

VASAVI COLLEGE OF ENGINEERING, (AUTONOMOUS)

HYDERABAD-500031

Department of Humanities and Social Sciences

BE VI-Semester- I-Internal Examinations, 2022-23

(Common for ECE, IT & EEE)

ECONOMICS AND FINANCE FOR ENGINEERS- U19HS040EH

Max. Marks: 30

Time: 1½ Hours

Q. No.	Description of the Question	M	BTL	Mapped CO PO	
				CO	PO
PART – A (6 x 1Marks = 6) Answer ALL questions					
1.	Define Managerial Economics	1	1	1	9
2.	Differentiate between Firm and Industry	1	1	1	9
3.	Draw demand schedule and demand curve with imaginary figures	1	3	1	9
4.	Differentiate between Fixed and Variable cost	1	3	2	11
5.	What is meant by Contribution?	1	1	2	11
6.	Selling price is Rs.20/- Per Unit and Variable cost Rs15/- Calculate PV Ratio	1	3	2	11
PART – B (3 x 4 Marks = 12) Answer ALL questions					
7.	Explain the nature of 'Managerial Economics'	4	2	1	9
8.	Explain any 4 determinants of demand	4	2	1	9
9.	Match the following expenses to their respective overheads (I to II) on the basis function I -a) Delivery truck charges b) Machine Repairs c) Printing and computer maintaining charges d) Show Room Lighting II- a) Factory Overheads b) Administrative Overheads c) Selling Overheads d) Distribution Overheads	4	3	2	11
PART – C (2 x 6 marks = 12 Marks) Answer ALL questions					
10.	Determine Price elasticity of demand using Point Method and Arc Method given that: Quantity demanded for a product X is 5000 units at a price of Rs 250/- If the price declines to Rs.150/- the quantity demanded increases to 6000 units.	6	3	1	9
11.	Selling Price per Unit=Rs.45/- Variable cost= Rs 30/- Fixed Cost= Rs.60000/- Find out i) P V Ratio ii) Break Even Point iii) Margin of safety if actual sales is Rs300000/-	6	3	2	11

Summary of the percentage for each of the criteria BTL (Blooms Taxonomy Level) from the questions framed.

1. Fundamental knowledge from level-1 (Recall) & 2 (understand): **45.45%**
2. Knowledge on application from level-3 (Apply) & 4 (Analyze) :**54.55 %**
3. Critical thinking and ability to design from level-5 (Estimate) & 6 (Create or Design):**0%**

VASAVI COLLEGE OF ENGINEERING, (AUTONOMOUS) HYDERABAD

(Accredited by NAAC with A++ Grade)

Department of Humanities and Social Sciences

BE VI-Semester- I-Internal Examinations, 2022-23

Economics And Finance For Engineers- Key & Scheme of Evaluation

Section A

1.	Managerial Economics: ‘Managerial economics is the application of economic theory to the business practice in order to facilitate decision making and forward planning’ –Spencer and Sigleman Any quoted definition -----1 mark	1
2.	Firm: Single business unit -----0.5 Mark Industry: group of firms operating similar type of business-----0.5 Mark	1
3.	Demand Schedule: Tabular form which represents various quantities demanded at different prices -----0.5 Mark Demand curve: Graphical representation of demand schedule -----0.5 Mark	1
4.	Fixed cost : cost that does not vary with the volume of output -----0.5 Mark Variable cost: cost which is directly proportionate with the volume of output-----0.5 Mark	1
5.	Contribution: Difference between Sales and Variable cost -----1 mark	1
6.	Selling price is Rs.20/- Per Unit and Variable cost Rs15/- PV Ratio: $(Sales-VC)/Sales \times 100$ -----0.5 Mark P V Ratio: 25% -----0.5 Mark	1

Section B

7.	Explain the nature of ‘Managerial Economics’ Close to micro economics, operates in the back drop of macro economics, prescriptive in action, multidisciplinary in nature etc. Any 4 points may be considered (Each one carries one mark)	4
8.	Any 4 determinants of demand Price, Income, tastes and preferences, whether conditions etc. Any 4 points with explanation may be considered (Each one carries one mark)	4
9.	Match the following a) Delivery truck charges---- d) Distribution Overheads b) Machine Repairs----- a) Factory Overheads c) Printing and computer maintaining charges----- b) Administrative Overheads d) Show Room Lighting -----c) Selling Overheads (Each one carries one mark)	4

