

Section - A

Ans 1 → Purine

• It is present in the DNA & RNA both.

• In this Adenine & Guanine is present.

• It is triple bonded.

Pyrimidine

• In the DNA Thymine is present but in RNA at the place of Thymine, Uracil is present.

• In this Cytosine, ~~Thymine~~ & ~~Uracil~~ is present.

• It is double bonded.

• $A = T$
 ~~$G = E$~~

Ans 3 → Vitamin

- Vitamins are very essential for our body.
- Vitamins are taken in limited quantity. Without vitamins there is a deficiency present in the body.

Enzyme

- Enzymes speed up the rate of biochemical reaction.
- Without enzymes our body works slowly.

- Vitamins are of many types - Vitamin A, B, C, D, E, K etc.

- Enzymes have the active site which are attached by the substrate.

Ans 4 → Co-factor

- Co-factor is a non-protein molecule.

- Co-factor has the prosthetic group which are tightly bound.

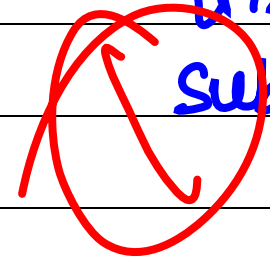
Enzyme

- Enzyme speed up the rate of biochemical reaction.

- Enzyme have the active site which are attached by the substrate.

• Co-factor has - active site & binding site.

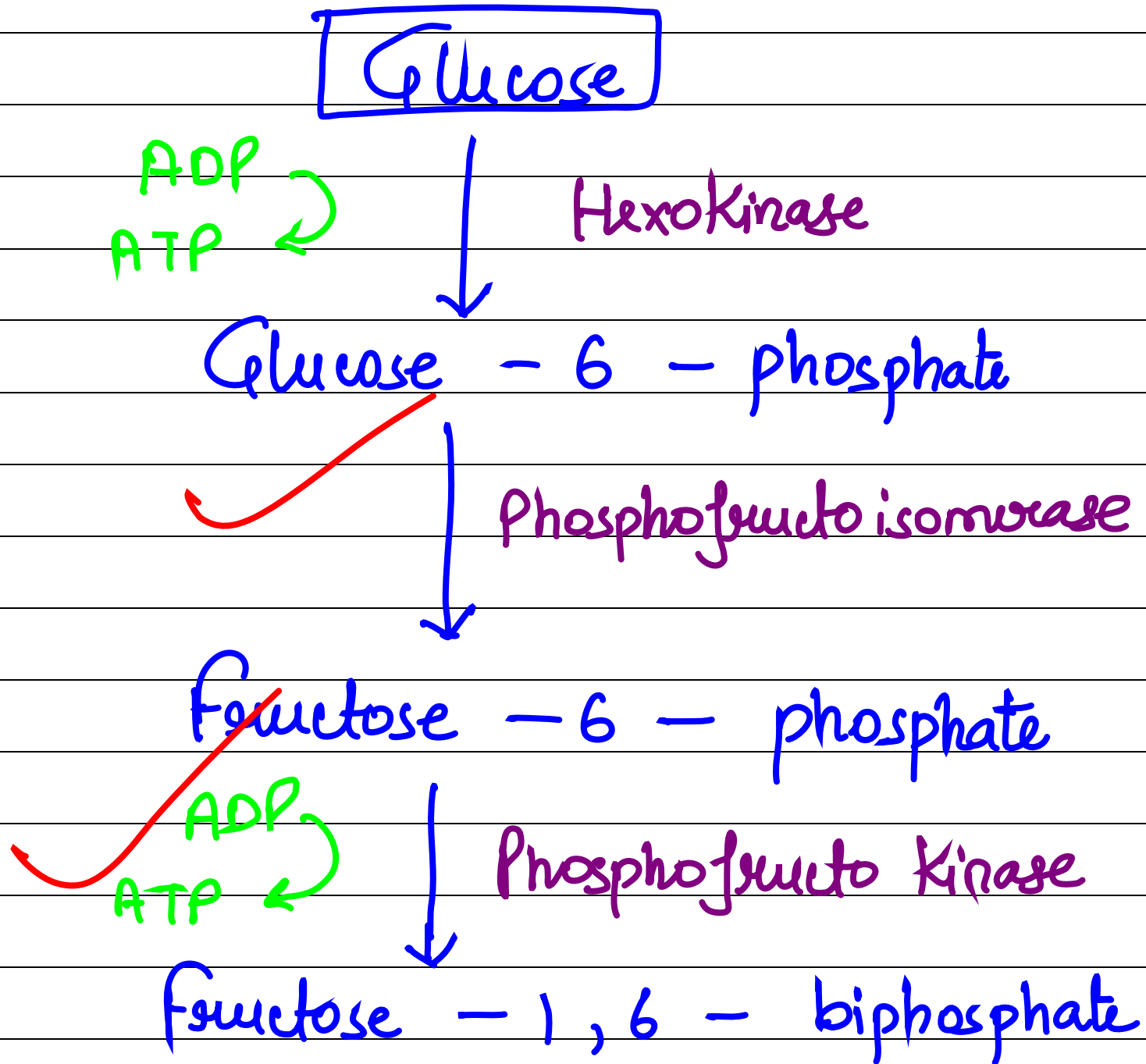
• Enzyme forms the substrate & product.

