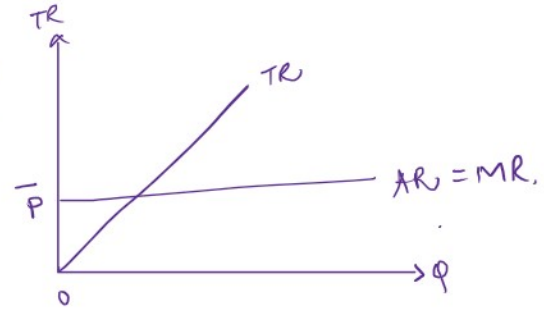


Perfect Competitive market:

① Total Revenue $TR = \bar{P} \times Q$
 (TR is a straight line passing through origin)



② Average Revenue, $AR = \frac{TR}{Q} = \frac{\bar{P} \times Q}{Q} = \bar{P}$
 AR is fixed at \bar{P} .
 and AR is the demand curve
 of a Perfectly Competitive firm.

AR is a horizontal curve as shown in figure.

③ Marginal Revenue, $MR = \frac{\Delta TR}{\Delta Q} \Rightarrow \frac{\text{change in total Revenue (TR)}}{\text{change in Quantity (Q)}}$

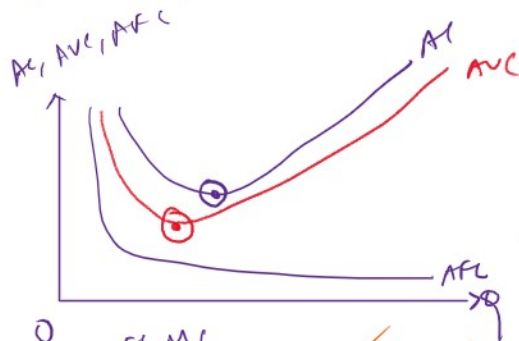
$$MR = \frac{\Delta(\bar{P} \times Q)}{\Delta Q}$$

$$MR = \bar{P} \frac{\Delta Q}{\Delta Q} = \bar{P} = AR$$

In perfect competition (only)
 we have $AR = MR = P(\text{const})$

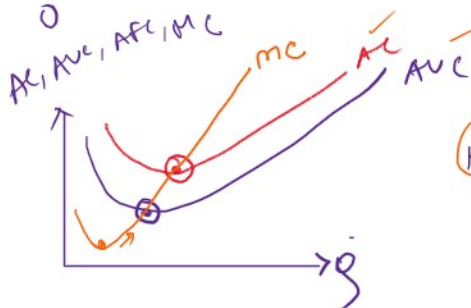
Cost curves under perfect competition.

* Average cost curve (AC) in short-run = Avg variable cost (AVC) + Average fixed cost (AFC)



$AC = AVC + AFC$
 U-shaped U-shaped rectangular hyperbola.

* Marginal Cost, $MC = \frac{\Delta ATC}{\Delta Q}$



(Relation between AVC , AC and MC)
 \Rightarrow MC will always cut AVC and AC

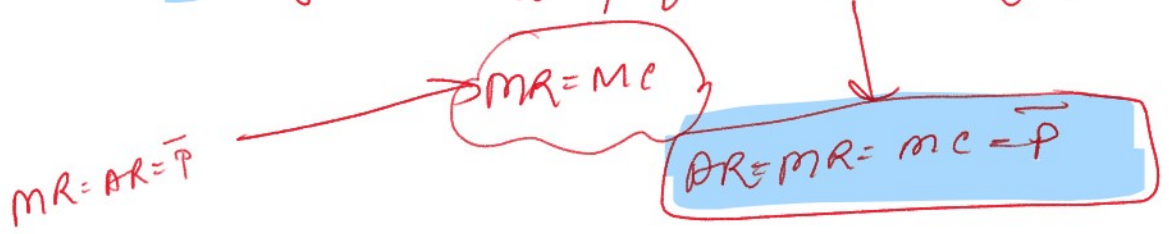
at its minimum point when it is increasing.

