

4. (a) Discuss the role of potassium ions in opening and closing of stomata. (5)
- (b) Discuss Glycolysis under the following heads: (5)
- (i) Location
 - (ii) Flow chart with names of enzymes
 - (iii) Net ATP gain
- (c) Comments upon 'Transpiration is necessary evil'. (5)
5. (a) What is photoperiodism? How are plants classified on the basis of their photoperiodic responses? (5)
- (b) Comments on the physiological functions of Auxin and Cytokinin. (5)
- (c) Define the different components of water potential. (5)
6. (a) What is biological nitrogen fixation? Discuss the challenges related to biological nitrogen fixation in agriculture. (5)
- (b) Mention the criteria for the essentiality of elements. (5)
- (c) Differentiate between PS I and PS II. (5)

(300)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1484

I

Unique Paper Code : 2162583501

Name of the Paper : Physiology and Biochemistry
in Plant Development

Name of the Course : Botany

Semester : V

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **four** questions in all.
3. Question No. 1 is compulsory.
4. All parts of a question should be answered together.
5. Draw well-labeled diagram where is necessary.

P.T.O.

1. (a) Name the following : (1×5=5)

- (i) The process of movement of sugar from mesophyll cells to sieve tube is known as
- (ii) Site of light reactions during photosynthesis
- (iii) Which chemical triggers senescence in plants?
- (iv) Which substance causes Closing of stomata?
- (v) The compound that was discovered in the rice field

(b) Fill in the blanks : (1×5=5)

- (i) _____ refers to the loss of water from plant leaves in the form of tiny water droplets.
- (ii) Plants are able to absorb nitrogen from the soil in the form of _____.
- (iii) Kerb's cycle takes place in _____.
- (iv) ATPase pumps are involved in _____ transport across the membrane.
- (v) A micronutrient which is a constituent of enzyme nitrogenase is _____.

(b) Match the following : (1×5=5)

- | | |
|-------------------------------|------------------------------|
| (i) Fruit ripening | (a) O ₂ Sensitive |
| (ii) Zeatin | (b) Ethylene |
| (iii) Nitrogenase | (c) RuBisCo |
| (iv) CO ₂ fixation | (d) C ₄ plants |
| (v) Kranz anatomy | (e) Cytokinin |

2. Differentiate between (**any three**) : (3×5=15)

- (a) Active transport and passive transport
- (b) Macronutrients and micronutrients
- (c) C₃ plants and C₄ plants
- (d) Aerobic and Anaerobic respiration
- (e) Oxidative phosphorylation and Photophosphorylation

3. (a) What are phytochromes and how were they discovered? (5)

(b) Describe the pressure flow model. (5)

(c) Critically comment on the role and deficiency symptoms of S and Fe. (5)