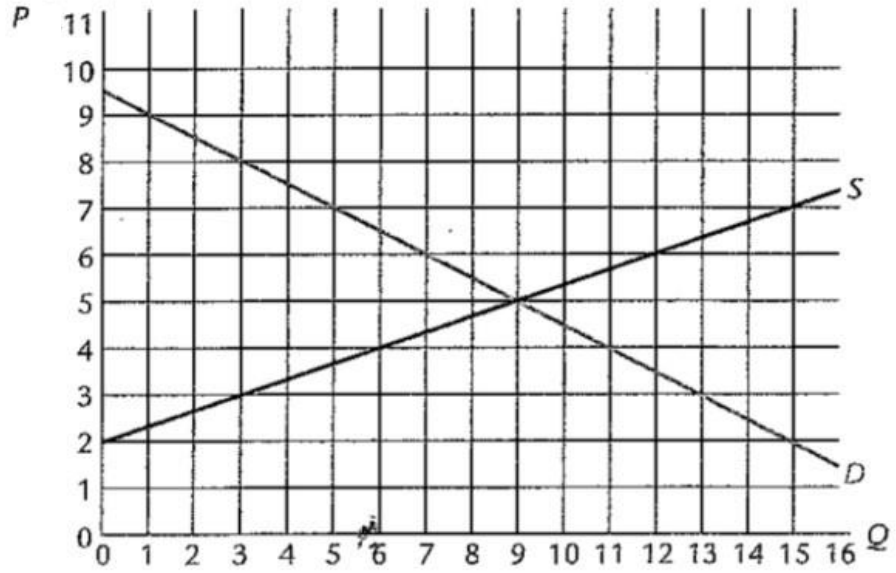
INTRODUCTORY MICROECONOMICS SAMPLE QUESTIONS

Instructor: Subrato Banerjee **Total Points:** 50 **Deadline:** --

Instructions: Try them on your own before you engage in group studies!

Q1: The diagram below shows the demand and supply of vada-pavs on your campus.



(a) Suppose Radhika proposes a new plan to promote vada-pav: anytime you buy one vada-pav anywhere on campus, you can bring your receipt to the HSS department building and trade it for Rs. 5.00. How much does the price of vada-pav change if this plan is implemented?

[5 points]

Answer: Buyers get a "discount" (opposite of a sales tax). The demand curve shifts vertically up by Rs. 5.00.

(b) Suppose Samiksha announces a different plan: Rs. 5.00 (per vada-pav) will be paid to anyone who sells vada-pav on campus. How much does the price of vada-pav change if this plan is implemented?

[5 points]

Answer: Sellers get a "subsidy" (opposite of an excise tax). Supply curve shifts vertically down by Rs. 5.00.

(c) Now, keeping in mind, the interests of vada-pav lovers on campus, Atharv must decide between one of the two plans above. Which of the two plans should he implement?

[5 points]

Answer: 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 gets paid to the buyers in Radhika's plan, and the sellers in Samiksha's plan. The buyers and sellers enjoy the subsidy in the ratio 3:2.

Q2: What will happen to market price and quantity of chicken under the following situations

(a) If there is a disease that is fatal to chicken.

(b) If Thanos snapped half of human life out of existence.

[6 points]

Answer: (a) Both the demand and supply curves will shift inward (think of your demand for chicken during bird-flu). Total (equilibrium) quantity traded will unambiguously fall, and the price change will depend on the inward shift of the demand curve relative to the inward shift of the supply curve.

(b) We have discussed this in the class. Try reasoning like part (a) above.

Q3: A firm realises that reducing the price of the commodity it sells by 5% will lead to an increase in its quantity demanded by 10%.

Hint: You shouldn't bother about the mid-point formula if the percentage changes are directly given.

[3 + 2 + 3 points]

(a) Calculate the price elasticity of demand for this commodity.

Answer: (–) 2

(b) If the firm above actually reduced price by 5%, then what will happen to the total revenue?

Answer: Total revenue will increase by 4.5%

(c) The demand for a substitute good, with a cross-price elasticity of demand equalling (+)1 will ...

Answer: Decrease by 5%

Q4: Shlok's Typing Service produces manuscripts. The only way to produce a manuscript is for one secretary to use one typewriter for a day. For example, two secretaries with one typewriter or one secretary with two typewriters will still produce only one manuscript per day.

Shlok's technology exhibits constant returns to scale (i.e. average costs are constant because increasing *all* inputs (and hence the input costs) by a given proportion also increases the output by the same proportion – for example, doubling the inputs leads to doubling output).

He rents each typewriter for $4 per day, and hires each secretary for $6 per day, and has signed a contract to rent exactly five typewriters. Illustrate the following using tables/graphs

(i) The total product curve and the marginal product of labour

(ii) The short-run total cost, variable cost, average cost, average variable cost, and marginal cost

(iii) The long-run total cost, long-run average cost, and the long-run marginal cost

[6 + 9 + 6 points]

Answer:

Short run: $\bar{T} = 5$. Fixed cost @ $4 per unit amounts to $20. Total cost is 20 + 6L, where L is the number of secretaries involved. See table below:

Secretary (L)	Total Product = Q	Marginal Product of L	Variable Cost	Short-run Total Cost	Average Cost	Average Variable Cost	Short-run Marginal Cost
1	1		6	26	26	6	
2	2	1	12	32	16	6	6
3	3	1	18	38	12.67	6	6
4	4	1	24	44	11	6	6
5	5	1	30	50	(minimum) 10	6	6
6	5	0	36	56	11.2	7.2	6
7	5	0	42	62	12.4	8.4	6

In the long run, the firm is on its expansion path. Long-run Total Cost = 4T + 6L. In the Long-run, Prathamesh employs Labour (Secretaries) and Capital (Typewriters) in 1:1 ratio.

Q = 1, when T = L = 1. Long-run Total Cost = (4 × 1) + (6 × 1) = 10; LAC = 10; LMC = 10

Q = 2, when T = L = 2. Long-run Total Cost = (4 × 2) + (6 × 2) = 20; LAC = 10; LMC = 10

Q = 3, when T = L = 3. Long-run Total Cost = (4 × 3) + (6 × 3) = 30; LAC = 10; LMC = 10

Notice that the LAC coincides with the minimum of the short-run average cost.