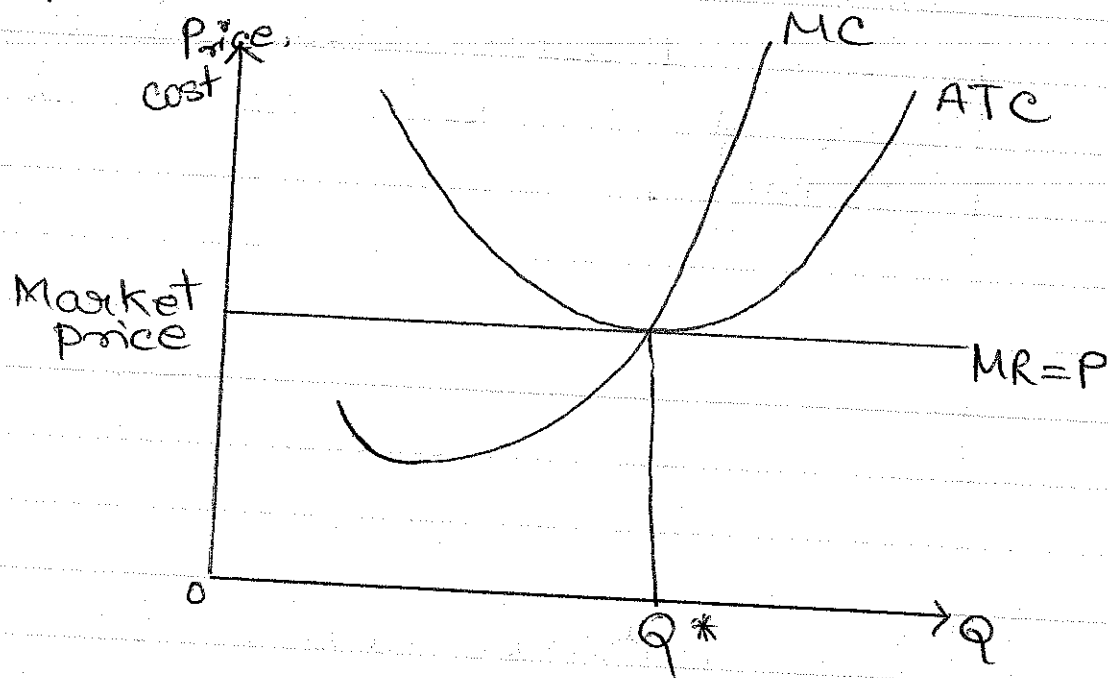


Answer Key to Practice Exam II.

Multiple Choice Questions:

1. d
2. b
3. d
4. c
5. d
6. a
7. d
8. c
9. d
10. b.

① The following graph depicts a perfectly competitive firm in LR equilibrium.



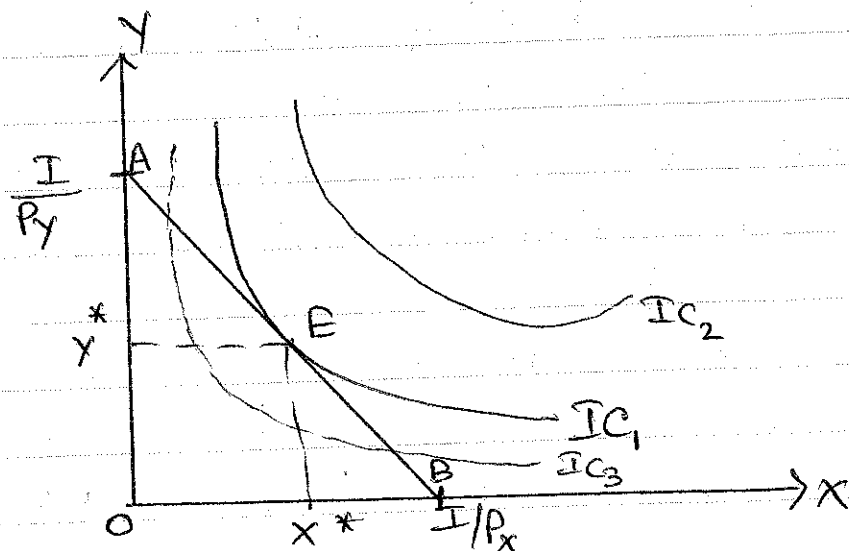
In the LR equilibrium, quantity supplied equals quantity demanded and no producer has any incentive to either enter or exit the industry. The amount of economic profits is zero.

