

Solution: Assignment 01
Eco404
Marks: 15

Question: 01

A firm pays Rs. 450,000 in wages, Rs. 66,430 in interest on borrowed money capital and Rs. 89,320 for the yearly rental of its factory building. If the entrepreneur worked for somebody else as a manager, he would earn at most Rs. 58,400 per year and if he lent out his money capital to somebody else in a similarly risky business, he would at most receive Rs. 28,500 per year. He owns no land or building. Keeping in view the above information, calculate the:

- a) Explicit cost of the entrepreneur
- b) Implicit cost of the entrepreneur

(Marks: 5)

Solution: 01

a) The explicit cost of entrepreneur = wages + interest on borrowed money capital + rental of its factory building

$$\text{Explicit cost} = \text{Rs. } 450,000 + \text{Rs. } 66,430 + \text{Rs. } 89,320$$

$$\text{Explicit cost} = \text{Rs. } 6,05,750$$

b) The implicit cost of entrepreneur = worked for somebody else + lent out his money capital

$$\text{Implicit cost} = \text{Rs. } 58,400 + \text{Rs. } 28,500$$

$$\text{Implicit cost} = \text{Rs. } 86,900$$

(Marks: 2.5+2.5)

Question: 02

Given the following equations of total revenue and total cost:

$$TR = 250Q - 5Q^2$$

$$TC = 100 + 50Q$$

Find out the level of output at which profit is maximized (by using marginal revenue and marginal cost approach).

(Marks: 5)

Solution: 02

Profit is maximized at the point where:

$$MC = MR$$

MC function can be found by taking derivative of total cost function. i.e.:

$$MC = dTC / dQ$$

$$MC = 50$$

MR function can be found by taking derivative of total revenue (TR) function i.e.:

$$MR = dTR / dQ$$

$$MR = 250 - 10Q$$

As profit is maximized at the point where $MR = MC$, so by equating values of MC and MR function, we get,

$$MR = MC$$

$$250 - 10Q = 50$$

$$250 - 50 = 10Q$$

$$200 = 10Q$$

$$Q = 20$$

(Marks: 1.5+1.5+2)

Question: 03

You have given the following information:

Estimated regression line: $Y = 0.55 + 9.25X$

Standard error = 0.75

Degree of freedom = 8

Level of significance = 5%

Tabulated value of $t = 2.306$

How will you calculate the confidence interval from this information?

Solution: 03

We can calculate confidence interval by following method:

$$b' + 2.306 (s_b), b' - 2.306 (s_b)$$

$$9.25 + 2.306 (0.75), 9.25 - 2.306(0.75)$$

$$9.25 + 1.7295, 9.25 - 1.7295$$

$$10.9795, 7.5205$$

(Marks: 2.5+2.5)

(Best of Luck)