

Home Assignment

Series - 4

B. A. 1st Sem Economics (Honours)

Paper: ECO-HC-1026: Mathematical Methods for Economics.

1. Find the total differentials of the following functions: 3x3 = 9

(a) $y = 2x_1^2 - 4x_1x_2 + 5x_2^2$

(b) $y = x_1^2x_2^3 + 2x_1x_2 + 5x_1^2 - 3x_2^3$

(c) $y = x_1^3 + \sqrt{x_1}x_2^2 + \log x_1 - x_2^2$

2. Given the consumption function -

$$C = c(Y) = 2000 - \frac{6000}{(5+Y)} \quad \underline{7}$$

(a) Find out marginal propensity to consume (MPC) and marginal propensity to save (MPS) when $Y = 95$.

(b) Also show that MPC and MPS move in the opposite direction when income (Y) changes.

3. A monopolist's demand curve is given by

$$P = 200 - 2.5Q \quad \underline{8}$$

(a) Find the marginal revenue function.

(b) Establish the relationship between the slopes of average and marginal revenue curves.

(c) Find out the price at which marginal revenue is zero.

4. A firm's production function is given by

$$Q = f(L) = -\frac{2}{3}L^3 + 10L^2 \quad \underline{7}$$

Show that diminishing marginal product of labour operates when employment of labour is 6 or more.