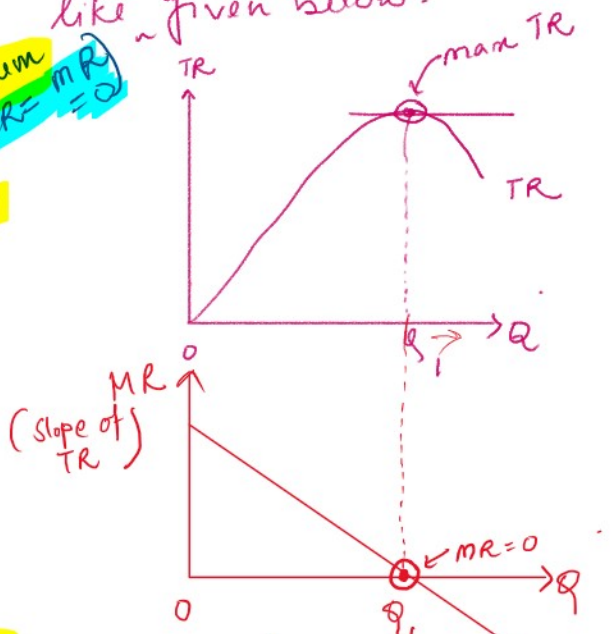


- ① **Total Revenue**, $TR = P \times Q \Rightarrow$ product of price and quantity.
- ② **Average Revenue**, $AR = \frac{TR}{Q} = \frac{P \times Q}{Q} = P \Rightarrow$ AR shows the relation between price and quantity.
 \therefore AR is the demand curve.
- ③ **Marginal Revenue**, $MR = \frac{\text{change in Total Revenue}}{\text{change in Output}} = \frac{\Delta TR}{\Delta Q} = \frac{TR_1 - TR_0}{Q_1 - Q_0} \Rightarrow$ MR is the slope of TR curve.

What is the Relation between Total Revenue (TR) and Marginal Revenue (MR)

The total curve looks as given below:

Note: When TR is at maximum (the slope of TR = MR) $\therefore TR_{max} \Rightarrow MR = 0$



- ⊙ TR increases at a decreasing rate (MR is positive but falling)
- ⊙ TR is at maximum (change in slope is 0) i.e. $MR = 0$
- ⊙ TR decreases as quantity increases beyond Q_1 \therefore MR is negative.

Total Cost of Production \Rightarrow TC depends on level of production (Q)

Average cost, $AC = \frac{TC}{Q}$

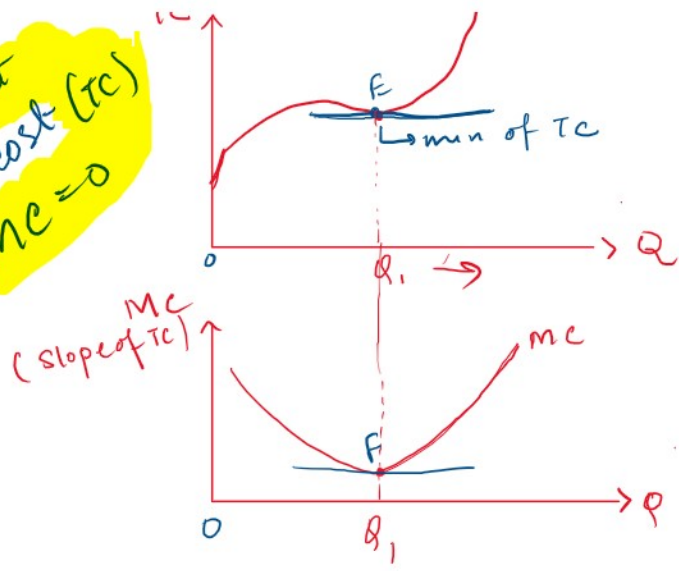
Marginal cost, $MC = \frac{\text{change in TC}}{\text{change in Q}} = \frac{\Delta TC}{\Delta Q} = \frac{TC_1 - TC_0}{Q_1 - Q_0}$
 \Rightarrow MC is the slope of TC

Relation between Total Cost (TC) and Marginal cost (MC):



- ① from output level $Q = 0$ to $Q = Q_1$ total cost of production

Note:
 At minimum point of Total cost (TC)
 slope of TC = MC = 0



∪ ∴ $Q=0$ to $Q=Q_1$
 Total cost of production increases at a decreasing rate.
 ∴ change is +ve but falling as shown by falling MC curve in the OQ_1 range

② TC is minimum at point E (at OQ_1 level of production)

Corresponding to it at point F, slope of TC which is $MC=0$

③ After Q_1 level of production, total cost increases at increasing rate
 ∴ slope or change in TC is positive and upward sloping as shown by rising MC.

