Engineering economic Assignment 3

Engineering Economics (COMSATS University Islamabad)

COMSATS University Islamabad

Abbottabad Campus

Department of Civil Engineering

Assignment # 01

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Subject ENGINEERING ECNOMICS

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ASSIGHMENT INDEX;

QUESTION # 1:-

Define Economics Also disuss the flow of goods, services, resources & money Payments in a simple economy with the help of a suitable diagram?

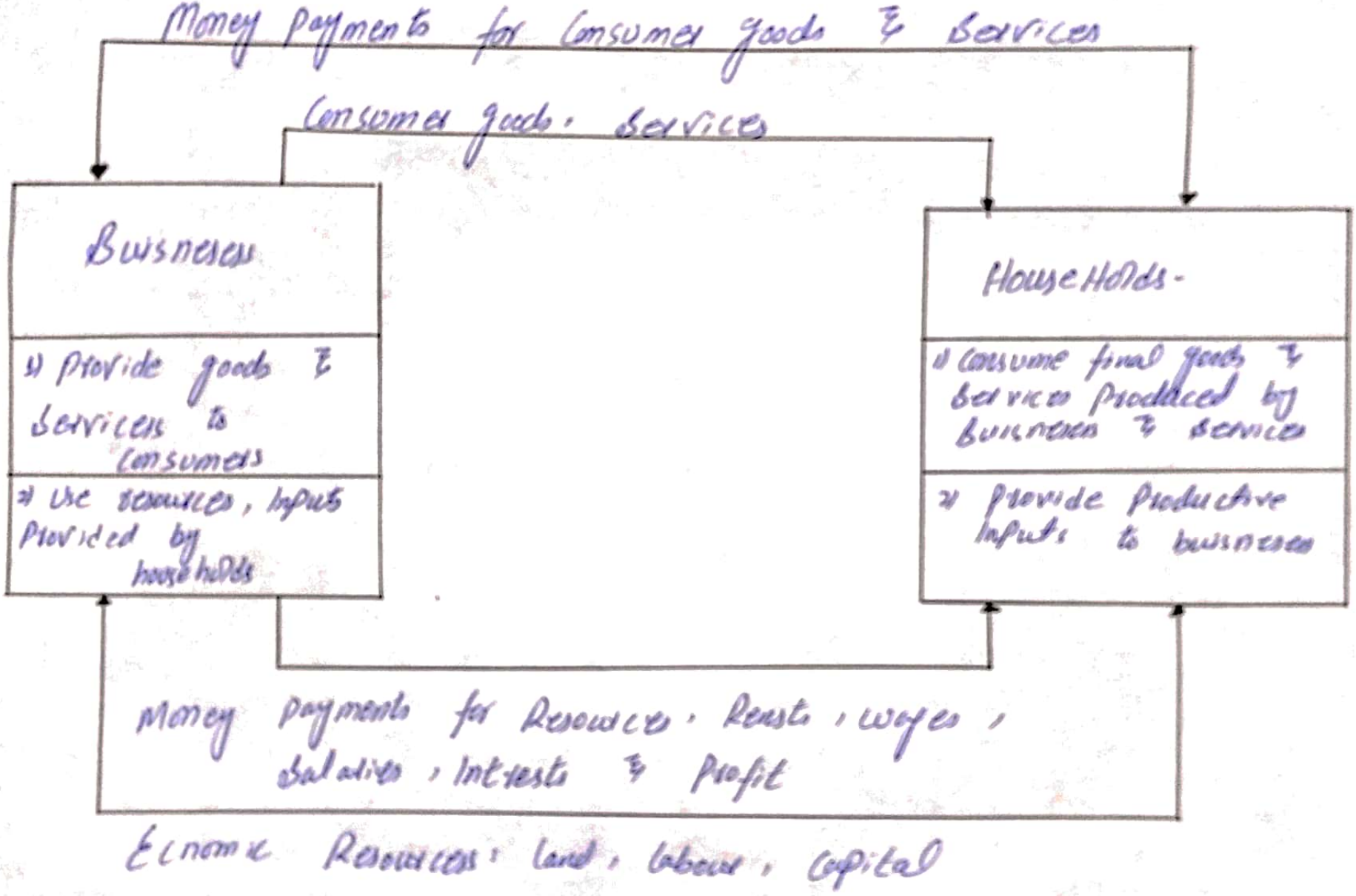
Answer:-

Economics:-

Economic is the science that deals with the production & consumption of goods & services & the distribution & Rendering of these for human welfare.

flow In An Economy:-

The flow of goods, services, resources & money payments in a sample economy are shown in fig 1.1 Households & Buisness are the two major entities in a sample economy Buisness organizations used various economic resources like land, labour & capital which are Provided by households to Produce consumer goods & services.



QUESTION # 5:

What are the ways by which Economic Efficency can be Improved?

