

## **PLANT PHYSIOLOGY**

### **Answer on the following questions:**

**Q1:** Define the enzyme and mention five precautions must be taken during preparation of enzymes.

**Q2:** Explain the mechanisms for opening of stomata.

**Q3:** Define the auxin and Explain the pathway of auxin synthesis from tryptophan.

### **Q4: Complete the following:-**

**A-** The external factors affecting on the rate of water absorption  
..... , ..... , ..... , .....

**B-** The transpiration is advantageous for many reasons  
..... , ..... , .....

**C-** The supporting points of non-osmotic theory  
..... , .....

**D-** The characteristics of a useful bioassay of plant hormone must include ..... , ..... , .....

**GOOD LUCK**

## *Model Answer*

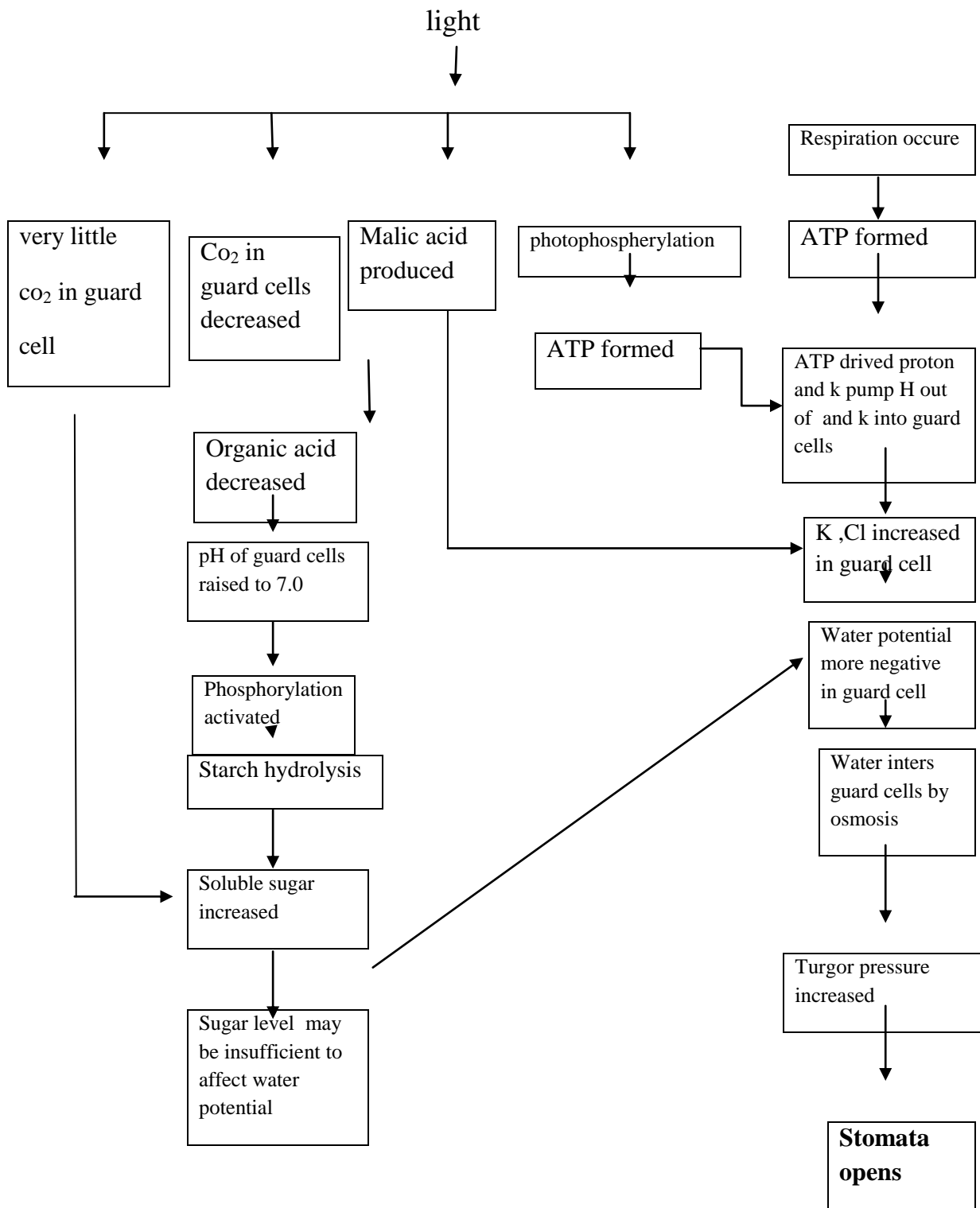
**Q1:** Define the enzyme and mention five precautions must be taken during preparation of enzymes.

Enzyme is a protein molecule and are biological catalysts. Enzymes increase the rate of the reaction. Enzymes are specific.

Mention to five precautions must be taken during the preparation of a crude enzyme solution.

