This question paper contains 4+2 printed pages]

1/12/2018

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

S. No. of Question Paper : **37**

Unique Paper Code : **32161501** **I**

Name of the Paper : **Reproductive Biology of Angiosperms**

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 including

Question No. **1** which is compulsory.

All the parts of a question must be attempted together.

Draw well-labelled diagrams and

write botanical names wherever necessary.

1. (A) Fill in the blanks : 10×0.5=5

(*i*) Egg cell with filiform apparatus is seen in ..... .

P.T.O.

(*ii*) ..... scientist gave Fluorochromatic reaction as pollen viability test.

(*iii*) 'An Introduction to Embryology of Angiosperms' was authored by ..... .

(*iv*) Persistent middle layers are seen in ..... .

(*v*) Composite endosperm is a family character of ..... .

(*vi*) Circinotropous ovule is seen in ..... .

(*vii*) Rejection reaction occurs in style of ..... type of self-incompatibilty.

(*viii*) Seed dispersal by wind is known as ..... .

(*ix*) ..... type of embryo sac does not have antipodals.

(*x*) A hydrophilic substance that forms the pollen coat material is ..... .

(B) Define any *five* : 5×1=5

(*i*) Stomium

(*ii*) Pollinium

(*iii*) Geitonogamy

(*iv*) Herkogamy

(*v*) Self-incompatibility

(*vi*) Suspensor.

(C) Find the odd one out (with reason) from each group of terms : 5×1=5

(*i*) Egg cell, polar nucleus, synergid, antipodal

(*ii*) Pollenkitt, pectocellulose, tryphine, orbicules

(*iii*) Operculum, aril, endothelium, caruncle

(*iv*) Syngamy, porogamy, chalazogamy, mesogamy

(*v*) Calcium, boron, callose, lignin.

2. Write short notes on any *five* : 5×3=15

(*i*) Endothelium

(*ii*) Reduced ovules

(*iii*) Pseudomonad

(*iv*) Pollen embryo sacs

(*v*) Amoeboid tapetum

(*vi*) Intraovarian pollination.

3. (A) Callose plays an important role in microsporogenesis. Discuss. 5

(B) Discuss the significance of seed dispersal. Add a note on zoochory. 5

(C) Explain Polygonum type of embryo sac development with illlustrations. 5

4. Discuss :

(A) The role of mentor pollen in overcoming self-incompatibility. 5

(B) The role of synergids in fertilization. 5

(C) Tapetum is involved in proper development of pollen grains. 5

5. (A) Give the detailed organization of germ unit in the pollen tube. 5

(B) Define polyembryony and write a note on Nucellar Polyembryony. 5

(C) Discuss the embryo development in *Paeonia*. 5

6. (A) Define apomixis and comment on gametophytic apomixis. 5

(B) Write an explanatory note on : 5

FGU *or* Pollen storage.

(C) Differentiate between any *two* of the following : 2×2.5=5

(*i*) Turn pipe mechanism and Fly trap mechanism

(*ii*) Gametic transformation and pollen tube pathway transformation

(*iii*) Vegetative cell and Generative cell.

7. (A) Draw neat well labelled diagrams of any *two* of the following : 2×2.5=5

(*i*) L.S. bitegmic, Crassinucellate, Anatropous ovule with Oenothera type of embryo sac

(*ii*) T.S. Tetrasporangiate anther showing locules with spore mother cells

(*iii*) Structure of pollen tube tip.

(B) Associate the following structures with family/genus (any *five*) : 5×1=5

(*i*) Mamelon

(*ii*) Polysiphonous pollen grains

(*iii*) Aril

(*iv*) Massulae

(*v*) Nucellar beak

(*vi*) Pseudoembryo sac.

(C) Briefly describe different types of endosperms with examples. 5

(9) 12/12/18

This question paper contains 4 printed pages]

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

S. No. of Question Paper : **38**

Unique Paper Code : **32161502**

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

(*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

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