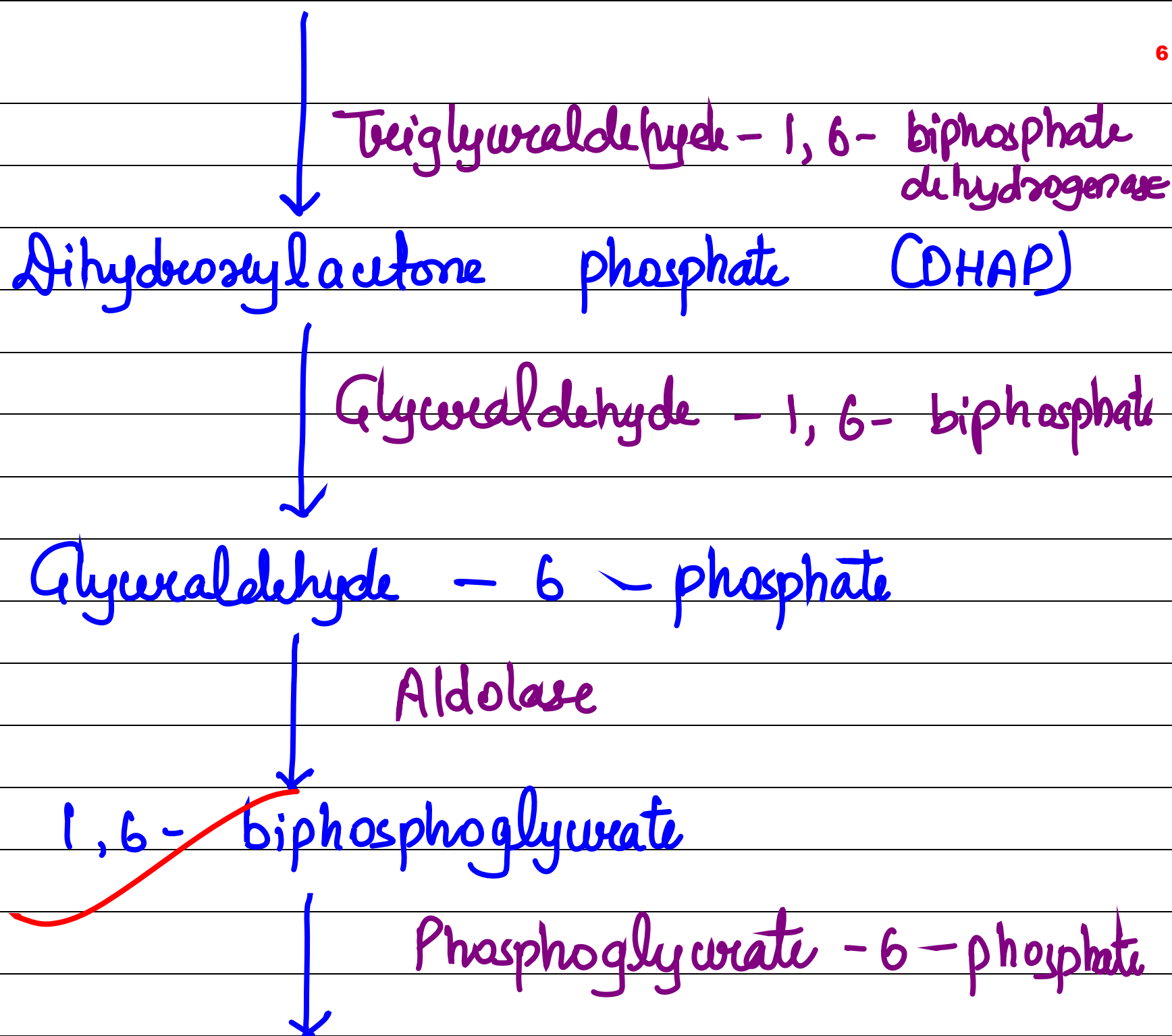


Section - C

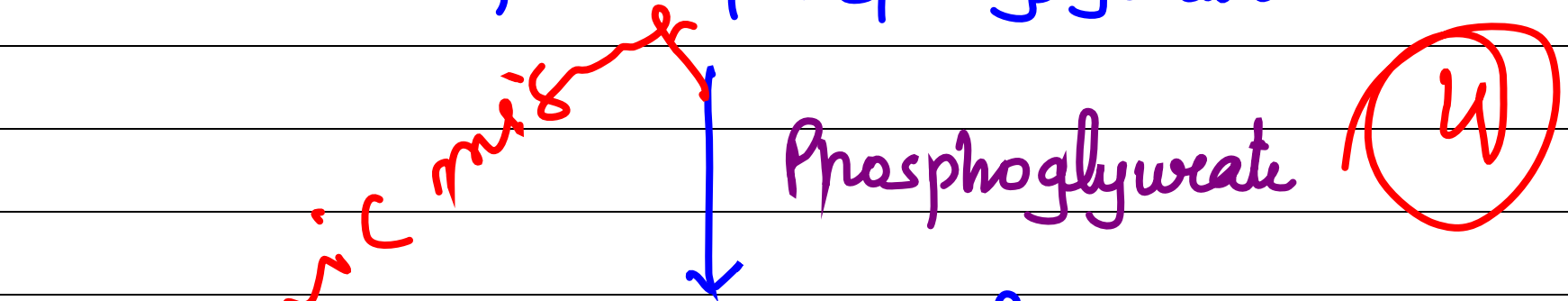
Ans 10 →

Glycolysis is a process in which glucose is converted into Pyruvate.





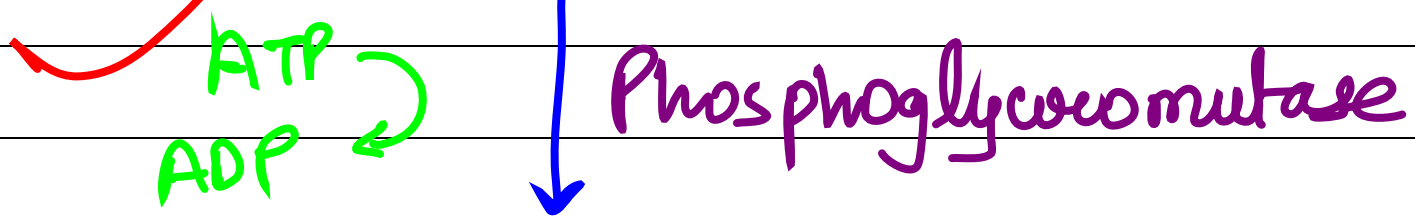
1, 3 - phosphoglycerate



3 - Phosphoglycerate

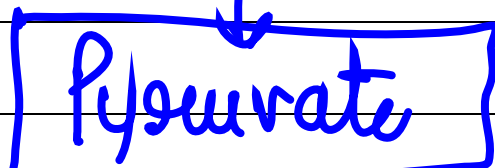


2 - Phosphoglycerate



Phosphoenolpyruvate (PEP)

Pyruvate kinase



Ans 11 → Enzyme Regulation

* Enzyme regulation is a process in which the rate of reaction is increased when activation site is present & rate of reaction is decreased when ~~inhibition~~ site is present.

