



RAN-1903080403010001

M.Sc. (Sem. - III) Examination October - 2025 Botany (Paper - 3001) Plant Physiology

Time: 3 Hours]

[Total Marks: 70

સૂચના : / Instructions

- (1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the above details on your answer book
- (2) Neat correct and labeled diagram will add to the value of the answers.
- (3) Figures to the right indicate full marks for each question.

Seat No.:

--	--	--	--	--	--

Student's Signature

- Q.1. Answer any one of the following: (16)**
1. Explain the significance of pigments in photosynthesis. Discuss the roles of Chlorophyll a, Chlorophyll b, carotenoids and xanthophylls.
 2. What are the factors affecting the rate of respiration? Explain the role of temperature, oxygen, and respiratory enzymes.
- Q.2. Write an essay on the physiological and biochemical basis of photoperiodism. Explain the role of phytochrome in the process. (18)**
- or**
- Q.2. Describe the Hatch and Slack pathway of photosynthesis. How is it more advantageous than the C3 pathway? (18)**
- Q.3. Answer any two of the following: (18)**
1. Define Vernalization. Explain its importance in flowering of plants with suitable examples.
 2. Discuss the advantages and disadvantages of seed dormancy in crop plants.
 3. Explain the mechanism of stomatal opening and closing according to the potassium ion pump theory.
- Q.4. Answer any two of the following: (18)**
1. Explain the mechanism of water absorption in plants.
 2. Discuss the economic importance of anaerobic respiration in industries.
 3. Discuss the factors affecting the rate of transpiration.