

Final:

COSTS OF PRODUCTION.

(1)

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→ economic profit.

→ normal profit.

→ law of diminishing returns.

→ short run and long run cost

→ cost & why cost?

→ explicit cost.

→ implicit cost.

→ accounting profit

* Why costs exist?

Cost exist due to shortage of resources and alternatives.
If scarcity fades, cost declines.

→ we have salt, which is less expensive. It's expensive in India!

* Explicit Cost: Direct cost, visible, clear, evident.

e.g: Taxes, bills, monthly payments → school fee,

salaries, wages,
groceries, instatments
repairs.

* Implicit Cost: It's opportunity cost/economic cost or indirect cost.

e.g:

Carpenter if self employed → income fluctuates

if working for someone → income depends on seasons.

he will end up with Rs. 60,000 a month. (Forgone rent)

Every asset has a direct & an indirect cost.
↓
secured income doesn't depend on season.

direct → maintenance.

Total cost = explicit + implicit cost.

indirect → can be given on rent to earn something.

* Profits

Profit = Total Revenue - Total cost.

$$TR = P \times Q$$

TC = explicit cost + implicit cost.

* Accounting Profit : Total revenue - explicit cost.

$$AP = TR - EC$$

* Economic Profit:

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

$$AP > EP$$

* Normal Profit: The opportunity cost of doing a business doing a business. It's the break even situation of the firm.

$$\text{Total Revenue} = \text{Total Cost}.$$

Why normal profit is treated as an implicit cost? because, this is the initial investment, we haven't made any profit of it.

* Law of Diminishing Returns:

Assumptions: 1) Technology & agriculture land are fixed resources.

2) Variable resources is labour/worker.

3) Shorter time period, so expansion cannot take place.

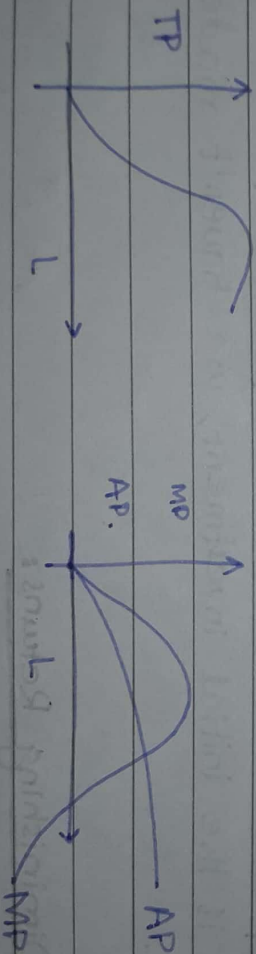
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Statement:

"An order to increase total product when successive units of available resource are added to the fixed resource, the total product increases to a certain point but the marginal product declines."

Units of labour	Total product	Marginal product	Average product	
0	0	—	—	
1	10	10	$\frac{10}{1} = 10$	Marginal product = $\frac{\Delta TP}{\Delta L}$
2	25	15	$\frac{25}{2} = 12.5$	
3	45	20	$\frac{45}{3} = 15$	
4	60	15	15	Average product = $\frac{TP}{\text{No. of labours}}$
5	70	10	14	
6	75	5	12.5	
7	75	0	10.7	
8	70	-5	8.75	



Cost of production :

(1)

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Cost and types :

$$\therefore TC = Tvc + Tfc$$

$$\therefore ATC = \frac{TC}{Q}$$

$$\therefore AVC = \frac{Tvc}{Q}$$

$$\therefore AFC = \frac{Tfc}{Q}$$

$$\therefore MC = \frac{\Delta TC}{\Delta Q}$$

$TC = \text{Total cost.}$

$Tvc = \text{Total variable cost.}$

$Tfc = \text{Total fixed cost}$

$ATC = \text{Average total cost}$

$Q = \text{Quantity/output.}$

$AVC = \frac{Tvc}{Q}$

$AFC = \text{Average fixed cost}$
 $MC = \text{Marginal cost.}$

Marginal cost
↓
Cost of producing additional output.

$MC \propto \frac{1}{\text{additional output}}$

$$\therefore AP = TR - EC$$

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

$$TR = 72000$$

Explicit cost	Implicit cost
12000	4000
5000	15000
20000	3000
37000	22000

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

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

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PURE COMPETITION

(5)

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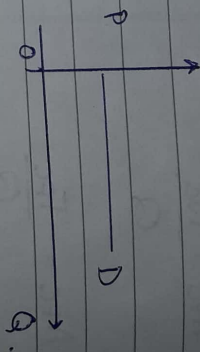
Assumptions:

- 1) Large no. of buyers & sellers.
- 2) Product is homogeneous.
- 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

$$AR = TR/Q \text{ and } MR = \Delta TR / \Delta Q.$$



* 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 firm can maximise the profit?