According to optimal output rule, a firm produces the quantity at which marginal revenue (MR) equals marginal cost (MC). For a price taking perfectly competitive firm, $MR=P$.

Its MR is a horizontal line at the market price, as shown in the graph.

∴ The profit maximizing quantity is Q^* at which $P = MC$.

2. The optimal choice for a bundle of goods (x & y), made by a rational consumer to maximize his utility is depicted in the following graph.



The optimal consumption bundle is (x^*, y^*) given by the point E, where the budget line AB is just tangent to the highest possible indifference curve, IC_1 .

(I/P_y and I/P_x are the vertical & horizontal intercepts of the budget line, respectively).

The slope of the budget line is given by the relative price (P_x/P_y). When both prices double, relative price does not change. ($\frac{2P_x}{2P_y} = \frac{P_x}{P_y}$) and hence

slope of budget line does not change.

When income doubles, holding prices constant, budget line shifts outward. But when income and prices all get doubled, then the intercepts of the budget line do not change ($\frac{2I}{2P_y} = \frac{I}{P_y}$ and $\frac{2I}{2P_x} = \frac{I}{P_x}$)

and hence budget line does not shift.

∴ As Prices double and income also doubles, budget line stays the same.

3. Marginal utility of a good or service is defined as the change in total utility generated by consuming one additional unit of that good or service.

ie
$$\frac{\Delta TU}{\Delta Q} = MU$$

The ratio of the marginal utilities of goods x & y is referred to as the marginal rate of substitution (MRS).

At the optimal consumption bundle, MRS equals the relative price of x & y i.e.

$$\frac{MU_x}{MU_y} = \frac{P_x}{P_y}$$

This can be rewritten as:

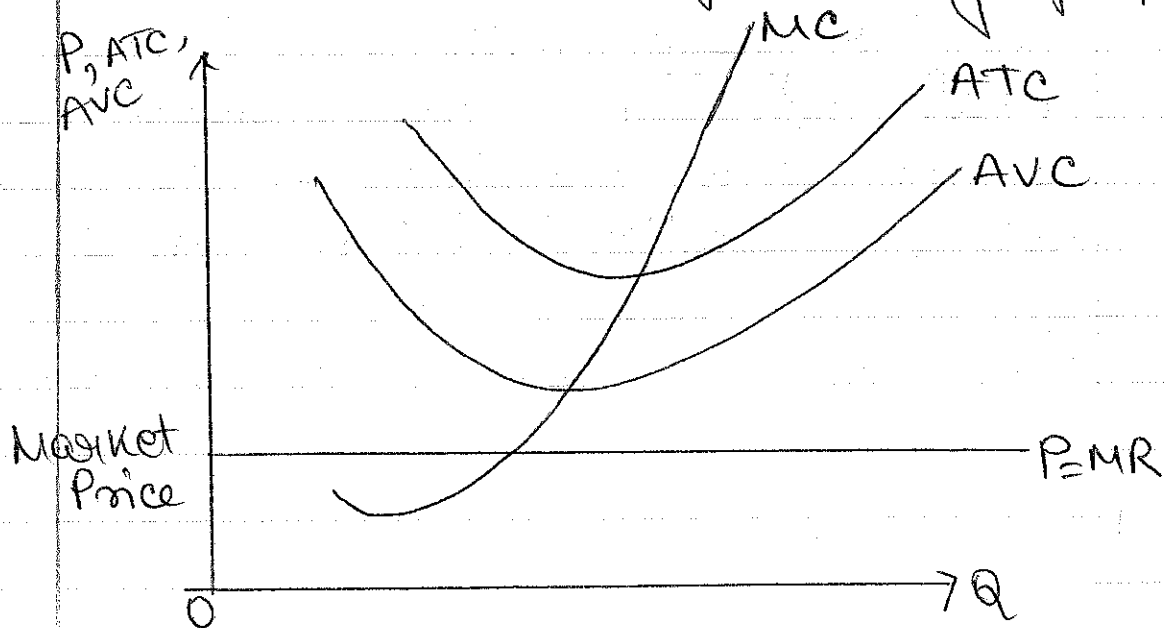
$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

If this equality does not hold, say if $\frac{MU_x}{P_x} > \frac{MU_y}{P_y}$, then