* For any firm \Rightarrow [ie, P.C, monopoly, oligopoly, MC etc]

* For any firm \Rightarrow $\left[\begin{array}{l} \text{MR, FC, Monopoly} \\ \text{Monopoly, MC, etc} \end{array} \right]$

profit maximising condition is that $MR = MC$

Note: Only in a perfectly competitive market, at profit maximising point,



Profit, $\pi = TR - TC$

$\Delta\pi = \Delta TR - \Delta TC$

$\frac{\Delta\pi}{\Delta Q} = \left(\frac{\Delta TR}{\Delta Q} \right) - \left(\frac{\Delta TC}{\Delta Q} \right)$

$\frac{\Delta\pi}{\Delta Q} = MR - MC$

Now at maximum profit,

$\frac{\Delta\pi}{\Delta Q} = 0$

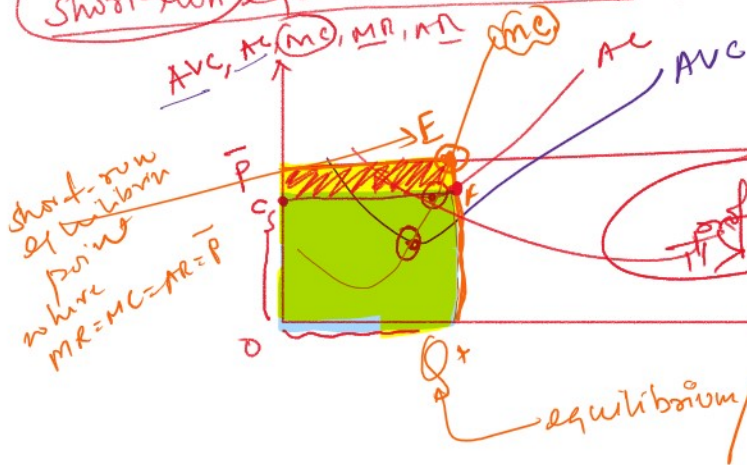
$\therefore MR - MC = 0$
 $MR = MC$

In PC $MR = AR = \bar{P}$

$\therefore MR = MC = AR = \bar{P}$

(Very important)

Short-run equilibrium in a perfect competition:



$TR = \square O P E Q^*$
(yellow + green)

