript)** in the ideal case. However, the graph takes two more paths.



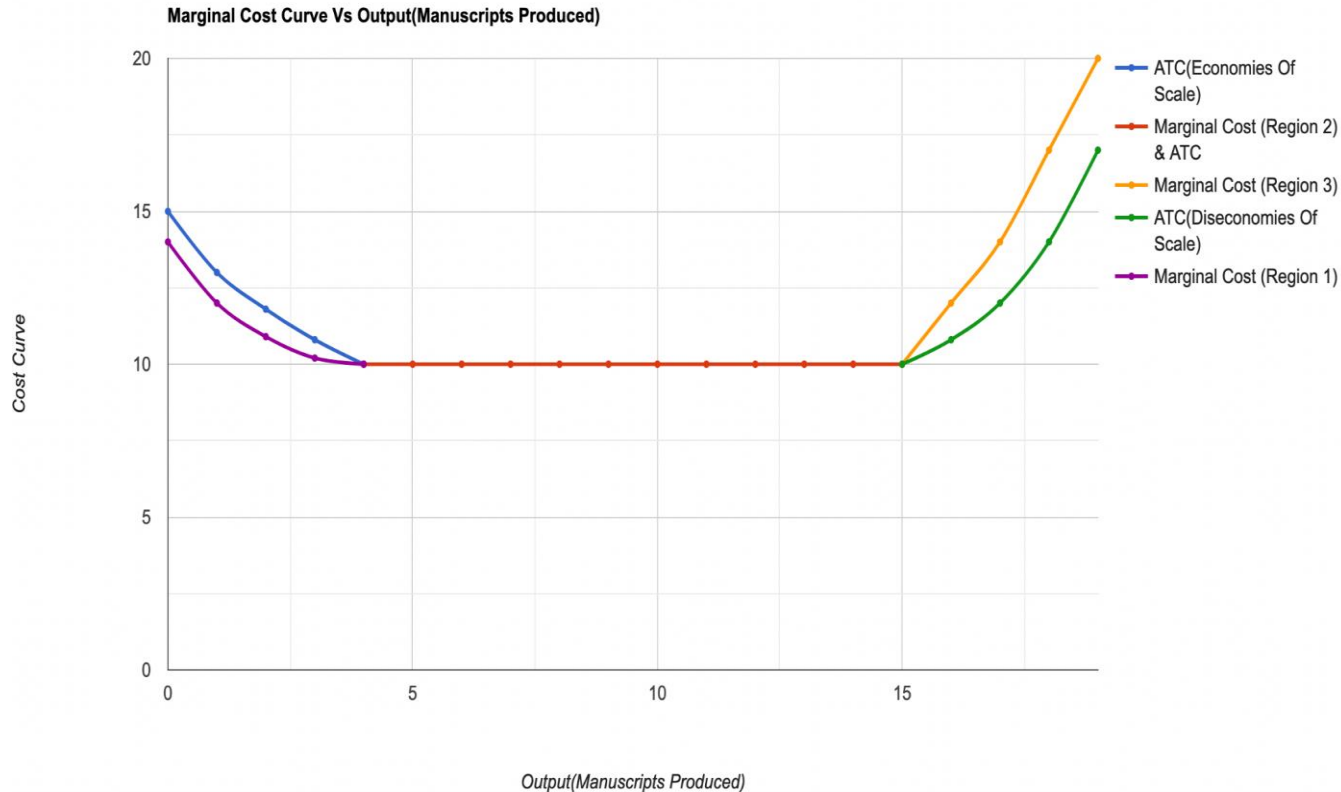
→ **Economies of scale** - Has a graph with decreasing slope which shows that **Average Total Cost falls**. Intuitively, when the company uses its resources more efficiently the Average total cost falls. Ex- If Chandrika rents a room(fixed cost) and slowly fills it with typewriters gradually, she's exploiting that resource(room) for which she pays rent i.e the fixed cost is the same but she keeps more typewriters exploiting the resource fully



→ **Diseconomies of scale** - Has a graph with increasing slope which shows that **Average Total Cost rises**. When the company scales ,coordination problems and mismanagement lead to an increase in A.T.C.Ex- If Chandrika hires more secretaries or typewriters than needed or some other mismanagement issue.



The long-term average total cost curve acts as a tangent to the short-term average total cost curves at their minimas. It is a straight line parallel to the x-axis of \$10 in constant value of \$10. Economies and Diseconomies as discussed above.



The marginal cost curve is a straight line parallel to the x-axis and has a constant value of \$10 in an ideal case. However, three regions of the graph can be interpreted as follows-

- Marginal Cost (Region 1) → The marginal cost falls initially in this region. Simply because the capital cost is a variable cost and as the company increases its production, due to economies of scale, the marginal cost decreases. This region is below the ATC curve of economies of scale .
- Marginal Cost (Region 2) → This region resonates with the ideal scenario. As shown in the graph, the marginal cost is a constant (\$10) in this region .
- Marginal Cost (Region 3) → The marginal cost rises in this region as a consequence of Diseconomies of scale. This region intersects the ATC curve at its minimum and stays above the ATC curve. The ATC starts to increase after this region of Marginal cost curve intersects with it.

Correct. Marks allotted = 4

— ..... END  — .....