

2022

5th Semester Examinations

BOTANY (Honours)

Paper : C 12-T

Plant Physiology

[CBCS]



Full Marks : 40

Time : Two Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

Group - A

1. Answer any *five* of the following questions : $2 \times 5 = 10$

- (a) What are aquaporins? Give an example.
- (b) What will happen if two 1.0 Molal glucose solution of 0°C and 30°C are separated by a selective permeable membrane?
- (c) How does symport and uniport differ with respect to membrane transport?
- (d) What is Richmond-Lang effect?
- (e) What are indole and non-indole auxins?
- (f) Removal of apical meristem produce a bushy plant — Why?

P.T.O.

- (g) What is the precursor molecule of GA and Ethylene?
- (h) Why Xanthium (SDP) and Hyoscyamus (LDP) both produce flowers when provided with cycles of 14 hours light and 10 hours darkness?

Group - B

2. Answer any *four* of the following questions : $5 \times 4 = 20$

- (a) What do you mean by p-protein? Elucidate the mechanism of phloem loading with the help of sucrose- H^+ transporter.
- (b) Mention the physiological roles of brassinosteroids as plant grow regulator.
- (c) Briefly describe the mode of action of flowering hormone, florigen.
- (d) What is micronutrient? State one role each of the following mineral elements in plant metabolism :
- (i) Molybdenum,
 - (ii) Manganese,
 - (iii) Zinc,
 - (iv) Copper.
- (e) Write a short note on GA induced seed germination.
- (f) What do you mean by cavitation and embolism? Describe with suitable diagram, the role played by K^+ in opening and closing of stomata.

Group - C

3. Answer any *one* of the following questions : $10 \times 1 = 10$

- (a) What do you mean by vernalization? Explain the role of vernalization in :

- (i) imparting competence to flower at apical meristem
- (ii) influence epigenetic changes in gene expression.

With a suitable diagram explain the functioning of plasma membrane ATPase pump. $2+5+3$

- (b) Name a phytohormone which is chemically a purine derivative isoprenoid compound. Write down its skeletal structure and mode of action of that phytohormone in cell cycle, pathogenicity and nutrient mobilization. $1+1+8$