What is Profit?

It is the difference between Total Revenue (TR) and Total Cost (TC).

That is, Profit $\Pi = TR - TC$

change in Profit due to change in Output = change in Total Revenue due to change in Output - change in Total Cost due to change in Output.

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

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

↑ slope of TR (or change in TR) ↑ slope of TC (or change in TC)

What is the objective of a firm? ⇒ To maximise Profit. (maximising Total Revenue (TR))

What is the objective of a firm? \Rightarrow To maximise profit.
 How can a firm maximise profit? \Rightarrow By increasing Total Revenue (TR)
 and By decreasing Total Cost (TC)

That means Profit is maximised when TR is maximum and TC is minimum.

We know when TR is maximum \Rightarrow MR=0
 when TC is minimum \Rightarrow MC=0

\therefore For profit maximisation: $\frac{\Delta \pi}{\Delta Q} = MR - MC = 0$
 i.e. MR=MC very important condition.

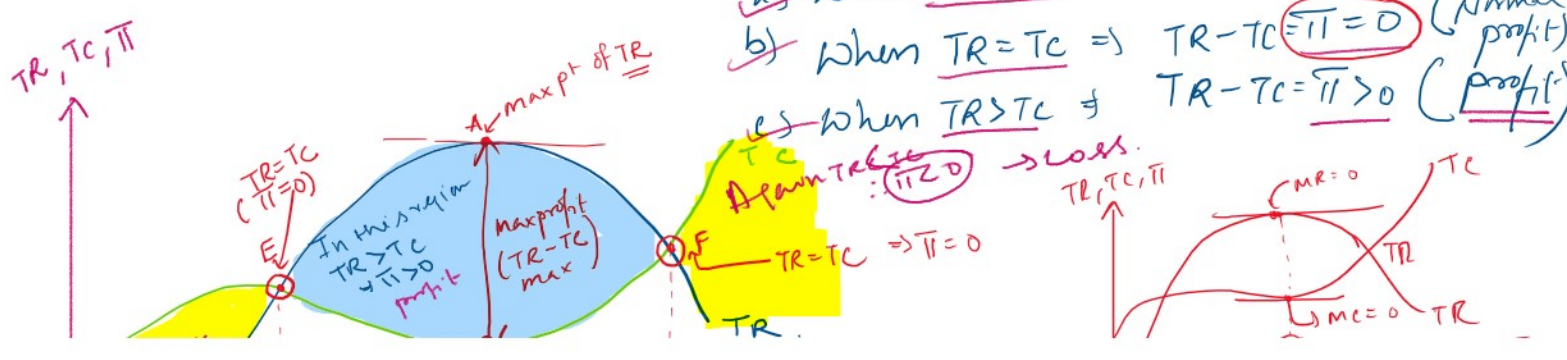
Conclusion: What is the profit maximising condition of a firm?
Ans) MR=MC