Section C

10.	Quantity demanded for a product X is 5000 units at a price of Rs 250/- If the price declines to Rs.150/- the quantity demanded increases to 6000 units. Point method: <u>Price Elasticity = %Change in Quantity Demanded $[(Q_2-Q_1)/Q_1]$</u> ----- 1 mark % Change in Price $[(P_2-P_1)/P_1]$	6
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	<p>Price Elasticity=0.5 (Substitution and calculation ----- 2 marks)</p> <p>Arc Method :</p> <p>Price Elasticity = $\frac{[(Q_2-Q_1)/(Q_2+Q_1)]}{[(P_2-P_1)/(P_2+P_1)]}$ ----- 1 marks</p> <p>Price Elasticity=0.363636 (Substitution and calculation ----- 2 marks)</p>	
11.	<p>Selling Price per Unit=Rs.45/- Variable cost= Rs 30/- Fixed Cost= Rs.60000/-</p> <p>P V Ratio :0.33</p> <p>Break Even Point: Rs 1,80,000/- or 4000 units</p> <p>Margin of safety if actual sales is Rs300000/- = Rs120000/-</p> <p>(For each bit Formula- one mark and Calculation- 1 mark)</p>	6

3/4 IT-A VI Sem 2022-23

(8 Pages)

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(AUTONOMOUS)

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Invigilator's Signature
and date
[Signature] 16/3/23

Roll No. / Hall ticket No.

1602-20-137-043

MAIN ANSWER BOOK

✓ B.E/M.E/M.Tech..... VI Semester, Branch..... IT Mid Term test No..... 1

Subject..... FFE Name.... D. Sye. Surya.....

INSTRUCTIONS :

- 1) Fill in the Particulars mentioned above before you answer.
- 2) Write your answers on both the sides of the paper.
- 3) Write your answers for Part-A questions at one place, next answers for Part-B Questions at one place followed by answers for Part-C Questions

Q. No.	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Total
Award	1	1	1	1	1	1	3	2	4	6	5½	26½	

Part - A

1) Managerial Economics is the practical application of economic theories to solve problems of business organisations.

2) Firm

A firm is a single business entity which produces goods by utilizing resources such as Land, Labor, Capital and Organisation.

Eg: Honda Motor Corp. is a firm

Industry

An industry is a group of related firms that produce a similar product / good.

Eg. → wheeler industry, Textile industry

3) Demand Schedule

It is a table which shows the relationship between price and quantity demanded.

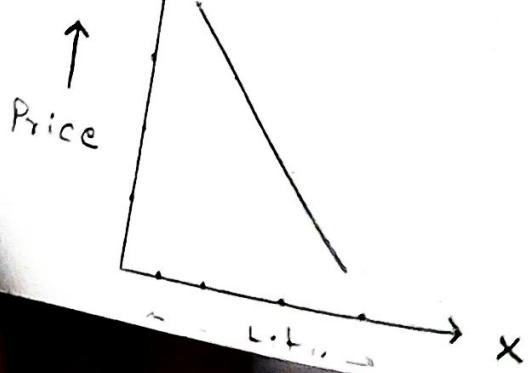
Demand Curve

It is a graphical representation of demand schedule with ~~Profit~~ ^{Price} on Y axis and quantity demanded on X - axis.

Consider the following demand schedule:

Price (in Rs.)	Quantity demanded (in units)
10	20
20	60
40	40
60	20

The demand curve is:



It is a downward sloping curve from left to right.

As price increases, quantity demanded decreases and vice versa.