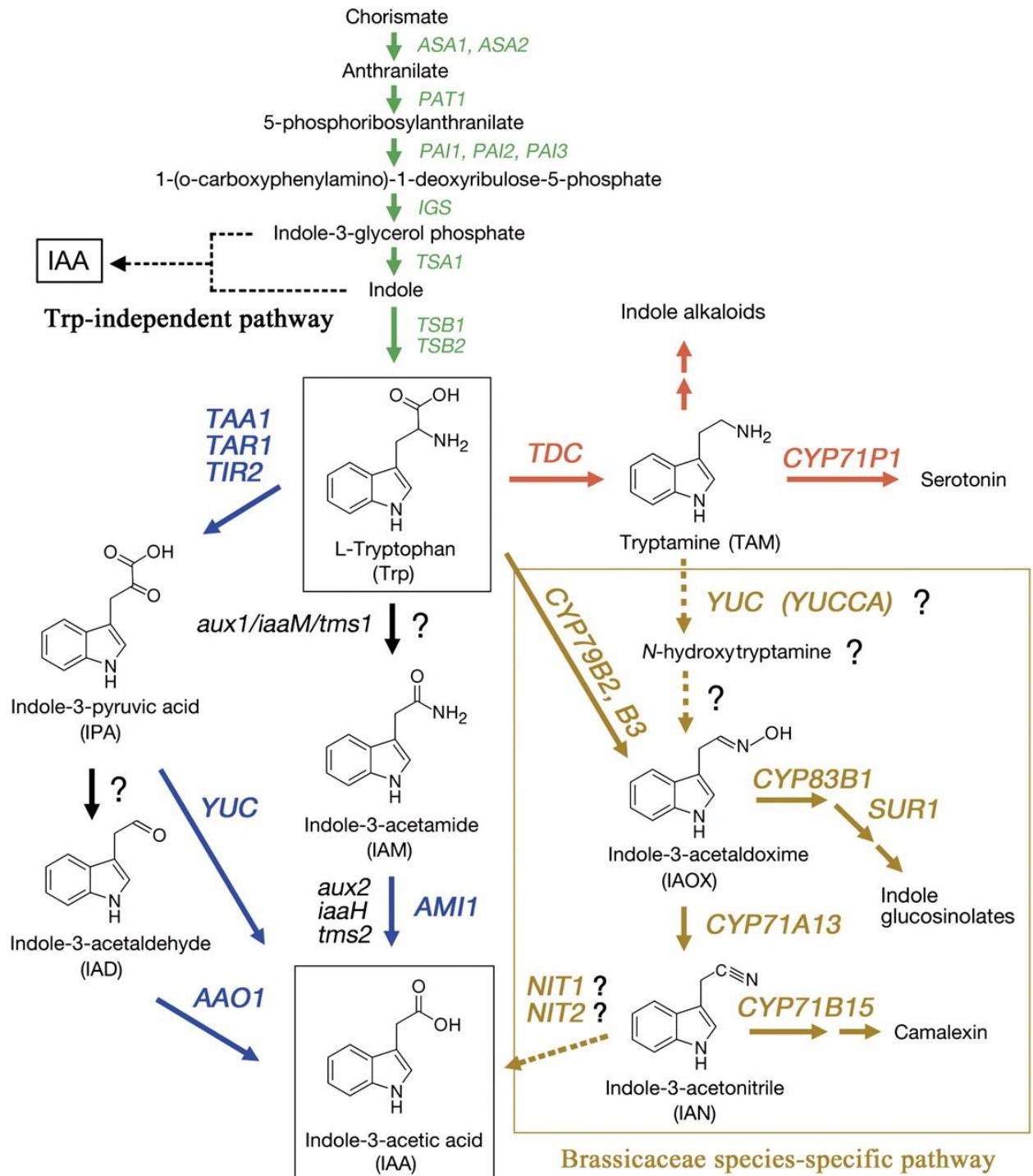
- 1- The cells must be kept cold during disruption.
- 2- The medium must be buffered about neutrality.
- 3- Enzymes which contain sulfhydryl group (-SH) are liable to oxidation during extraction. To prevent such an oxidation , mercaptoethanol is added.
- 5-Ethyldiamine acetic acid (EDTA) is also added to chelate heavy metal ions.

**Q2:** Explain the mechanisms for opening of stomata.



**Q3:** Define the auxin and Explain the pathway of auxin synthesis from tryptophan.

Auxin: organic compound in low concentration promote or inhibit the growth.



**Q4: Complete the following:-**

**A-** Factors affecting on the rate of water absorption  
Soil Temperature , Soil air , Soil water , Root system

**B-** The transpiration is advantageous for many reasons

- 1- it creates suction force and help in the ascent of sap.
- 2- it affects the diffusion pressure deficit, there by indirectly helping diffusion through the cells.
- 3- it affects the absorption of water and minerals by root.
- 4- it helps in evaporating excess amount of water.

**C-** The supporting points of non-osmotic theory

- (i) There is a correlation between the rate of water absorption and respiration,
- (ii) Auxin-induced water uptake
- (iii) The factors such as low temperature, oxygen tension and respiratory inhibitors which affect respiratory rate and in turn the absorption rate.

**D-** The characteristics of a useful bioassay of plant hormone must include .

- 1- Easy in measure
- 2- controlling
- 3- Sensitive
- 4- specificity