

8/Apr/19

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## "Costs And Production"

Q Why costs exist?

Costs exist due to scarce resources and alternatives.

If scarcity fades, cost declines.

→ Explicit Cost:

Direct, visible, clear, evident.

eg

Taxes, Bills, monetary payments, school fees, salaries, wages, groceries.

→ Implicit Cost:

Opportunity cost / economic cost / indirect cost.

eg

Carpenter / Woodworker → self-employed.

⇒ if he works for someone he will end up with at least ₹60,000 a month.

↓  
implicit cost.

Total Cost = Explicit cost + Implicit cost

Profit = Total Revenue - Total Cost.

$TR = P \times Q$ .

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Accounting Profit =  $AP = TR - \text{Explicit Cost}$

Economic Profit =  $EP = TR - \text{Total Cost}$

so  $AP > EP$

Normal Profit :

Opportunity cost of doing a business  
Break even situation of the firm.

$$TR = TC$$

Q Why normal profit is treated as implicit cost?

Because this is the initial investment.

→ Law of Diminishing Returns :-

Assumptions:

- ① Technologies & Agriculture land are fixed resources.
- ② Variable resource is labour/worker.
- ③ Short run period, so expansion can't take place.

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Statement:

In order to increase total product when successive units (one after the another) of variable resource are added to the fixed resources, the total product increases to certain point but marginal product declines.

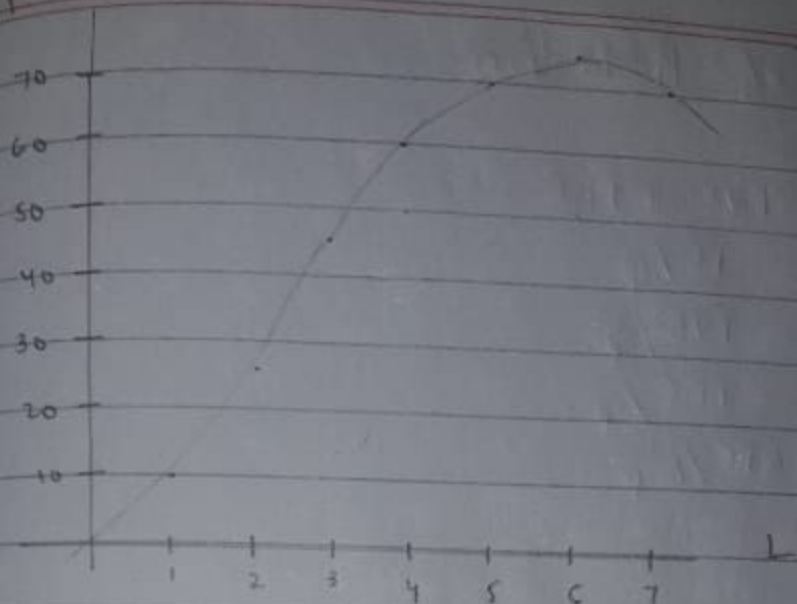
$$\text{Marginal Product} = \frac{\Delta TP}{\Delta L}$$

$$\text{Average Product} = \frac{TP}{\text{No. of Labour}}$$

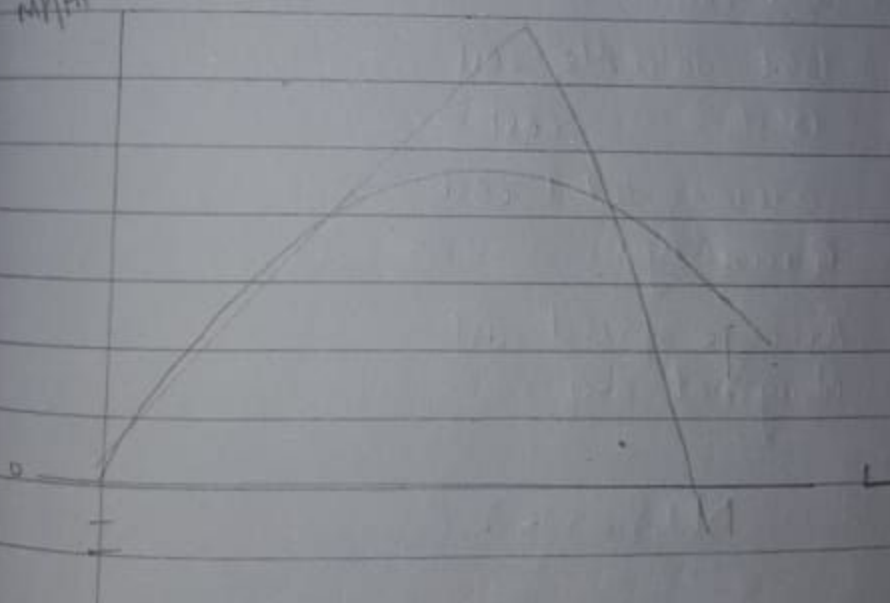
Units of Labour	Total Product	Marginal Product	Average Product
0	0	—	—
1	10	10	10
2	25	15	12.5
3	45	20	15
4	60	15	15
5	70	10	14
6	75	5	12.5
7	75	0	10.71
8	70	-5	8.75