Fixed Cost

It is the expense occurred which does not change with change in production (output)

e.g. Rent, Salaries

Variable Cost

It is the expense which changes with change in production (output)

e.g. Raw Material

Contribution is defined as the difference in Sales and Variable cost

$$\text{ie; contribution} = \text{Sales} - \text{Variable cost}$$

c) Given,

Selling price per unit = Rs. 20

Variable cost = Rs. 15

$$\begin{aligned}\text{Contribution} &= \text{Selling price per unit} - \text{Variable cost} \\ &= \text{Rs. } 20 - \text{Rs. } 15 \\ &= \text{Rs. } 5 \text{ per unit}\end{aligned}$$

$$\text{PV ratio} = \frac{\text{Contribution per unit}}{\text{Selling price per unit}} = \frac{\cancel{\text{Rs. } 5}}{\cancel{\text{Rs. } 20}} = \frac{1}{4}$$

$$\text{PV ratio} = 0.25 = 25\%$$

Part - B

II

- 9) I
 a) Delivery truck charges → d) Distribution overhead
 b) Machine Repairs → a) Factory overheads
 c) Printing & Computer maintaining charges → b) Administrative overhead
 d) Show Room lighting → c) Selling overhead

4

Part - C

v) ii) Given,

Selling price per unit = Rs 45

Variable cost = Rs 30

Fixed cost = Rs. 60,000

① PV ratio

$$\text{Contribution} = \text{Selling price per unit} - \text{Variable cost}$$

$$= \text{Rs } 45 - \text{Rs } 30$$

$$= \text{Rs. } 15 \text{ per unit}$$

$$\text{PV ratio} = \frac{\text{Contribution per unit}}{\text{Selling price per unit}} = \frac{\text{Rs. } 15}{\text{Rs. } 45} = \frac{1}{3} = 0.333$$

Break even point

$$\text{Break even point} = \frac{\text{Fixed Cost}}{\text{Contribution per unit}} = \frac{\text{Rs } 60,000}{\text{Rs. } 15}$$

= 4000 units

$$\begin{aligned}\text{Break even sales} &= \text{Break even point} \times \text{Selling price per unit} \\ (\text{in Rs}) &= 4000 \text{ units} \times \text{Rs } 45 \text{ per unit} \\ &= \text{Rs } 1,80,000\end{aligned}$$

Margin of Safety

$$\text{Actual Sales} = \text{Rs } 3,00,000$$

$$\begin{aligned}\text{Margin of Safety} &= \text{Actual Sales} - \text{Break even sales} \\ &\approx \text{Rs } 3,00,000 - \text{Rs } 1,80,000 \\ &= \text{Rs. } 1,20,000\end{aligned}$$

10) Given,
Quantity demanded for X is 5000 units at
price Rs. 250
Price declines to Rs. 150, then quantity demand
is 6000 units

Let
 Q_1 = Quantity demanded before price change
 Q_2 = Quantity demanded after price change

P_1 = Original Price

P_2 = New Price

3) Demand determinants

- i) Price of the substitute product - If the substitute product is less expensive and easily available, then it will have more demand than our product.
- ii) Fashion - Latest trends in fashion effect the demand as more fashionable goods are preferred than less fashionable ones.
- iii) Number of buyers - If the number of buyers is more, then that product will definitely have high demand even though price is high.
- iv) Distribution of Income & wealth - If there is an even distribution of wealth, then people buy medium quality products. If there is uneven distribution, then there is demand for high quality and poor quality goods.
- v) Population growth - As population increases, more goods are required, hence there will be an increase in demand.
- vi) Consumer expectation about future prices - If customers think that prices will decline in the future, then demand will be less and vice versa.
- vii) Age & Gender - The age group & gender also greatly affects demand, for eg. shaving creams are in demand for men and cosmetics are in demand for women.

(8 Pages)

3/4 IT B VI Sem

I Date 14/3/23 2-30-4.00 No.

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VASAVI COLLEGE OF ENGINEERING

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Invigilator's Signature
and date
14/3/23



Roll No. / Hall ticket No.

1602-20-737-100

MAIN ANSWER BOOK

B.E/M.E/M.Tech.....VI.....Semester, Branch.....IT-B.....Mid Term test No.....1.....

Subject.....Economics, finance for engineering Name.....Rajprasanna

INSTRUCTIONS :

- 1) Fill in the Particulars mentioned above before you answer.
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- 3) Write your answers for Part-A questions at one place, next answers for Part-B Questions at one place followed by answers for Part-C Questions

C. No.	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Total
Award	1	1	1	1	1	1	2 1/2	3	4	5	6	7	27 1/2

part - A

?