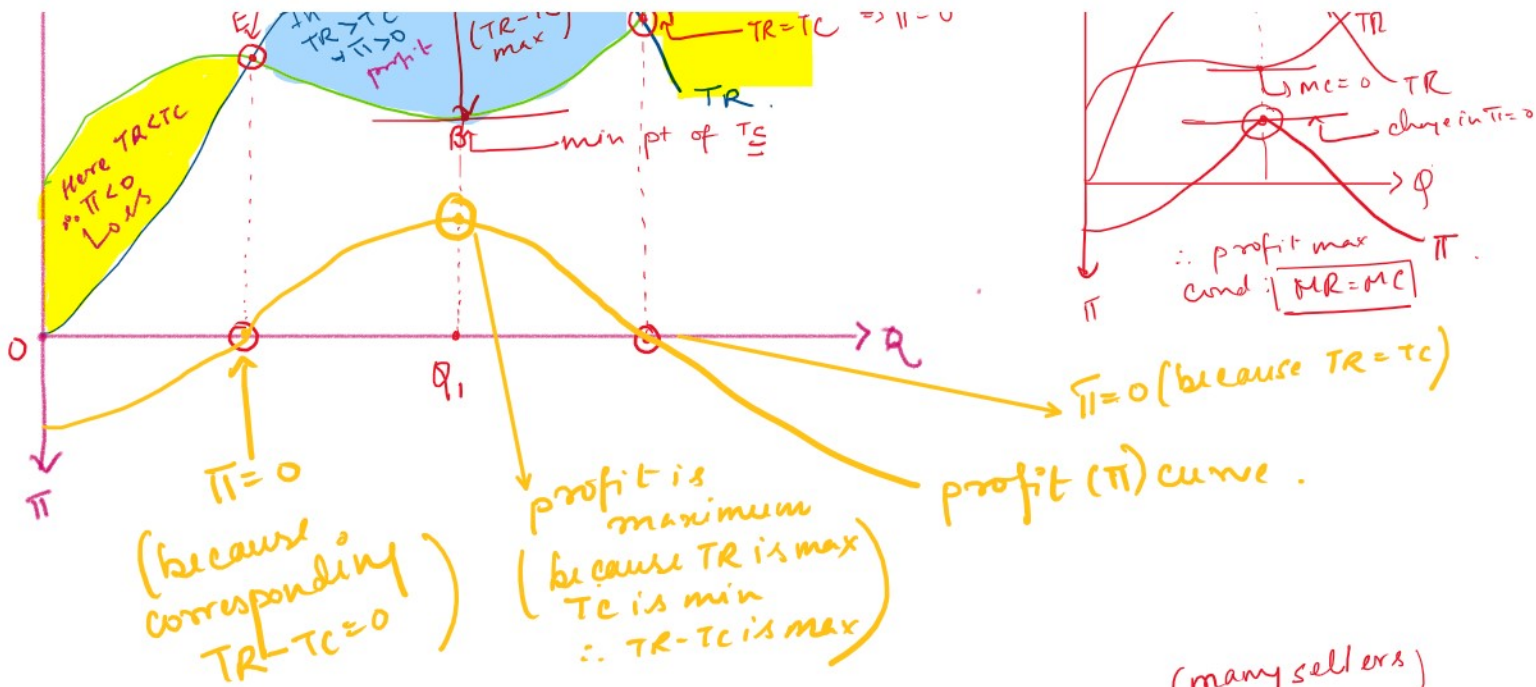
Diagrammatic Representation of profit maximisation:

- 1) We draw TR.
- 2) We draw TC.
- 3) We determine max point of TR \Rightarrow MR=0
- 4) We determine min point of TC \Rightarrow MC=0
- 5) Corresponding to the point of max TR and min TC \Rightarrow profit is maximum
- 6) At the points when TR=TC \Rightarrow profit=0

Before analysing the diagram, we should know, since $\pi = TR - TC$

- a) When TR < TC \Rightarrow TR - TC = $\pi < 0$ (Loss)
- b) When TR = TC \Rightarrow TR - TC = $\pi = 0$ (Normal profit)
- c) When TR > TC \Rightarrow TR - TC = $\pi > 0$ (Profit)





Types of Market

① Perfect Competition
 (No of seller is infinitely many)
 \Rightarrow max competition.

② Monopoly
 (only one seller)
 (No comp)

③ Monopolistic Competition
 (many sellers)
 (Comparatively competitive)

④ Oligopoly
 (less than 20 sellers)
 (less competitive)

Markets are divided on the basis of competition level
 (that is number of sellers)

So if we arrange the market in ascending order of competition (i.e. lowest to highest) then we have:

Monopoly < Oligopoly < Monopolistic Competition < Perfect Competition.

\rightarrow competition is increasing from monopoly to Perfect Competition.

..... of Perfectly Competitive

Topic: Characteristics of Perfectly Competitive (PC) Market:

- ① There are infinitely large number of buyers and
" " " of sellers.
- ② Sellers in PC market are price takers.
- ③ In PC market, products sold are identical or 'homogeneous'
in nature.
- ④ In PC market, perfect substitutes are available.
- ⑤ There are no barriers to entry in PC market, i.e., there is
free entry and free exit of firms.
- ⑥ No advertisement costs.
- ⑦ No transportation cost.
- ⑧ Buyers and sellers have perfect knowledge about
each other. They are rational.
- ⑨ No Government intervention.

On Monday we will
study Revenue curves of Perfect Competition
and Profit maximising condition
in Perfect Competition.