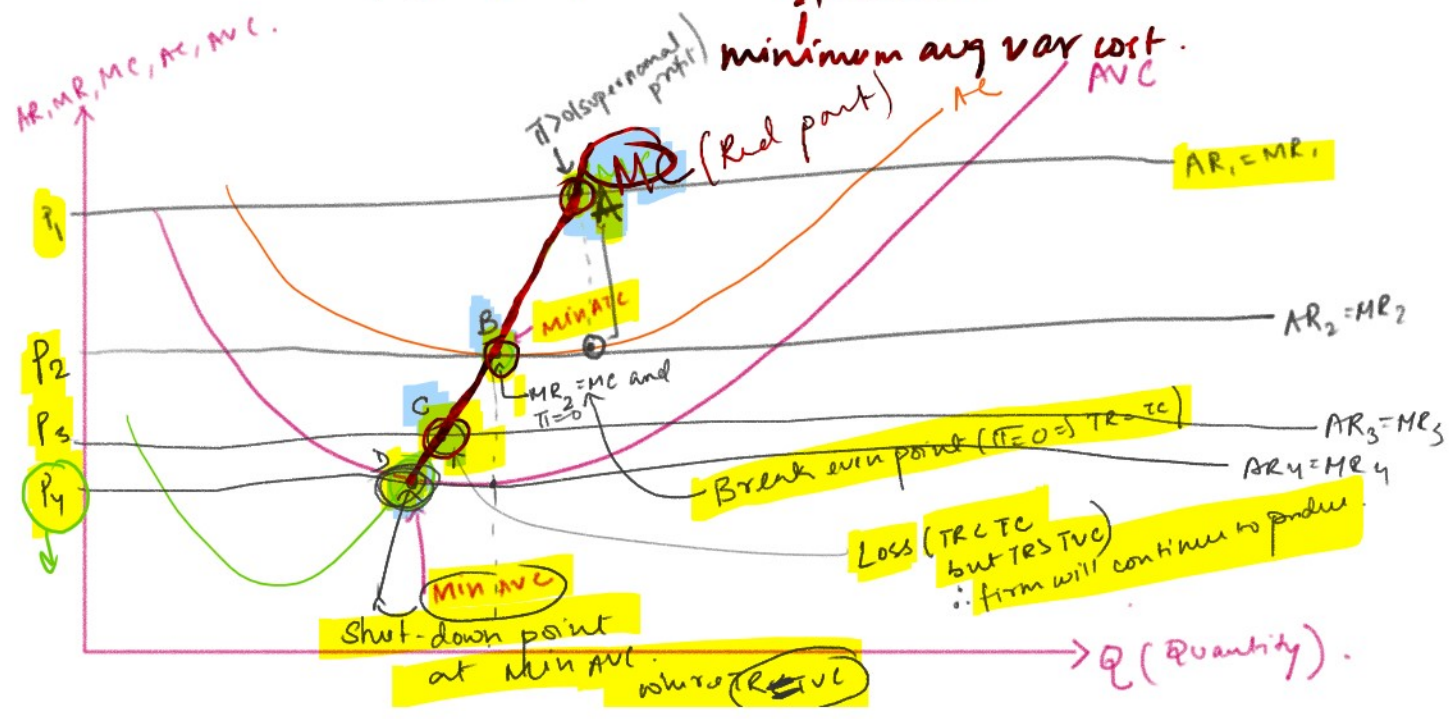
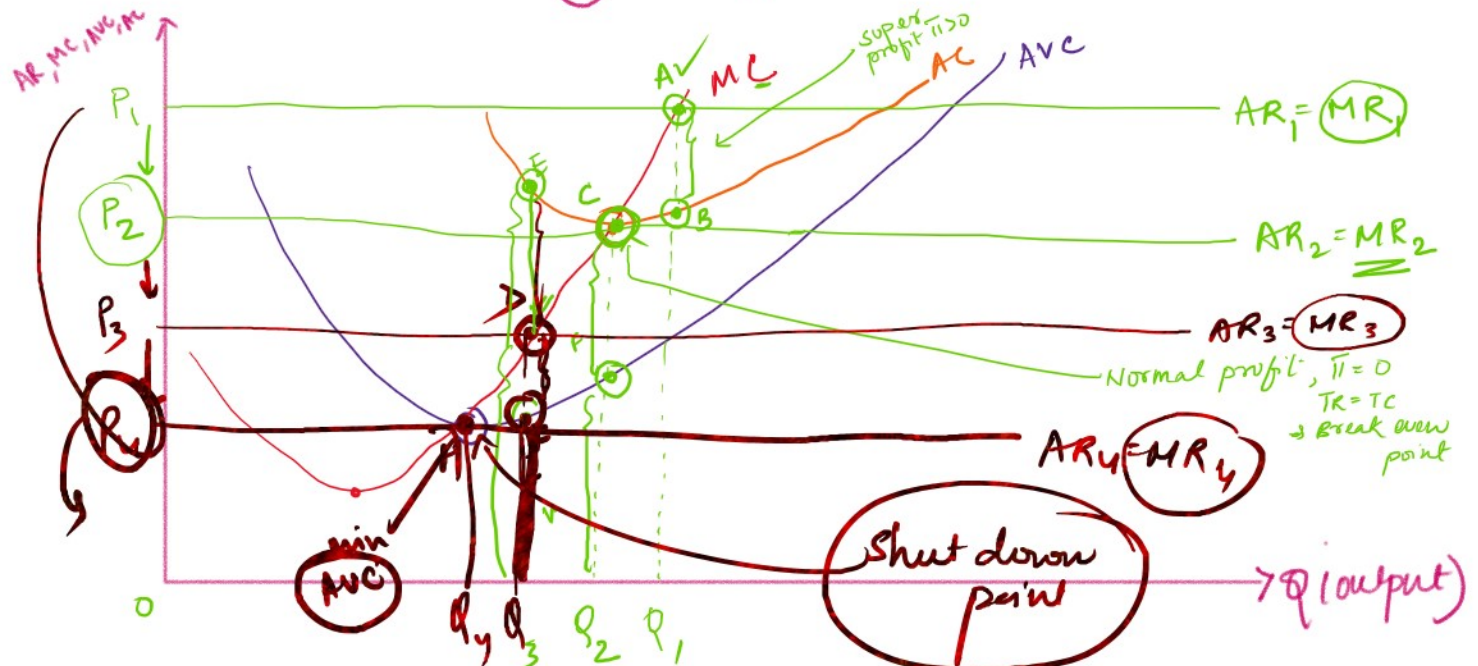
$AR = (MR)$ $TC = \square O F E Q^*$
(green)

$TR > TC$
Profit = $\square P E F$ (yellow)

equilibrium/profit-maximising level of output.

Short-run supply curve of a perfectly competitive market:

- Terms to learn:
- 1 Break even point
 - 2 Shut-down point
 - 3 Logical output decision of a firm.





Summary:

① **Shut down Rule (shut down point):** The firm should shut down if the price of the product is less than the minimum average variable cost of production.
 ie if $P < \min AVC$
 (Then firm will shut-down)

② A competitive firm facing losses:

A firm will continue to produce even after facing losses if $P > \min$ average variable cost.

That is if the firm is able to cover the Total variable cost of production

ie even if $TR < TC$ (Loss $\pi < 0$)
 but $TR > TVC$ ($P > \min AVC$)

Then firm will continue production.

③ Short-run supply curve of Perfectly Competitive market:

It is that portion of the marginal cost (MC) curve which lies above the minimum AVC.