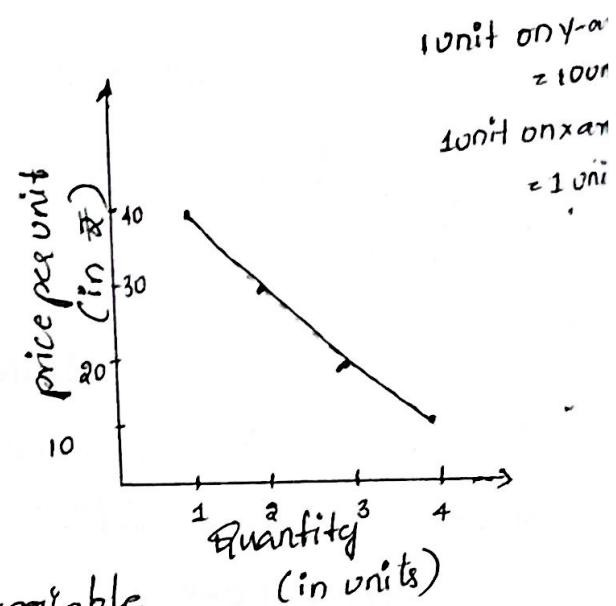
1) Managerial Economics :-
Managerial Economics is study of " Integration of economic theory with business practices for the purpose of facilitating decision making , forward planning for management".

Q)	firm	Industry
	<ul style="list-style-type: none"> • firm is single business unit pooling various resources. • produces goods and products. Ex:- Bata produces footwear. 	<ul style="list-style-type: none"> • It is group of firms which manufactures similar type of products. - Ex:- Tyre producing industry.

demand schedule.

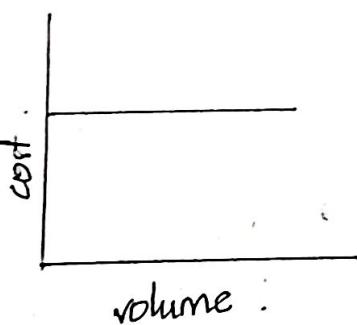
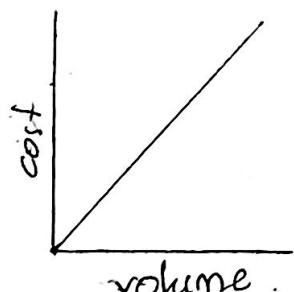
price per unit (in ₹)	quantity (in units)
10	4
20	3
30	2
40	1

demand curve.



price per unit is independent variable.
quantity is dependent variable.

4)

fined cost	variable cost.
<ul style="list-style-type: none"> the cost which remains constant with the change in volume of production. 	<ul style="list-style-type: none"> the cost which changes linearly with the change in the volume of production. 

contribution :-

contribution per unit = selling price per unit - variable cost per unit.

contribution per unit gives the units which are left after removing the variable cost per unit.

contribution (per unit) * is the combination of profit/loss and fixed cost.

6) selling price is. ₹ 20 per unit

variable cost is ₹ 15.

contribution per unit = selling price per unit - variable cost.

$$= (20 - 15) \text{ ₹}$$

$$= 5 \text{ ₹}$$

contribution per unit = 5 ₹

P/V ratio = $\frac{\text{contribution}}{\text{selling price}} \times 100$

$$= \frac{5}{20} \times 100$$

$$P/V ratio = 25\%$$

Part - B.

1) Nature of "Managerial Economics":

- It is micro in nature. As we can apply this to single business units because we need integrate theories with business practice which would be difficult for macro economics.
- It is pragmatic in nature. we can apply managerial economics practically. in real time.
- It considers all other factors like cost of production, demands. etc.
- It is prescriptive rather than descriptive means it gives the suggestion rather than describing it.
- It ignores all other economic theories but it is practical.
- It is considerable for macro economics.

2) Demand :

Demand is the amount of quantity bought by an individual at a given point of time at given price.

- There are various factors which determines the demand. some of them are.

determinants of demand:

- price of product : Generally, when the price of product decreases, the demand increases as it will be affordable to large group of people.
- advertisement : Many people will knowing about the product through advertisement, which will result in the increase in demand.
Ex: Before advertising a product the sales are around 100 to 150. after advertising the product many came to know and sales increased by 10 (percent) times.
- consumer's customer assumption on future price : when the price of product started increasing day-by-day then he/she might think it will increase by large amount in future.
Ex: gold price are increasing. if was expected it will increase by large amount so, the customer either started buying no
- number of buyers : if the numbers of buyers increases the quantity to meet their requirement should increases. if the production remains same then it results in demand for product.
- population growth : As the population increases, the basic needs requirement will also increases.
- age and gender : if the country has more no. of children, then toys are sold most.