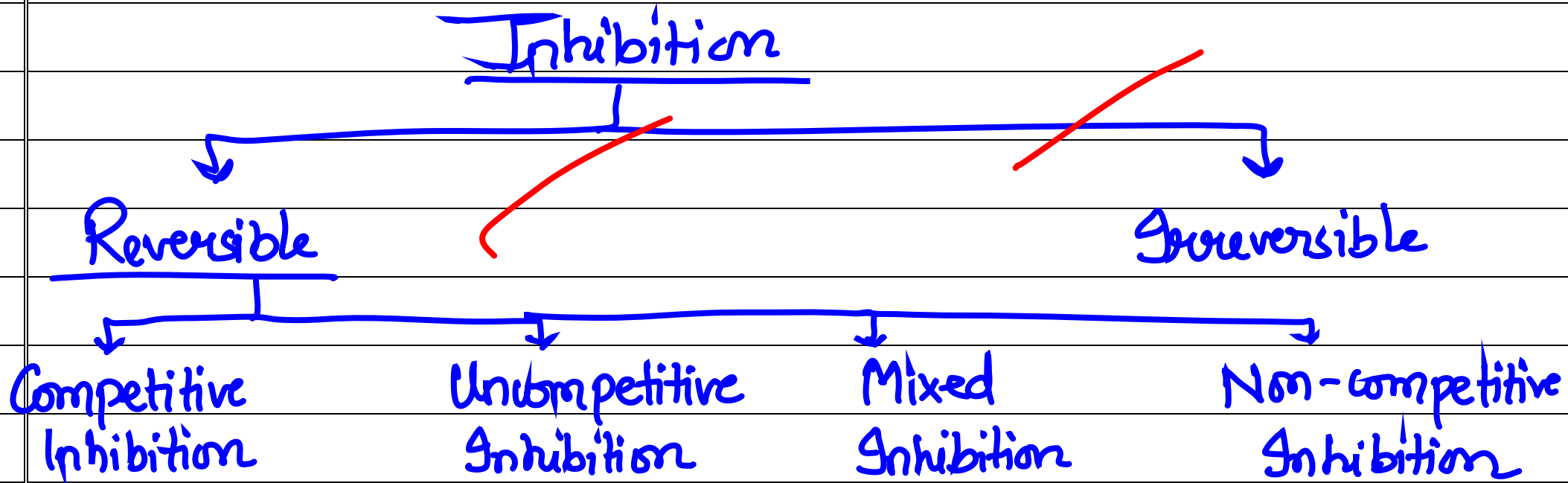
* Enzyme regulation activate & inhibit the growth of the reaction.

Enzyme → Speed up the rate of chemical reaction.

