

Indian Statistical Institute, Bangalore
B. Math (Hons.) III year
Economics I

Mid-Semester paper

Duration: 3 hours

Total marks: 50

Date: 15th September 2017

All questions must be answered.

One mark questions

1. Suppose we know that the price elasticity of demand for organic carrots is 1.5. If a grocer decreases the price of organic carrots by 12%, what would we expect to happen to the quantity of organic carrots purchased?
 - a) Decrease by 18%
 - b) Decrease by 6%
 - c) Increase by 6%
 - d) Increase by 8%
 - e) Increase by 18%

2. An individual consumes only two goods, X and Y. Which of the following expressions represents the utility maximizing market basket?
 - a) MRS_{xy} is at a maximum.
 - b) $P_x/P_y = \text{money income}$.
 - c) $MRS_{xy} = \text{money income}$.
 - d) $MRS_{xy} = P_x/P_y$.
 - e) All of the above.

3. If potatoes are a Giffen good, then...
 - a) potatoes are also a normal good.
 - b) potatoes are also a luxury good.
 - c) an increase in the price of potatoes will increase the quantity demanded.
 - d) there will always be a surplus of potatoes.
 - e) potatoes must make up a small portion of consumers' total expenditures.

4. Under factor price equalization, trade between countries A and B will result in
 - a) both countries producing the same goods
 - b) equal wages in both countries
 - c) equal returns to factors in both countries
 - d) none of the above

5. Which of the following products has an oligopolistic market
 - a) wheat
 - b) raw cotton
 - c) cars
 - d) wooden chairs

6. Use the following two statements to answer this question:

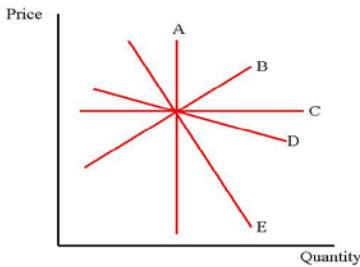
I "Decreasing returns to scale" and "diminishing returns to a factor of production" are two phrases that mean the same thing.

II Diminishing returns to all factors of production implies decreasing returns to scale.

- a) Both I and II are true.
- b) I is true, and II is false.
- c) I is false, and II is true.
- d) Both I and II are false.

7. Of the two goods -- Stereo headphones and hearing aids, which is more (own) price inelastic?

Two marks questions



8. In the graph above, which line represents a demand curve that is perfectly inelastic? Which line represents a demand curve that is relatively, but not perfectly, elastic? Which line represents a demand curve that is perfectly elastic? Which line represents a demand curve that is relatively, but not perfectly, inelastic?

9. Is demand more elastic in the short run or long run for the following. State the reason.

- a) petrol for cars
- b) air conditioners

10. The table describes the cost structure of a telephone producer.

Quantity of telephones	Fixed Cost (Rs.)	Variable Cost (Rs.)
0	50	
1	50	25
2	50	30
3	50	40
4	50	55

- a) What is the total cost of producing three telephones?
- b) What is the marginal cost of producing the fourth telephone?

11. For each of the following scenarios, use a supply and demand diagram to illustrate the effect of a given shock on equilibrium price and quantity in a competitive market. [2 marks each]

- a) An unexpected heat wave in Delhi. What is the impact on the ice cream market?
- b) The government imposes a luxury tax on ice-creams. What happens to price?

12. Japan and Korea make ships and cars using the following inputs.

Country	Number of hours to make a ship	Number of hours to make a car
Japan	50	100
Korea	150	200

Which country has comparative advantage in producing cars?

13. Give one example each of

- a) wage elastic labour market.
- b) wage inelastic labour market.

14. Give an example of positive externality. If there is no regulation, how will production be affected ?

15. Explain what happens when a monopolist engages in price discrimination.

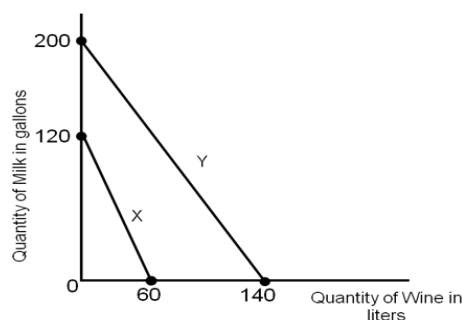
16. What explains the U shape of the long-run average (total) cost curve?

17. Give a real life example of oligopoly and price war.

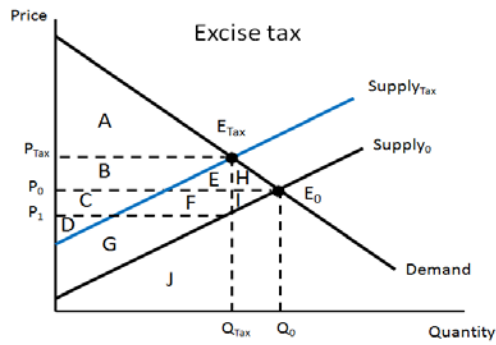
18. Draw and show the relation between average cost curve and marginal cost curve for a typical producer under perfect competition.

19. Classify the following as private goods, public goods, common property resources or artificially scares goods. [4 marks]

- a) ISI gym
- b) Municipal swimming pool
- c) Bullet proof vest
- d) Police services



20. Refer to the figure above that shows the production-possibilities frontier of countries X and Y. The points on each axis represent the maximum quantities that each country could produce if they specialized entirely in one good or the other. What is the opportunity cost of producing one gallon of milk in country X? Which country has a comparative advantage at producing wine? What should country X specialize in if it follows comparative advantage? [3 marks]



21. The graph above illustrates a market with an excise tax. In the post-tax equilibrium, [3 marks]
- What is the consumer surplus?
 - What does the government gain?
 - What is the deadweight loss?

22. The following table shows costs of producing scooters. [4 marks]

Quantity of Scooters	Selling Price (\$)	Total Revenue (\$)	Marginal Revenue (\$)	Total Cost (\$)	Marginal Cost (\$)	Profit (\$)
0				1000	--	
1	1700			1600		
2	1400			2000		
3	1100			2500		
4	800			3100		

- If the scooter producer makes and sells 4 scooters, what will be its total revenue?
 If the scooter producer decides to make and sell 2 scooters rather than 1 scooter, how much *additional* revenue will the firm gain?
 What is the marginal cost of producing the fourth scooter?
 What is the profit-maximizing output level of the firm?

23. Suppose a consumer has demand for tea in the form of $P(10+X)=M$ where X denotes the quantity of tea and P denotes the price of tea and M denotes individual's weekly income. Now there is a fall in the price of tea from Rs. 20 to Rs. 10. Assuming that tea is a normal good and $M = \text{Rs. } 400$, [5 marks]

- What will be the change in the real income due to this fall in price?
- If the individual was initially consuming both tea and coffee and he has no special preference for either, then by how much will he increase his consumption of tea just by drinking tea in place of coffee?
- How much change in the consumption of tea will be there due to the change in the real income followed by the fall in price?
- In what category of goods would you put tea if a fall in price from Rs. 20 to Rs. 10 pushed the quantity consumed by the individual
 - from 10 units to 15 units?
 - from 10 units to 5 units?