① SHORT RUN MAXIMIZATION APPROACH

- 1) Total revenue & total cost.
- 2) Marginal revenue & marginal cost.

① Total Revenue & Total Cost Approach.

a) $AR = ATC$ } Break } or zero economic profit
or $TR = TC$ } even point. } or normal profit
or } or Cost of operating in business.
or } or Opportunity cost of business.

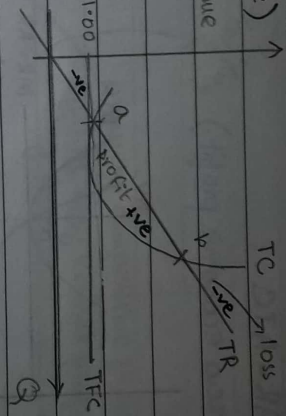
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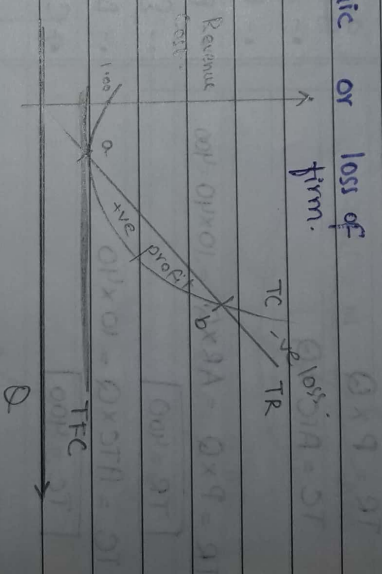
• Area b/w a and b represents profit (ve)

∴ Intersection at a & b represents zero economic profit.



b) $AR > ATC$ } positive economic profit or super normal profit.
 $TR > TC$ }

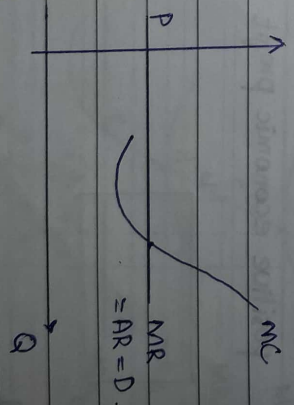
c) $AR < ATC$ } negative economic profit or loss of firm.
 $TR < TC$ }



② Marginal Revenue & Marginal Cost :

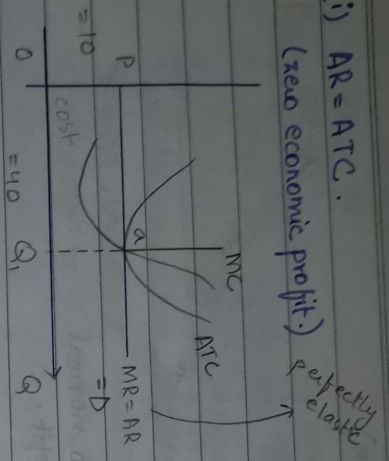
∴ Intersection of MC and MR determines price, output, cost & revenue area.

∴ Very much applicable in monopoly and monopolistic competition.



(i) $AR = ATC$.

(Zero economic profit.)



$$TR = P \times Q$$

$$TC = ATC \times Q$$

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

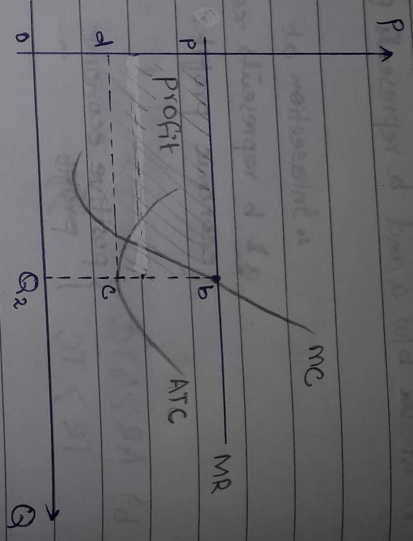
$$[TR = 400]$$

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

$$[TC = 400]$$

(ii) $AR > ATC$

positive economic profit

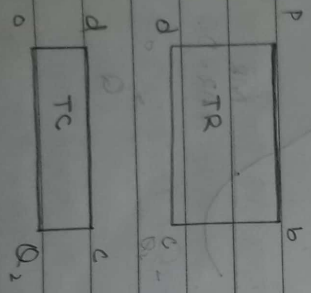


Graph description.

