* Assimilation of nitrogen
(How assimilation of nitrogen takes place)

→ In angiosperm,

i) Major site for absorption of mineral element - Root.

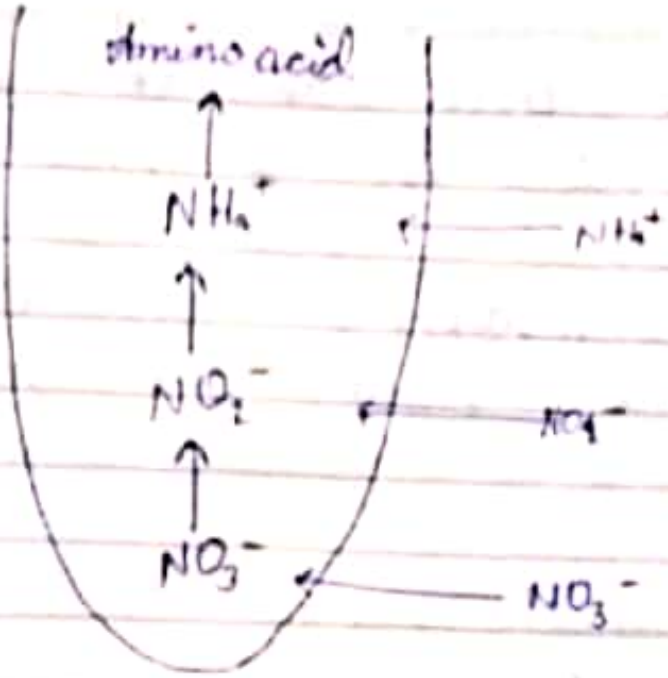
ii) Plant absorb only inorganic molecule in the form of ions.

iii) Uptake of nutrients - inorganic ion

iv) Nitrogen metabolism - mineral element

Macroelement

v) Uptake of nitrogen -
NO_3^- (nitrate), NO_2^- (nitrite) → in soil it is present in less amount
NH_4^+ (ammonia)



→ Firstly ammonia incorporate with any amino acid (Glutamate / Glutamine) then goes for nitrogen metabolism.

1) Ammonification

→ When any organic nitrogen convert into ammonia then it is called ammonification.

Organic nitrogen —(ammonifying organism)→ NH_4^+ (ammonia)

ammonifying organism: bacteria, fungi

→ More than 90% of nitrogen is present in organic form.

→ So inorganic nitrogen is added to the field or plant.

2) Nitrification

→ Oxidative process

→ Organism that is involved in nitrification is nitrifying bacteria.

Nitrifying bacteria is a chemolithotrophic bacteria

NH_4^+ (ammonia) $\xrightarrow{\text{nitrosomonas, nitrosyira}}$ NO_2^- (nitrite) $\xrightarrow{\text{nitrobacter, nitrosyira, nitrococcus}}$ NO_3^- (nitrate)

→ During oxidative process (nitrification) energy is released and that energy is used by nitrifying bacteria.

→ It is an exergonic process.

3) Denitrification

→ Nitrate is changed into nitr (N).

→ Performed only by denitrifying bacteria.

→ Process is done by anaerobic bact

$$2NO_3^- \longrightarrow 2NO_2^- \longrightarrow 2NO \longrightarrow 2N_2O \rightarrow$$