9)

a) d

b) a

c) b

d) c



part - C .

10) price elasticity of demand :

If it is the degree of responsiveness of quantity demanded to change in price of product.

price elasticity of demand =

$$\frac{\text{proportionate change in quantity demanded}}{\text{proportionate change in price.}}$$

point method

$$\text{price elasticity of demand} = \frac{\frac{Q_2 - Q_1}{Q_1}}{\frac{P_2 - P_1}{P_1}}$$

Arc method

$$\text{price elasticity of demand} = \frac{\frac{Q_2 - Q_1}{Q_2 + Q_1}}{\frac{P_2 - P_1}{P_2 + P_1}}$$

demand schedule

Price (₹)	Quantity (units)	
P_1	Q_1	(Q_1)
250	5000	
150	6000	(Q_2)

$$\text{point method} = \frac{\frac{Q_2 - Q_1}{Q_1}}{\frac{P_2 - P_1}{P_1}} = \frac{\frac{6000 - 5000}{5000}}{\frac{150 - 250}{250}} = \frac{1000}{1000} \times \frac{\frac{1}{5}}{\frac{2}{5}} = -\frac{1}{2} = -0.5.$$

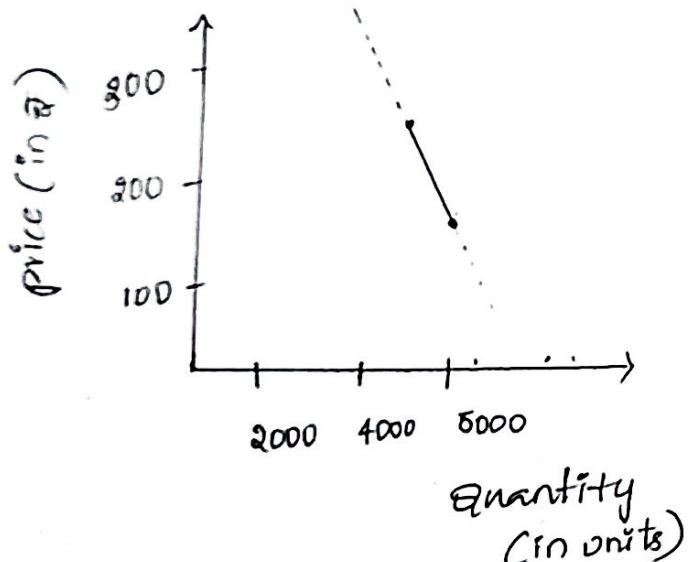
point method

$$\text{price elasticity} = -0.5$$

$$\text{arc method} = \frac{\frac{Q_2 - Q_1}{Q_2 + Q_1}}{\frac{P_2 - P_1}{P_2 + P_1}} = \frac{\frac{6000 - 5000}{5000 + 6000}}{\frac{150 - 250}{150 + 250}} = \frac{1000}{11000} \times \frac{\frac{4}{11}}{-\frac{1}{11}} = -0.3636$$

6

demand curve:



ii) selling price per unit = ₹ 45/-

variable cost = ₹ 30/-

fixed cost = ₹ 60,000/-

actual sales = ₹ 300,000.

contribution = selling price per unit - variable cost.

$$= (45 - 30) \text{ ₹}$$
$$= 15 \text{ ₹}$$

i) P/V ratio = $\frac{\text{contribution}}{\text{selling price}} \times 100$

$$= \frac{15}{45} \times \frac{100}{3} \approx 33.34\%$$

ii) Break even point = $\frac{\text{fixed cost}}{\text{P/V ratio}}$.

$$= \frac{60,000 \times 100}{33.34} = \frac{60,000 \times 100}{\frac{100}{3}}$$

$$= 60,000 \times 3 = 180,000$$

break even cost = ₹ 1,80,000/-

iii) margin of safety = actual sales - break even sales.

$$= (300,000 - 1,80,000) \text{ ₹}$$
$$= 1,20,000 \text{ ₹}$$