

Total No. of Questions : 9]
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Roll No.

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UG (CBCS) IInd Year Annual Examination

2811

B.Sc. BOTANY

(Plant Physiology and Metabolism)

(DSC-IB)

Paper : IV (BOTA 202)

Time : 3 Hours]

[Maximum Marks : 50

Note :- Attempt *five* questions in all, selecting one question from each Part-B, C, D and E. Question No. 1 of Part-A is compulsory. Attempt all subparts of a question together.

Part-A

1×10=10

(Compulsory Question)

1. (i) How will you prepare 1 molar solution of H_2SO_4 ?
- (ii) Define DPD and give its formula.

CH-111

(1)

Turn Over

- (iii) The guard cells of stomata are surrounded by two or more subsidiary cells which lies parallel to long axis of pore and guard cell than stomata is called as type.
- (iv) *Internal cork of Apple* disease is caused by the deficiency of mineral.
- (v) P-Proteins are found in Cell.
- (vi) The main metal ion associated with nitrogenase enzyme is
- (vii) First acceptor of CO_2 in C_3 plant is
- (viii) Write the molecular formula of I. A. A.
- (ix) Define Vernalization.
- (x) Define critical day length.

Part-B

- 2. (a) Discuss the Steward's hypothesis of opening and closing of stomata in plants.
- (b) Discuss the Cohesion-tension theory of Dixon and Joly for the ascent of sap in plants. 5+5=10

Or

3. (a) Discuss the physiological role and deficiency symptoms of Nitrogen (N), Phosphorus (P) and Potassium (K) in higher plants.
- (b) Discuss the Bennet-Clark's protein-lecithin theory for absorption of mineral ions. 5+5=10

Part-C

4. (a) Give the mechanism of translocation of organic solutes in plant.
- (b) Discuss the process of non-cyclic photophosphorylation or *Z-scheme* in detail. 5+5=10

Or

5. (a) Describe the mechanism of CO_2 fixation in C_4 plants. In what way it is different from C_3 plants ?
- (b) Write short notes on the following :
- (i) Absorption and action spectra
 - (ii) Emerson's red drop experiment.
- 5+5=10

Turn Over

Part-D

6. (a) What is Enzyme inhibition ? Discuss competitive and non-competitive inhibition of enzyme action.
- (b) Discuss the different steps of glycolysis in detail. $5+5=10$

Or

7. (a) Discuss the TCA or Krebs cycle in detail.
- (b) Write a note on symbiotic and asymbiotic biological nitrogen fixation with examples. $5+5=10$

Part-E

8. (a) Discuss the physiological role of auxin.
- (b) Write notes on the following :
- (i) Bolting effect
- (ii) Richmond-Lang effect $6+4=10$

Or

9. (a) Differentiate between Long day plant (LDP) and short-day plant (SDP).
- (b) What are phytochromes ? Discuss their structure and function. $6+4=10$