- Identify MR and MC intersection
- MR curve should be above ATC curve
- Extend \perp from MR—MC intersection.
- Determine TC & TR areas (label)
- Assume cost & revenue values.
- Calculate areas.

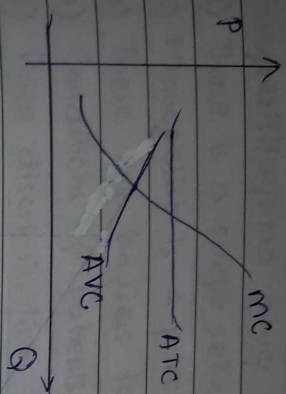
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Q: which curve is supply curve in pure competition?



Q: Employ MR—MC approach to depict loss and shutdown in pure competition?

- $AVC < ATC$
- $AR < ATC$ (loss)
- $AR < AVC$ (shutdown)



A purely competitive firm exhibits only normal profit at long run.

Q. How do firm behave in long run?

$AR < AVC$ (shutdown)

i) firm should shutdown because of its instability to cover the opportunity cost.

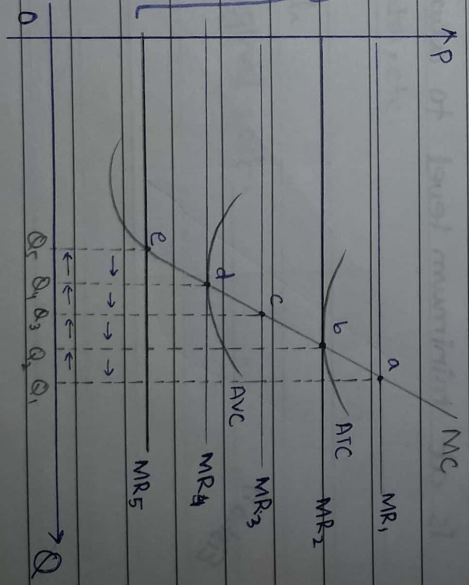
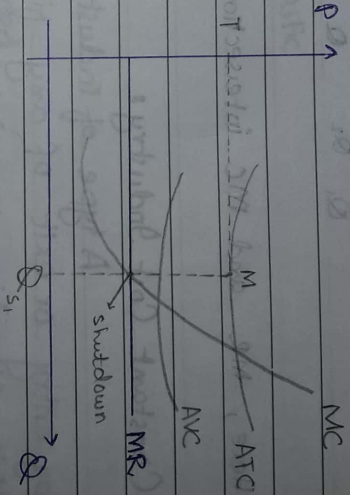
ii) Losses are very huge.

Points:

- a → +ve profit
- b → breakdown
- c → loss
- d → indifferent
- e → shutdown.

iii) Firms produce acc. to consumer preferences.

iv) Industry in long run behaves as a constant cost industry.



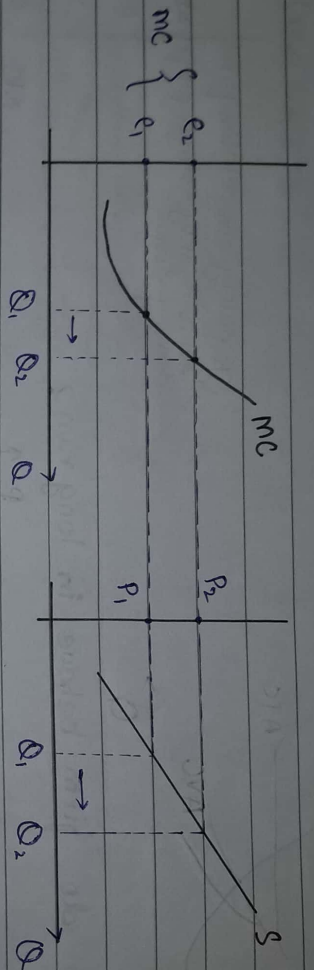
MR → demand curve.

MC → supply curve.

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Q3: Which curve is supply curve in pure competition?



• Here, MR and MC intersection is equilibrium in competitive market

* 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 minimum level to always support consumers.

Ex: 500:)

Q: Work on demand and supply curve of constant, increasing and decreasing cost industry?