That means from the diagram if we join the points above & ie

point A, B, C.
 we will derive the short-run supply curve

(A) From the diagram:
 at point A: at price $P_1 \Rightarrow TR > TC$ } Supernormal profit
 $\Rightarrow \pi > 0$
 \Rightarrow firm decides to produce.

at pt B: at price $P_2 \Rightarrow TR = TC \Rightarrow \pi = 0$
 (Break even point)
NORMAL PROFIT
 \Rightarrow firm decides to produce.

at pt C: at price $P_3 \Rightarrow TR < TC \Rightarrow \pi < 0$ (Loss)

but $TR > TVC$
 (which means firm is able to cover the variable cost of production and hence will continue to produce at pt C)
 i.e. $P > \min AVC$.

at pt D: at price $P_4 \Rightarrow TR < TC$
 and $TR = TVC$ } $\pi < 0$ (Loss)

(firm is just able to cover the total variable cost with its revenue)

↓
 Shut down point.

\therefore Any further fall in price i.e. any price below AVC

Why point.

Price below avg vc

$P < \text{min AVC}$

Firm will decide to shut-down.

How a firm will choose in the Long-run:
In a perfectly market.

Short-run

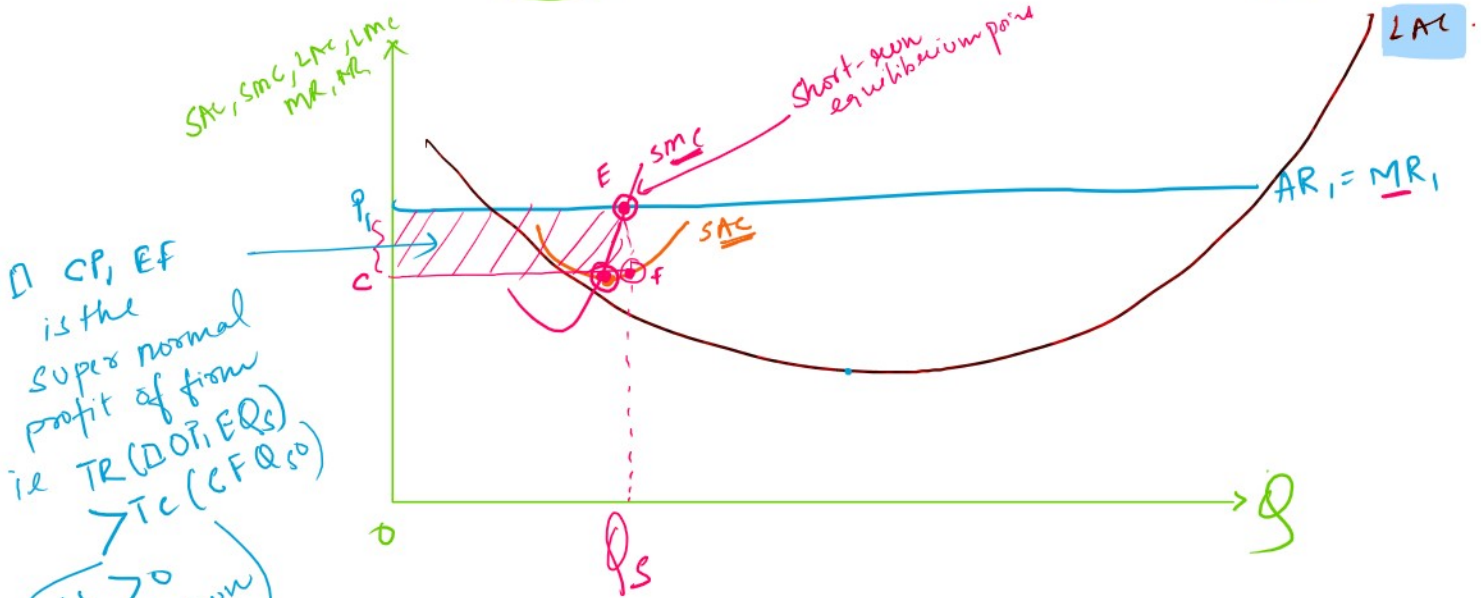
SAC \rightarrow " Avg cost
SMC \rightarrow " Marg cost

There is always super normal profit
ie $\pi > 0$

Long-run

LAC \rightarrow " Avg cost
LMC \rightarrow " Marg cost

There is always normal profit
 $\pi = 0$



\square CP, EF is the super normal profit of firm
ie $TR(DQ_s) > TC(CFQ_s)$
 $\pi > 0$
(Short-run equil)

at point E
(Short-run equilibrium or short-run profit maximizing condition
1. a perfectly competitive market.

main
of a

perfect
competitive
market