Answer:

Economic Efficency:

↳ Economic efficency is also called the productivity it is a Ratio of output to Input of a buissness system.

following are the several ways by which Economic Efficency can be Improved:

- Increased output for the same Input.
- Decreased Input for the same output.
- By a proportinate Increse in the output which is more than the Proportionate Increseen in Input & the vice versa.

QUESTION # 3:-

Discuss the factor which influenced the Demand & Supply?

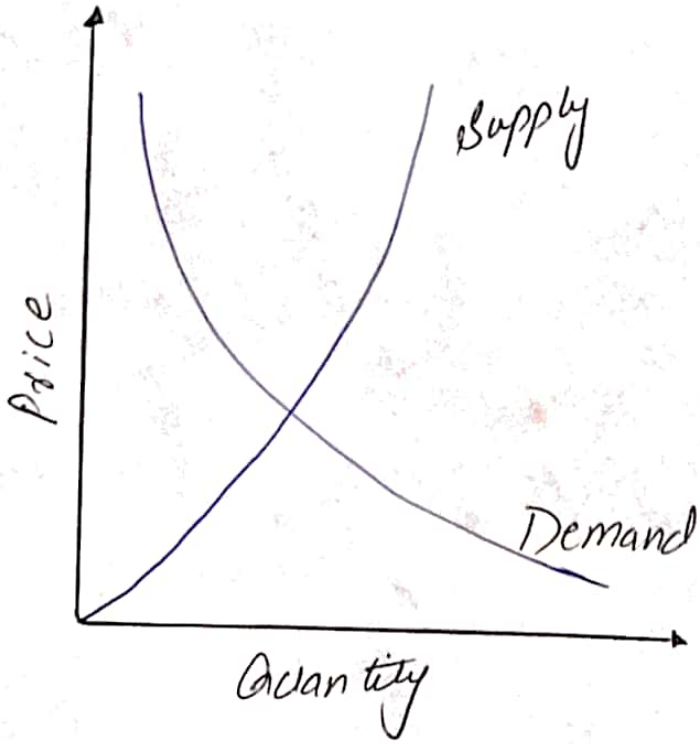
ANSWER:-

Factors Influencing Demand:

The shape of Demand curve is influenced by the following factor.

- Income of the people
- Prices of Related goods
- Tastes of Consumers.

DEMAND AND SUPPLY CURVE:-



FACTORS INFLUENCING SUPPLY:

↳ The shape of supply curve is effected by the following factors:

- Cost of the Inputs
- TECHNOLOGY.
- Weather
- prices of related goods

QUESTION # 2:

Illustrate the effect of price on demand & supply. illustrate with the help of diagram?

Answer:-

Effect of Price On Demand:-

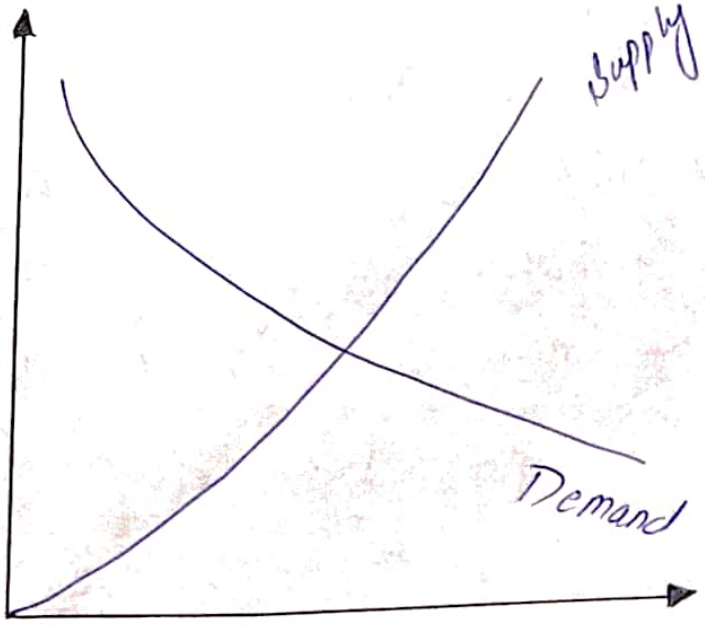
If for Instance the price of television sets is lowered drastically its demand would naturally go up As a Result the demand for its associated Product namely VCDs would also Increase Hence the Process of related

goods influences the demand of a Product.

Effect of Price on Supply:-

Again take the case of television sets if the price of TV sets is lowered significantly then its demand would naturally go up As a Result the demand for associated products like VCDs would also go up over a period of time this will lead to an Increse in the price of VCDs which would Result in more supply of VCDs.

DIAGRAM:



QUESTION # 4:-

DISINGUISH b/w Technical efficecency & Ecnomic efficiency by giving examples?

