

**SET- A**  
**Plant Physiology and Metabolism/III Sem**  
**(BHGE5)**  
**Generic Elective Unique Paper Code: 32165301**

**Time: 3 + 1 hrs**

**Max. Marks: 75**

*(Write Your University Roll No, Paper Title and Paper Code on top of the Answer Sheets)*

**Attempt FOUR questions in all.**

**All questions carry equal marks (18.75)**

1. What are the criteria of essentiality of an element? Differentiate between macro and micro nutrients. Discuss the role of Phosphorus, Potassium, Zinc and Calcium in plant nutrition. Explain cohesion-tension theory for ascent of sap.
2. Write detailed note on the discovery of Auxin. Describe physiological roles and commercial applications of auxin and ethylene. Explain the role of Gibberellic Acid in seed germination.
3. Discuss the mechanism of action of enzymes. Explain irreversible and reversible enzyme inhibition. Discuss the role of Nitrate reductase and Nitrite reductase in Nitrogen metabolism.
4. Give evidence in support of role of phloem in sugar transport. List the substances transported in phloem. Explain the pressure flow hypothesis for long distance transport of photo-assimilates.
5. Give schematic representation of Krebs's Cycle (TCA). Tabulate the products of one round of TCA. Which step is associated with substrate level phosphorylation? Briefly discuss Glyoxylate cycle and its significance.
6. Illustrate Z scheme and explain the role of reaction center chlorophyll molecule, PSI and PSII in photosynthesis. Differentiate between cyclic and non-cyclic ETC during photosynthesis.

**OR**

Give an account of the discovery and structure of Phytochrome. Enlist the phytochrome mediated physiological processes. Describe the photo reversibility nature of phytochromes.