Regulation → Activation & Inhibition

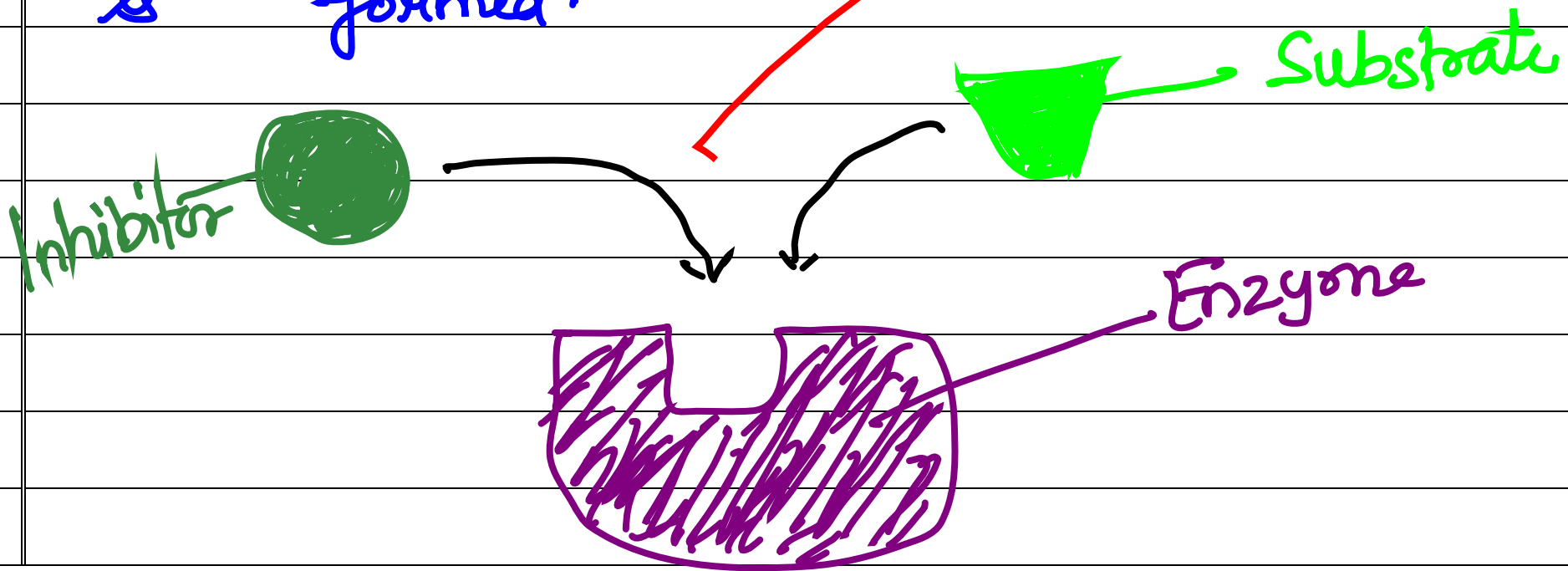
Inhibition -

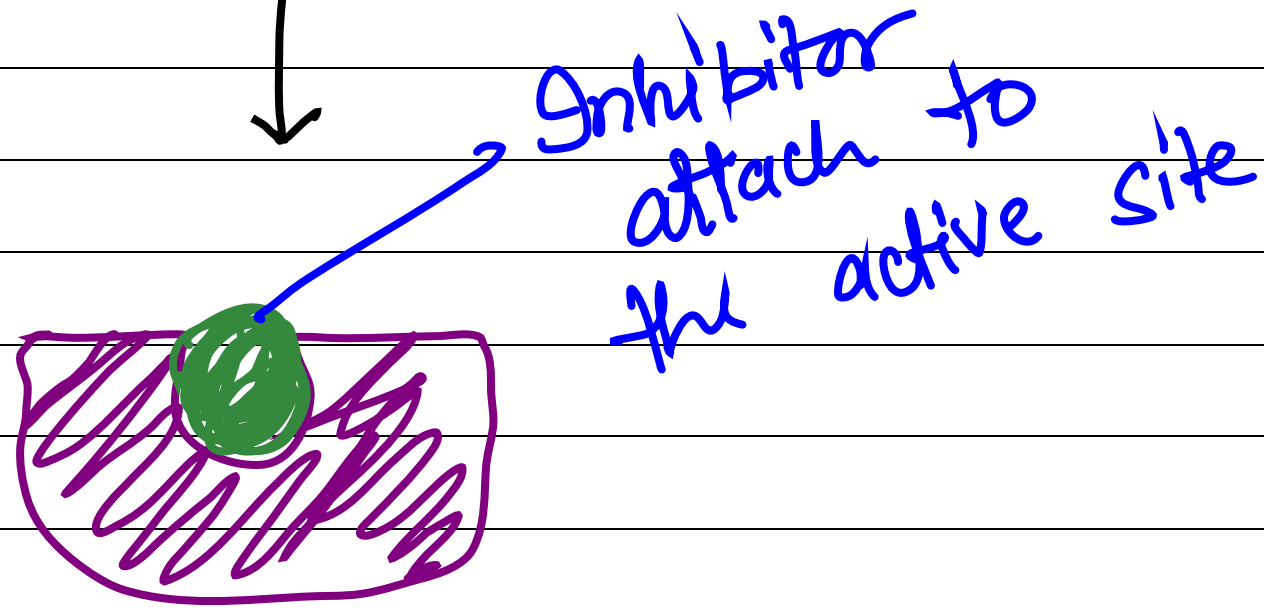
The rate of reaction inhibits or stop is termed as inhibition.