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TP



MP/AP





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## → Costs of Production

$$TC = TVC + TFC$$

$$ATC = TC/Q$$

$$AVC = TVC/Q$$

$$AFC = TFC/Q$$

$$MC = \Delta TC / \Delta Q$$

Where

TC = Total cost

TVC = Total variable cost

TFC = Total cost

ATC = average total cost

Q = Quantity

AFC = Average fixed cost

MC = Marginal cost

Numerical.

Q4 . Done at back.

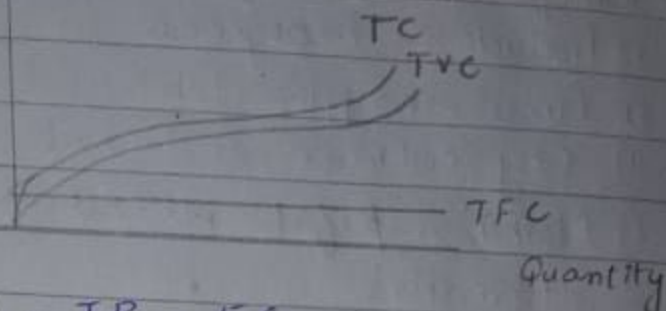
Q1 (a) Three types of curve in one panel.

(b) Graph the curve in one panel

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(C) Complete Table at page 412 and compare TC test and 4 table.

cost

Q2

$$AP = TR - EC$$

$$EP = TR - (EC + IC)$$

Sol

$$TR = 72000$$

Explicit cost

$$\begin{array}{r} 12000 \\ 5000 \\ 20000 \\ \hline 37000 \end{array}$$

Implicit Cost

$$\begin{array}{r} 4000 \\ 15000 \\ 3000 \\ \hline 22000 \end{array}$$

$$AP = 72000 - 37000 = \$35000$$

$$EP = 72000 - (37000 + 22000) = \$13000$$

Q8

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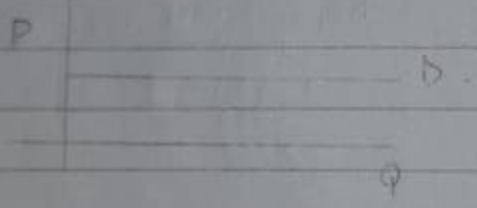
# ∴ Pure Competition ∴

## \* Assumptions:

- 1) large no. of buyers & sellers.
- 2) Product is homogenous.
- 3) Firms are price takers
- 4) Easy entrance and exit for the firms.
- 5) Market is perfect without government intervention.
- 6) Demand is perfectly elastic.

$$P = AR = MR = D$$

where  $AR = TR/Q$  and  $MR = \Delta TR / \Delta Q$



## \* Application in the real world:

- ① This model is applicable in stock exchange.
- ② It can be applied in agriculture.
- ③ Applicable on communication networks.

Q. How the firm can maximise the profit?



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- \* Short Run Profit Maximisation Approach:
- 1) Total revenue & total cost.
  - 2) Marginal revenue & marginal cost.

① Total Revenue & Total Cost Approach:

(i)  $AR = ATC$

(OR)  $TR = TC$

called Break even point

(or) Zero economic profit

(or) Normal profit

(or) Cost of operating in business.

(or) Opportunity cost of business.

(ii)  $AR > ATC$

(OR)  $TR > TC$

called Positive economic profit.

