

1. (a) There are 10 workers in Australia and each can produce either 2 computers or 30 tons of rice. There are 10 workers in India and each can produce either 5 computers or 40 tons of rice.

(i) Draw the production possibility curve for both the countries.

(ii) Which country has absolute advantage in production of computers?

(iii) Which country has a comparative advantage in the production of rice?

- (b) Differentiate between a normative and positive statement. Are the following statements positive or normative?

(i) Introduction of minimum-wage law causes unemployment in labour market.

(ii) The unemployment rate should be below 3%.

(iii) Increase in public health expenditure will increase the overall expenditure of government.

- (c) Use the concept of Production Possibilities Frontier (PPF) to illustrate society's trade-off between two goods. Explain why PPF most likely has a bowed-out shape. Show a point that is impossible for the economy to achieve. Show a point that is feasible but inefficient. (6+6+6)

2. (a) Calculate elasticity of demand and elasticity of supply at the equilibrium price for the given demand and supply function:

$$Q_d = 80 - 6P; Q_s = -10 + 3P$$

- (b) A technological advancement reduces the cost of making computers enormously. Use supply-and-demand diagram to show:

(i) What happens to equilibrium price and quantity in the market for software?

(ii) What will happen to the price and quantity in the market for typewriters?

(iii) Whose producers (typewriter or software) will be happy?

- (c) What are the factors that influence the elasticity of demand for any good? Suppose the price elasticity of demand for good X is about 0.3 and its current price is 60. By how much should the government increase the price if it wants to reduce the consumption of good X by 30 percent?

(6+6+6)

3. (a) The demand ( $Q_d$ ) and supply ( $Q_s$ ) for apple is given as:  $Q_d = 170 - 2P$ ;  $Q_s = -10 + P$ . Calculate the equilibrium price and quantity of apples. The government passed a law that introduces a statutory minimum price for apples as ₹70. Explain the resulting change in market price, quantity demanded and new consumer surplus and producer surplus.

- (b) Explain whether the following statements are true or false.

(i) Pizza and cold drink are considered complementary goods, if the price of pizza decreases the quantity demanded for both goods will increase.

(ii) A drought in the entire state raises the total revenue that farmers receive from the sale of rice, but a drought only in one district reduces the total revenue received by the farmers of that district.

- (c) When is a price floor non-binding in nature?

Suppose that the government imposes a binding price floor in the wheat market. What would be the effect of this policy on the quantity of wheat bought and sold? Would the total revenue of the farmers increase or decrease? Explain. (6+6+6)

4. (a) Suppose that a market for tables is described by the following supply and demand functions:

$$Q_s = 3P; Q_d = 200 - P$$

Calculate the equilibrium price and the equilibrium quantity of tables.

Suppose that a tax of 40 is placed on buyers.

Solve for the new equilibrium. What happens to

the price received by sellers, the price paid by

buyers and the quantity sold? Calculate the dead

weight loss.

- (b) What is the Tragedy of Commons? Suppose Delhi Metro is planning to charge higher fares during rush hours than during the rest of the day. Why is it proposing such a plan?

- (c) Explain in detail the market based policies that government can use to solve the problem of inefficiency caused by externalities. (6+6+6)

5. (a) Assume India is an importer of televisions and there are no trade restrictions. Indian consumers buy 10,000 televisions per year, of which 4,000 are produced domestically and 6,000 are imported. Suppose that a technological advance among Japanese television manufacturers causes the world price of televisions to fall by ₹100. After the fall in price, Indian consumers buy 12,000 televisions, of which 2,000 are produced domestically and 10,000 are imported. Calculate the change in consumer surplus, producer surplus, and total surplus from the price reduction of ₹100.

- (b) Differentiate between price and cross-price elasticity of demand. Suppose an increase in price of burger from ₹40 to ₹44 per unit results in an increase in demand for noodles from 100 units to 120 units. Estimate cross price elasticity of demand and comment on the nature of these two goods.

- (c) Explain the concept of externality using examples. How can the government try to internalize the externality caused by education? (6+6+6)

6. (a) Explore the relationship between deadweight loss from tax, tax revenue and tax size. Will the government be able to increase its revenue if it imposes tax on a good which has inelastic demand?

- (b) Most of the contagious diseases can be prevented by taking an injection of vaccine in local hospitals. The decision to take the vaccine is purely voluntary and some people choose not to go ahead with it due to the high cost involved. What type of externality occurs for vaccines against highly contagious diseases? Use a suitable diagram to show the market equilibrium quantity of the vaccine. Is the quantity also socially efficient? Suggest one method to achieve a socially efficient outcome.

- (c) Suppose a consumer was consuming 100 units of apples initially when his income was ₹1000. Calculate the income elasticity (using mid-point method) if 110 units of apples are demanded when the income of consumer falls to ₹800. What kind of a good is apple in this scenario? (6+6+6)

7. (a) Explain the concept of payoff and equilibrium in games of strategy.

- (b) How does a tariff on imports affect the producer, consumer and total surplus of the importing country? State the arguments in favour of restricting trade.

- (c) During covid pandemic, construction workers migrated back to their villages and at the same time the demand for construction of houses also fell due to uncertainty and loss of income. Explain using demand and supply diagram, how this would have affected the market for workers and their wages? (6+6+6)