Competitive Inhibition :-

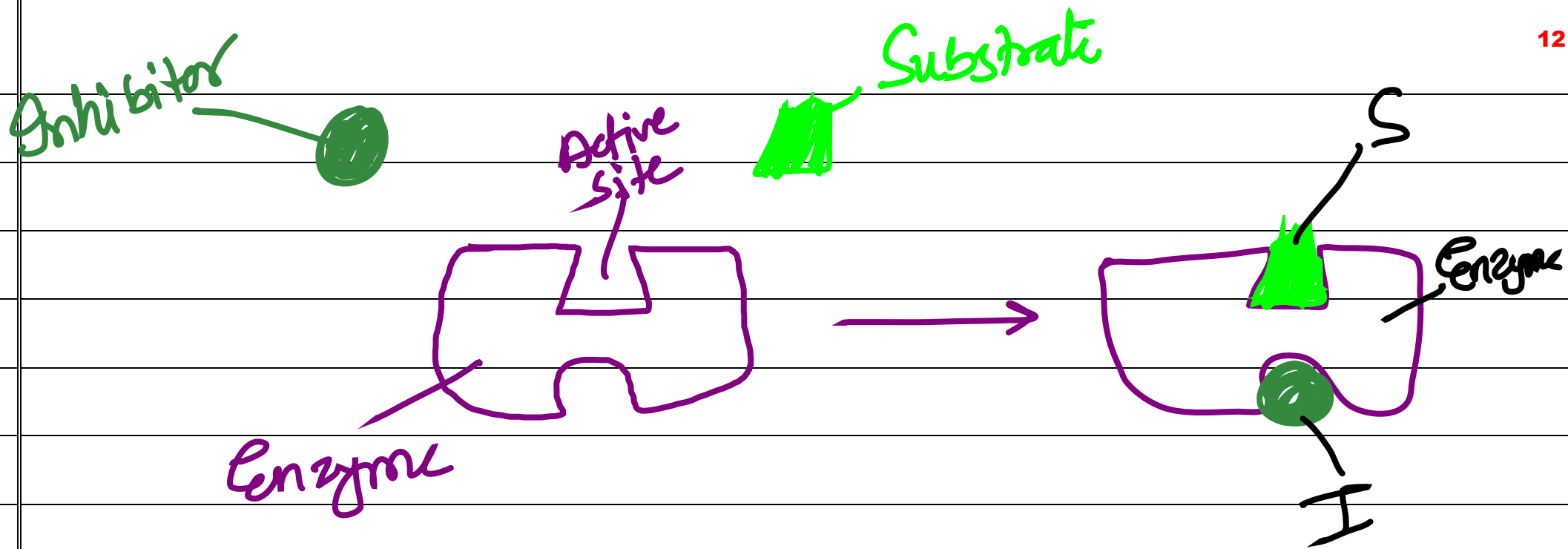
In competitive inhibition there is a competition b/w inhibitor & substrate to attach to the active site. The formation of E-S complex is reduced & the new complex E-I is formed.





Uncompetitive Inhibition -

In this inhibition there is no competition b/w Inhibitor & Substrate because in this there is an another site i.e., allosteric site at which the inhibitor is attach.



Mixed Inhibition -

On this inhibition there is a mixture of $E \cdot I$ or $E \cdot S \cdot I$ complex.