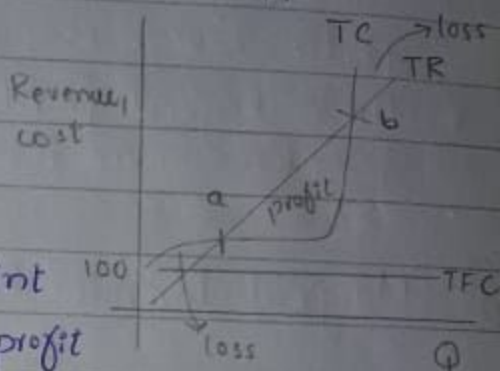
(or) Super normal profit.

(iii)  $AR < ATC$

(OR)  $TR < TC$

called Negative economic profit

(OR) Loss for the firm.





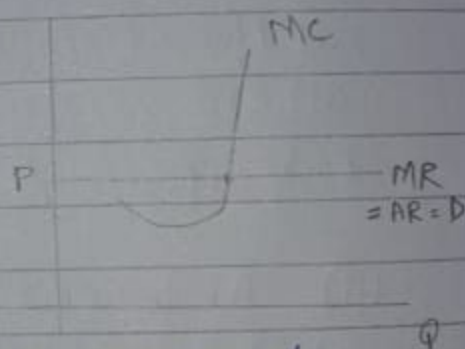
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→ Graph descriptions:

- \* Intersection at point a & b reflects zero economic profit.
- \* The area before point a reflects negative economic profit (loss)
- \* Area beyond point a reflects positive economic profit.
- \* Area beyond point 'b' reflects negative economic profit (loss).

②. Marginal Revenue & Marginal Cost:

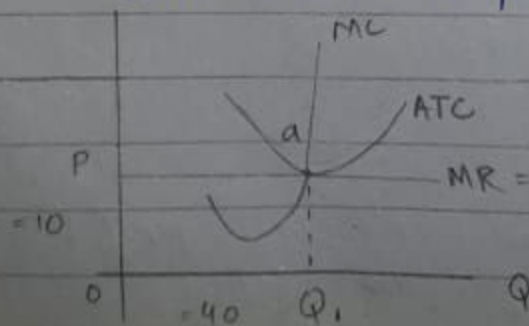
- \* Intersection of MC and MR determines price, output, cost and revenue area.



- \* Very much applicable in monopoly and monopolistic competition.

(i)  $AR = ATC$

Zero economic profit



$$TR = P \times Q$$

$$TC = ATC \times Q$$

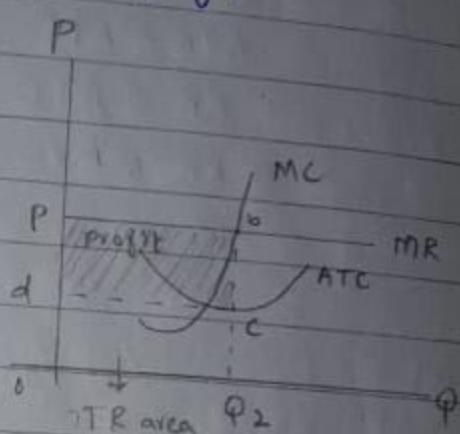
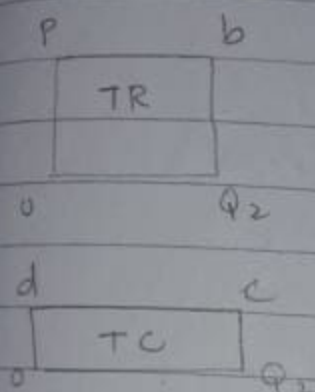
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$$TR = P \times Q = AR \times Q = 10 \times 40 = 400$$

$$TC = ATC \times Q = 10 \times 40 = 400$$

(i)  $AR > ATC$ 

Positive economic profit.



Graph description:

- \* Identify MR and MC intersection.
- \* MR curve should be above ATC curve.
- \* Extend the perpendicular from MR-MC intersection.
- \* Determine TC & TR areas. (Label)
- \* Assume cost & revenue values.
- \* Calculate the areas.

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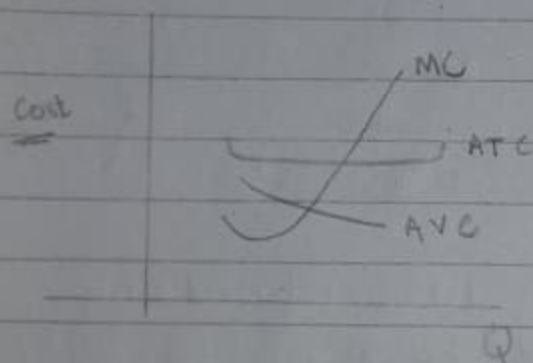
Q1 Which curve is supply curve in pure competition?

