12.12.18 (M)

This question paper contains 4 printed pages]

Roll No. | | | | | | | | | | | |

S. No. of Question Paper : 38

Unique Paper Code : 32161502 I

Name of the Paper : Plant Physiology

Name of the Course : B.Sc. (H) Botany

Semester : V

Duration : 3 Hours Maximum Marks : 75

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt *five* questions in all.

Question No. 1 is compulsory.

All questions carry equal marks.

1 (a) Name any *five* of the following : 5×1=5

(*i*) A macronutrient responsible for osmoregulation and stomatal movement.

(*ii*) A cytokinin extracted from maize grains

(*iii*) A synthetic antitranspirant

P.T.O.

(*iv*) Membrane spanning protein channel that facilitate water transport

(*v*) An ethylene releasing compound

(*vi*) Term for cold temperature requirement for flowering.

(*b*) Fill in the blanks : 5×1=5

(*i*) Garner and Allard are associated with .....

(*ii*) Most accepted theory of ascent of sap .....

(*iii*) A cell gets plasmolysed after being kept in ..... solution.

(*iv*) A hormone that prevents precocious germination is .....

(*v*) Fungal association that helps in phosphorus uptake.....

(*c*) Define any *five* of the following : 5×1=5

(*i*) Cavitation

(*ii*) Osmotic potential

(*iii*) Florigen

(*iv*) Etiolation

(*v*) Symport

(*vi*) Aeroponics.

2. Distinguish between any *three* of the following : 3×5=15

(*i*) Carrier proteins and Channel proteins

(*ii*) Apoplastic and Symplastic water uptake

(*iii*) Macroelements and Microelements

(*iv*) Transpiration and Guttation.

3. Write explanatory notes on any *three* of the following : 3×5=15

(*i*) Role of sulphur and magnesium in plant nutrition

(*ii*) Hydroponics

(*iii*) Polar auxin transport

(*iv*) starch- sugar hypothesis of stomatal movement.

4 (*a*) What is water potential ? Explain the significance and factors (any *three*) affecting it. 5

(*b*) Describe CO-FT model for long distance transport of flowering stimulus. 5

(*c*) Give the criteria of essentiality of mineral nutrients. 5

P.T.O.

5. (*a*) What is seed dormancy ? Explain the factors that cause it. 5

(*b*) Comment on the physiological roles of Cytokinins *or* Ethylene. 5

(*c*) Write in brief the role of brassinosteroids in plant signaling. 5

6. (*a*) What are phytochromes ? Explain their mechanism of action. 5

(*b*) What do you understand by 'source-sink' relationship in phloem transport ? Explain it in the light of Munch Hypothesis. 5

(c) Expand the following : 5×1=5

TIBA, ACC, LFR, BAP, EDTA