Pure Monopoly

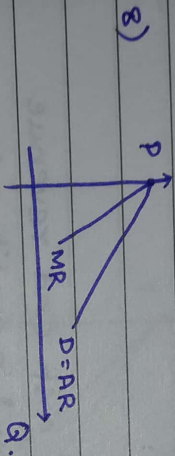
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Characteristics :

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

$$D = AR.$$



- 9) Economies are widely experienced.

e.g. :- Railway

-- WAPDA

-- K-electric

-- Toyota, Daihatsu, etc.

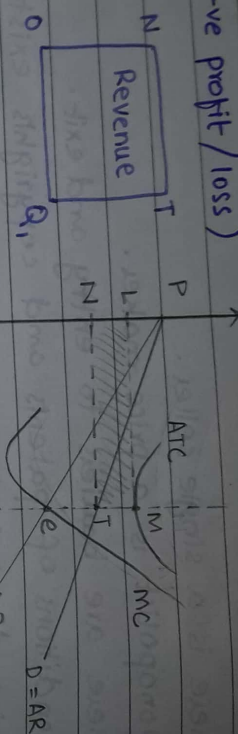
② Profit maximisation approach. Marginal revenue and marginal cost.

- | | |
|---------------|-------------|
| 1) $AR > ATC$ | Profit |
| 2) $AR < ATC$ | Loss |
| 3) $AR = ATC$ | break even |
| 4) $AR = AVC$ | indifferent |
| 5) $AR < AVC$ | shutdown. |

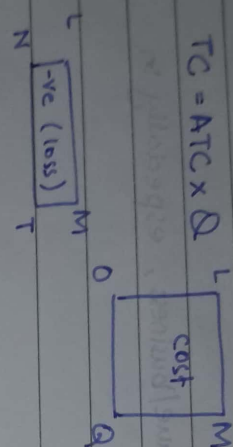
① $AR < ATC$ (-ve profit/loss)

$$TR = AR \times Q$$

$$TR = ONT \times Q_1$$



$$TC = ATC \times Q$$



$$TR = ONT Q_1$$

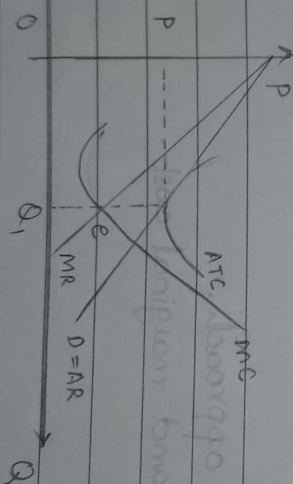
$$TC = OLM Q_1$$

$$P = LMINT \text{ (loss)}$$

Method to draw demand and MR curve:

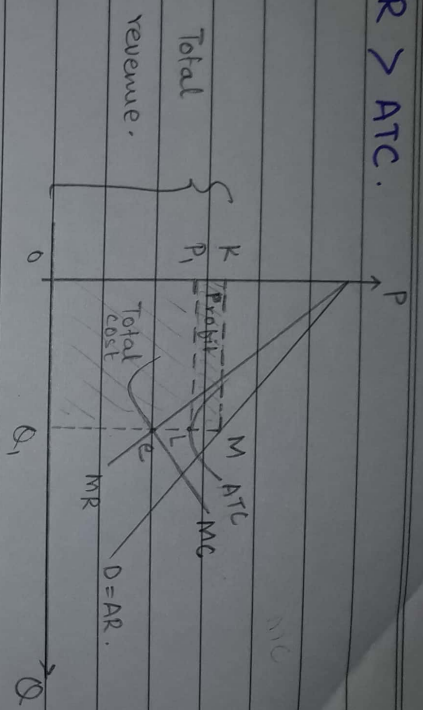
- 1) Introduce MC curve.
- 2) Locate the intersection of marginal cost and revenue.
- 3) Extend the MC curve and demand to the quantity axis.
- 4) Total cost area LMQ_1 Total Revenue $ONTQ_1$

② $AR = ATC$.

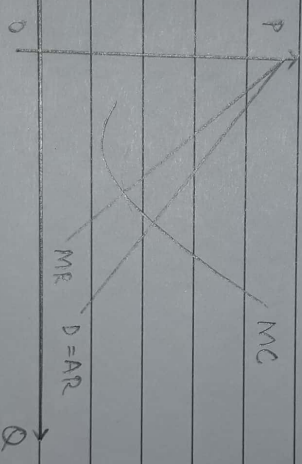


(break even condition).

③ $AR > ATC$.



④ $AR = AVC$



(last lecture missing).