Q3 Employ MR-MC approach to depict loss & shutdown in pure competition.

$$AVC < ATC$$

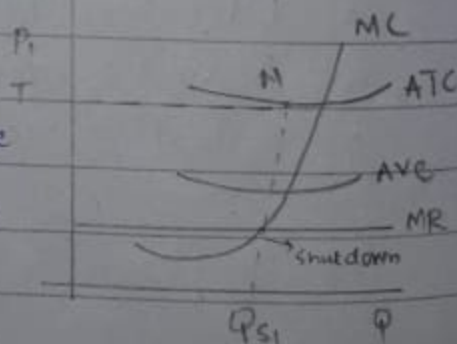
$$AR < ATC \text{ (loss)}$$

$$AR < AVC \text{ (shutdown)}$$



Q2 How do the firm behave in long run?

Shutdown ( $AR < AVC$ )

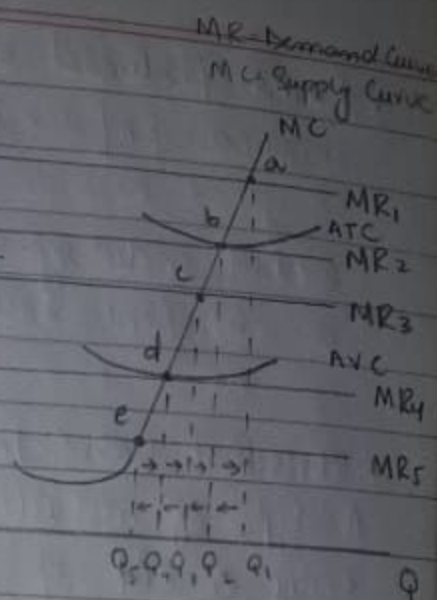


① Firm should shutdown because of its inability to cover the opportunity cost.

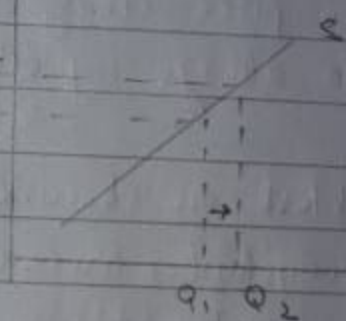
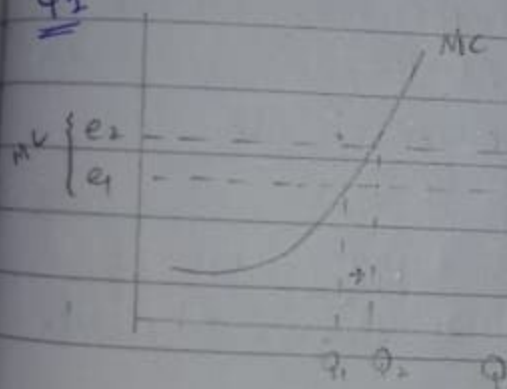
② Losses are very huge.



- PT a  $\rightarrow$  +ve profit  
 PT b  $\rightarrow$  breakeven  
 PT c  $\rightarrow$  loss  
 PT d  $\rightarrow$  indifferent  
 PT e  $\rightarrow$  shutdown



Q1



MR & MC intersection is the equilibrium in competitive market

Q2

- A purely competitive firm exhibits only normal profit at the long run.
- All firms have identical a

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- Firms produced strictly according to the consumer preferences.
- Overall industry in the long run behaves as a constant cost industry.

#### \* Constant Cost Industry:-

A type of industry which is not affected by entry or exit of any firm. The resource prices in this situation remains constant and the price charged is at the minimum level to always support the consumers.

Q Work on demand & supply curve of constant, increasing & decreasing cost industry.