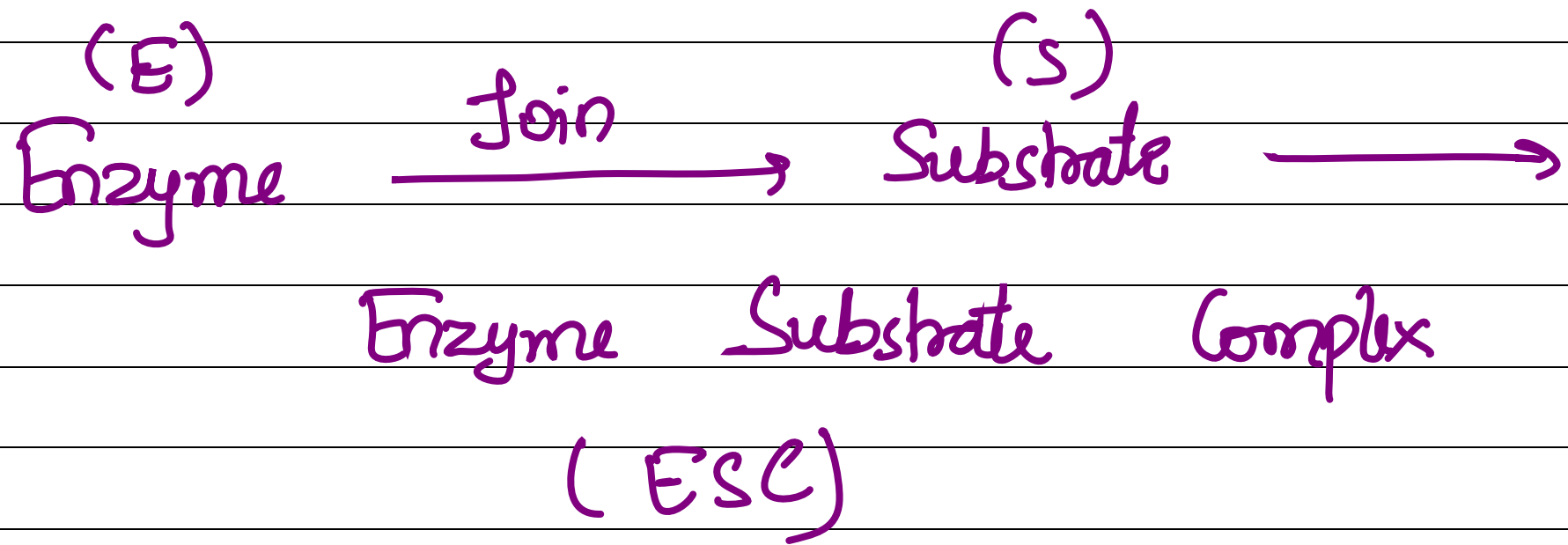
- It is forms in the catalytic reaction

Non-Competitive Inhibition -

- In this inhibition there is no competition.
- It is a very specific type of inhibition.
- In this catalytic reaction is present.

Activation -

In this the inactive site of the reaction is become active.



- In activation energy there is no competition.
- In this the inactive form become active.

Section - B

Ans 7: pH :-

$$pH = -\log [H^+]$$

- It is the negative logarithm of hydrogen ion concentration.
- pH maintains the body level.
- pH is of three types -

→ Acidic - 0 to 7

→ Neutral - 7

→ Basic — 7 to 14

- When the H^+ ion concentration increase the pH is acidic.
- When the OH^- ion concentration is increase then the pH is basic.
- Normal pH — 7.35 to 7.45
- pH is measured by —

→ pH indicator

→ pH meter

→ pH stripes

- The pH of water is neutral i.e., 7.

Acidic pH :-

When the H^+ ion concentration is increases then the pH is acidic.
(electron donor).

e.g. Carbonic acid donate H^+ .

Basic pH :-

When the H^+ ion concentration is less than this is basic pH.
(electron acceptor)

Role of pH in digestion -

- Digestive system is the very essential system of our body.
- When we digest the food the pH level is very much sufficient.

Mouth -

• pH is 7

- When the food enters in the mouth the pH level is 7 i.e., neutral.

- When the food mixed with the saliva & forms the bolus then the pH is become acidic i.e, 4 or 5.

Oesophagus :-

- In digestion the next step is oesophagus-

- food is mixed with mucus & lubricate through oesophagus-

Stomach :-

- When the food goes in the stomach then the pH is 2.

- The pH become more acidic to digest the food easily.
- It secrete the pepsin, pepsinogen & most of the enzymes to digest the food.
- In stomach HCl is present which break down the food & kill the germs which is present in bolus.
- In stomach the pH level is 2 i.e, acidic to digest the food.

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• Blood is the fluid connective tissue.

• It is composed of plasma and proteins.

• Buffer -

Buffer is defined as the substance which maintain the pH level & provide the equilibrium to the acid & base.

Acidic buffer :-

The acidic buffer is

worked with the weak acid &
a salt of conjugate base.

Basic buffer :-

In basic buffer there is
a weak base & a salt of
conjugate acid.

- In blood buffer maintain the pH level.
- The blood exchange the O_2 & CO_2 .

- The oxygenated blood purifies the deoxygenated blood in lungs.
- In this blood capillaries are present.
- pH maintain the blood & the haemoglobin which is present in the blood.
- Due to the haemoglobin the blood becomes red in colour.

Section - A

Ans 2,

cDNA & cDNA :-

cDNA → It is a type of DNA.

- ~~cDNA~~ is the complementary DNA.
- cDNA is prepared in the lab.
- It is present in the RNA.
- It is the type of the DNA.
- It is right-handed DNA.
- In this complementary strands are present.

Ans 5: Gluogenesis

- Gluogenesis is the formation of glucose.
- It is present in the carbohydrate.
- In this glucose are present which is very essential for our body.

Gluconogenesis

- Gluconogenesis is the formation of glucose + galactose.
- It is also present in the carbohydrate.
- In this glucose is present but also galactose present which is also essential.