Answer:-

Efficency:-

↳ Efficency of a system is generally defined as the Ratio of its output to Input The efficency can be classified Into:

(i) Technical efficency
(ii) Ecnomic efficency

TECHNICAL EFFICENCY:-

↳ It is the Ratio of output to Input of a Physical system. The Physical system may be a diesel engine or a furnace etc.

$$T.E = \frac{output}{Input} \times 100$$

EXAMPLE:-

The Technical efficency of a diesel engine as follows:

$$T.E = \frac{\text{Heat Equivalent of Mechanical Energy Produced}}{\text{Heat equivalent of fuel used}} \times 100$$

ECNOMIC EFFICIENCY:-

↳ Ecnomic efficency is the Ratio of output to Input of a buissness system

$$\text{Ecnomic Efficency} = \frac{\text{output}}{\text{Input}} \times 100$$

or

$$\Rightarrow \frac{\text{worth}}{\text{cost}} \times 100$$

EXAMPLES:-

↳ Ecnomic efficency Indicates a balance of loss & benenfit e.g A former wants to sell a part of his land The Individual that will pay the most for the land uses the resources most efficently than someone who doesnot pay the most money for the land-

QUESTION # 6:-

Krishna Company has the following details:

Fixed Cost = Rs 4,000,000

Variable Cost per Unit = Rs 300

Selling price per Unit = Rs 500

To find:-

(a) The Break Even Sales Quantity

(b) The Break Even Sales

(c) If the Actual production Quantity is 120,000 then find the following:

(1) Contribution

(2) M.S by all Methods

Solution:-

Break Even Sales Quantity:-

Break even Sales Quantity = $\frac{\text{fixed cost}}{\text{Sales} - \text{variable}}$

$\Rightarrow \frac{40,00,000}{500 - 300}$

$\Rightarrow 20,000$

BREAK EVEN SALES:-

$$\text{Break even sales} = \frac{\text{Fixed cost}}{\text{Sales} - \text{Variable}} \times \text{Sales}$$

$$\Rightarrow \frac{40,00,000}{500 - 300} \times 500$$

$$\boxed{\Rightarrow 10,000,000}$$

CONTRIBUTION:-

$$\text{Contribution} = \text{Sales} - \text{Variable}$$

$$\Rightarrow S \times Q - V \times Q$$

$$\Rightarrow 500 \times 120,000 - 300 \times 120,1000$$

$$\Rightarrow 60,000,000 - 36,000,000$$

$$\boxed{\Rightarrow 24,000,000}$$

MARGIN of SAFTEY (M.S)

Method - I:-

$$M.S = S \times Q - \text{Break Even Sales}$$

$$\Rightarrow 500 \times 120,000 - 10,000,000$$

$$\boxed{\Rightarrow 50,000,000}$$

METHOD #2.

$$M.S = \frac{\text{Profit}}{\text{Contribution}} \times \text{Sales}$$

$$\text{Profit} = \text{Sales} - (FC + V \times Q)$$

$$\Rightarrow 500 \times 120{,}000 - (40{,}000{,}000 + 300 \times 120{,}000)$$

$$\Rightarrow 60{,}000{,}000 - 40{,}000{,}000$$

$$\boxed{\Rightarrow 20{,}000{,}000}$$

$$M.S = \frac{20{,}000{,}000}{24{,}000{,}000} \times 60{,}000{,}000$$

$$\boxed{\Rightarrow 50{,}000{,}000}$$

Now M.S as a percent of Sales is given As:

$$\Rightarrow \frac{50{,}000{,}000}{60{,}000{,}000} \times 100$$

$$\boxed{\Rightarrow 83.33\%}$$

QUESTION # 7:-

Consider the following Data of a company for the year of 1998:

Sales = Rs 2,40,000

fixed Cost = Rs 50,000

Variable Cost = Rs 75,000

find the following:

(i) Contribution

(ii) Profit

(iii) BEP

(iv) Margin of Saftey.

Solution:-

CONTRIBUTION:-

Contribution = Sales - Variable Cost

=> 2,40,000 - 75,000

=> 165,000

PROFIT:-

Profit = Contribution - Fixed Costs.

=> 165,000 - 25,000

=> 140,000

BEP:-

- P/V Radio = $\frac{\text{Contribution}}{\text{Sales}}$

$$\Rightarrow \frac{165{,}000}{2{,}40{,}000} \times 100$$

$$\Rightarrow 68.75\%$$

- BEP = $\frac{\text{Fixed Cost}}{\text{P/V Ratio}}$

$$\Rightarrow \frac{50{,}000}{68.75}$$

$$\Rightarrow 72727.27$$

MARGIN OF SAFTEY (M.S):-

$$M.S = \frac{\text{Profit}}{\text{P/V Ratio}}$$

$$\Rightarrow \frac{140{,}000}{68.75}$$

$$\Rightarrow 203{,}636.3$$