Model Questions for Practice

Q. No.	Questions	Max. Marks
1.	Define the indifference curve and briefly explain its properties. Suppose Ajit has a utility function $U = \sqrt{xy}$, and an income of Rs. 1000. If the price of $x = Rs.10$ and $y = Rs.20$, then find out the optimal quantities of x and y that he must consume to maximize his utility.	10
2.	Explain the concept of equilibrium in a market with a suitable diagram. The market demand curve for apples is given by the equation $Q_d = 500 - 4P$, while the market supply curve for apples is given by the equation $Q_s = -100 + 2P$, where P is the price and Q is the quantity of apples, respectively. Find out the equilibrium price and quantity of apples.	10
3.	Illustrate the various types of demand curves based on the price elasticity of demand. The price of a good rises from Rs. 8 to Rs. 12, and the quantity demanded falls from 110 to 90 units. Determine the price elasticity of demand using the midpoint method.	10

Q. No.	Questions	Max. Marks
1.	Describe producers' equilibrium with a suitable diagram. Suppose firm 'A' has a production function: $Q = 10L^{0.5}K^{0.5}$, where L and K are labor and capital, respectively, and Q is the total output. The price of labor is 10 whereas the price of capital is 5. If the firm's total cost is 1000, then find out the optimal quantities of labor and capital that the firm must use to maximize the output.	10
2.	Briefly explain the various types of returns to scale that a firm experiences in the long run, and determine the returns to scale for the following production functions: a) $Q = 20L^{0.3}K^{0.7}$, b) $Q = 15LK$	10
3.	Mathematically show how the price elasticity of demand relates the marginal revenue (MR) with the average revenue (AR). The demand function for product Q is given as: $P = 147 - Q^2$, where P is the price. Find out the quantity of Q at which the total revenue (TR) will be the maximum.	10
4.	Illustrate the relationship between average cost (AC) and marginal cost (MC) with a suitable diagram. Suppose the total cost (TC) function of a firm is given as: $TC = 2Q - 2Q^2 + Q^3$. Find out the level of output at which AC is at its minimum and show that at this level of output, AC is equal to MC.	10
5.	Explain the concept of break-even analysis with the help of a suitable diagram. Suppose the demand function is given as: $P = 9 - Q$. If the firm's total cost is 20, then compute the break-even quantities.	10