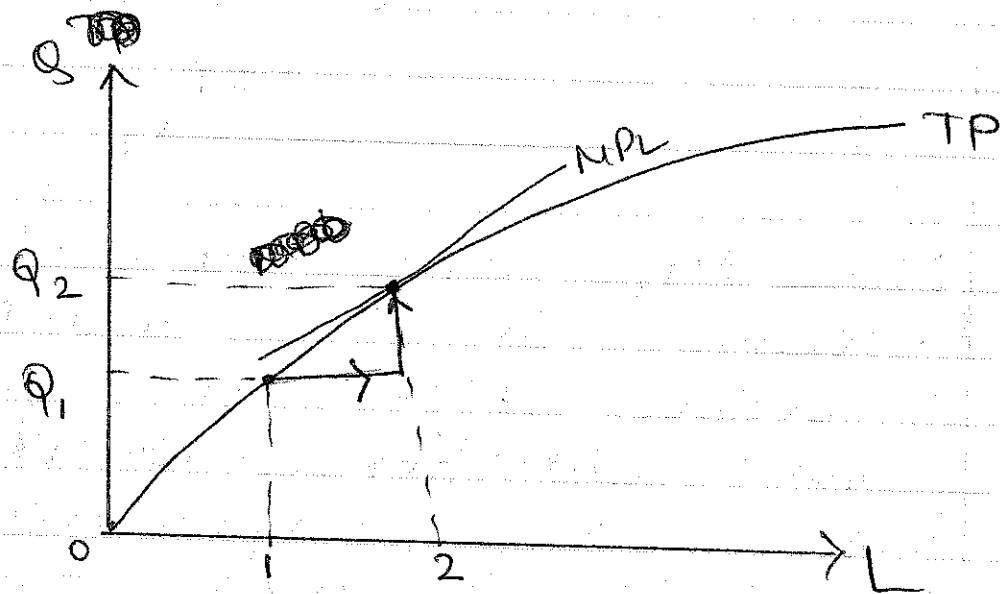
consumer receives a higher ~~max~~ utility from x than from y and so by spending more on x , he can increase his total utility. This goes on until the point is reached where $\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$ and at

this point, his utility is maximized.

4. When the market price is below the minimum average variable cost, the price the firm receives per unit is not covering its variable cost per unit. In this situation a firm would shut down as there is no level of output at which the firm's total revenue covers its variable costs. In this case it's best for firm not to produce at all. This is shown in the following graph.



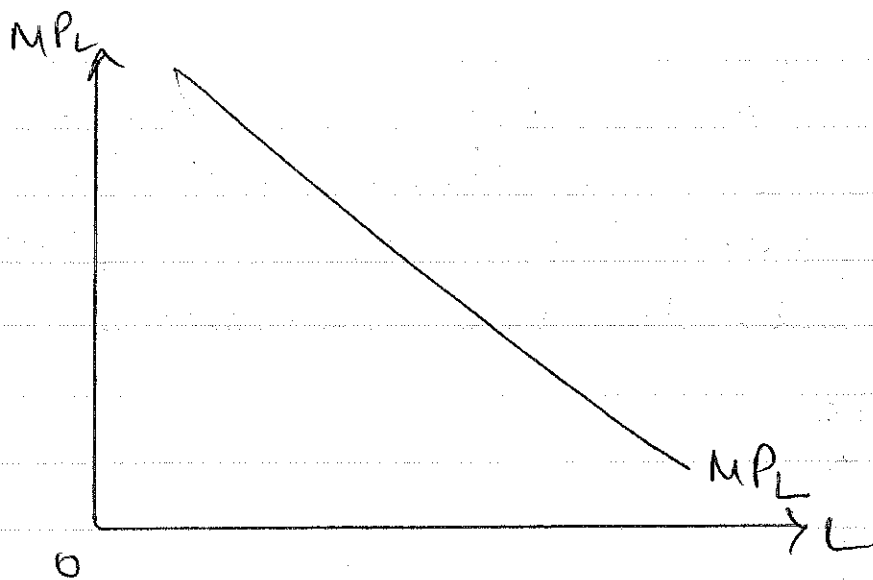
5. The total product curve shows the production function graphically. It is depicted in the following graph:-



Adding 1 additional worker increases output from Q_1 to Q_2 . This is referred to as the marginal product of labor (MPL). It is measured by:-

$$MPL = \frac{\Delta TP}{\Delta L} = \frac{\Delta Q}{\Delta L}$$

MPL is the slope of the TP curve. The following graph shows the MPL curve.



The MPL curve plots the increase in the quantity of output generated by each additional worker.

The curve slopes downward due to diminishing returns to labor.