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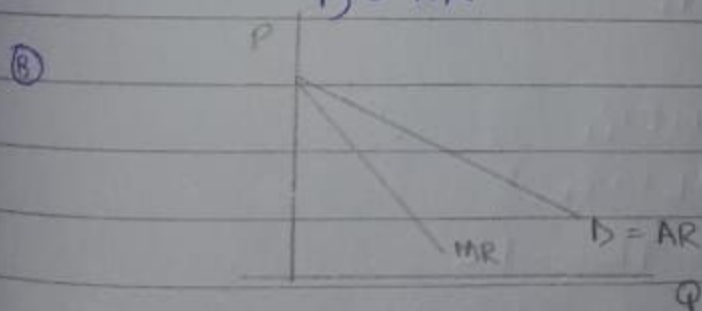
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▷: Pure Monopoly : 4

Characteristics:-

- ① There is a single seller.
- ② A monopolist is a price maker.
- ③ There are barriers to entry and exit.
- ④ The condition of patents and copyrights exists.
- ⑤ Price discrimination is exercised.
- ⑥ A monopolist can buy out any other venture/business, especially in the case of bilateral monopoly.
- ⑦ The demand curve is relatively inelastic.

$D = AR$ .



- ⑨ Economies is widely experienced

Examples:

- ① Pakistan Railways.
- ② K-electric
- ③ WAPDA
- ④ Toyota, Daihatsu.



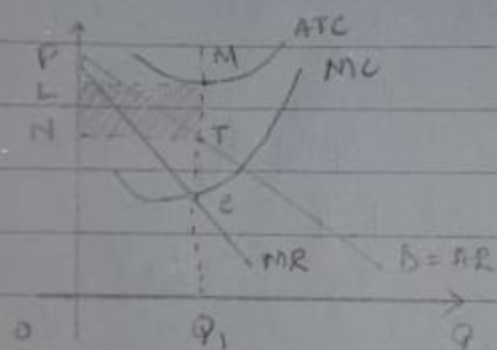
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## → Profit Maximisation Approach:

Marginal Revenue & marginal cost.

- ①  $AR > ATC$  (Profit)
- ②  $AR < ATC$  (Loss)
- ③  $AR = ATC$  (Breakeven)
- ④  $R = AVC$  (Indifferent)
- ⑤  $AR < AVC$  (Shutdown)

(1)



$AR < ATC$

-ve profit.

$$TR = AR \times Q$$

$$TR = ONTQ_1$$

$$TC = OLMQ_1$$

$$\text{Profit} = TR - TC$$

$$= -ve \text{ (in this case)}$$

$$= LMNT$$

→ loss (-ve).

Method:

- ① Draw a demand curve
- ② Introduce MR curve.
- ③ Locate intersection of MC & MR

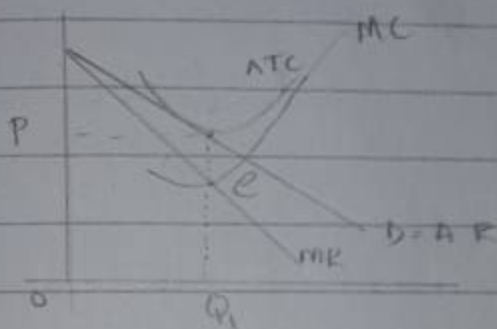
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and extend the perpendicular upwards to the cost curve & downward to the quantity axis.

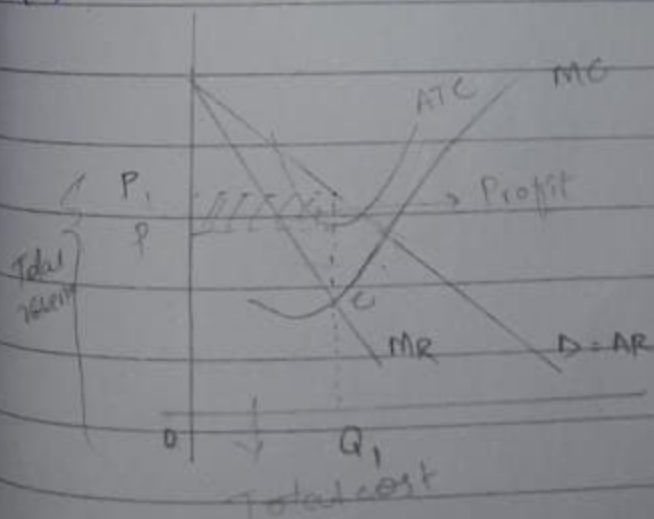
(4) Now find TC, TR & profit/loss.

(2)

$AR = ATC$ .



(3)  $AR > ATC$ .



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(4)  $AR = AVC$

