3 (Sem–5/CBCS) BOT HC 1

2023

BOTANY

(Honours Core)

Paper : BOT–HC– 5016

(Reproductive Biology of Angiosperms)

Full Marks : 60

Time : Three hours

The figures in the margin indicate full marks for the questions.

1. Answer the following : 1×7=7

   (a) Who wrote the book, *An Introduction to the Embryology of Angiosperms* in 1950 ?

   (b) What is 'Florigen' ?

   (c) Name the most common embryo sac found in angiosperms.

   (d) Dispersal of seeds by human being is called _____. *(Fill in the blank)*

(e) Who first reported 'Hypostase' in ovule ?

(f) Growth of a vegetative shoot beyond the flower as sometimes seen in roses is called _____.
(Fill in the blank)

(g) A pollinarium contains —

(i) pollinia, viscidium and stipe

(ii) pollinia, caudicle and stipe

(iii) pollinia, viscidium, caudicle and stipe

(iv) pollinia, caudicle and viscidium
(Choose the correct answer)

2. Answers the following : 2×4=8

(a) What is MGU ?

(b) Distinguish between xenogamy and geitonogamy.

(c) Give a brief account of apomixis.

(d) What do you mean by tenuinucellate ovules ?

3. Answer ***any three*** of the following : 5×3=15

(a) Give an account of the structure of pollen wall.

(b) What is polyembryony ? Discuss the significance of polyembryony.

(c) Give a brief account of homomorphic and heteromorphic self incompatibility.

(d) Give an illustrated account of the scope of palynology.

(e) Discuss the contribution of S. G. Nawaschin to reproductive biology.

4. Answer ***any three*** of the following : 10×3=30

(a) Give an account of NPC system for classification of pollen grains and mention its significance. 8+2=10

(b) What is megasporogenesis ? Describe the process of megasporogenesis and megagametogenesis with the help of suitable diagrams. 1+9=10

(c) What do you mean by embryo-endosperm interaction ? Give an account of the embryo-endosperm interaction in an ovule. Mention the functions of endosperm. 2+6+2=10

Contd.

(d) Define pollination. What is the significance of pollination ? Give an account of different types of cross pollination. 1+2+7=10

(e) What is the importance of seed dispersal in plants ? Discuss the dispersal of seeds by wind and water. 2+8=10

(f) What do you mean by induction of flowering ? Describe the genetic and molecular mechanism of flower development. 2+8=10

3 (Sem–5/CBCS) BOT HC 2

2023

BOTANY

(Honours Core)

Paper : BOT–HC–5026

(Plant Physiology)

Full Marks : 60

Time : Three hours

The figures in the margin indicate full marks for the questions.

1. Answer as directed : 1×7=7

   (a) The phenomenon where an ion species may depress the uptake of another ion species is called

   (i) ion inhibition

   (ii) ion suppression

   (iii) ion antagonism

   (iv) None of the above

(b) The stomata close in water stressed plants due to accumulation of ABA in

(i) mesophyll cells

(ii) subsidiary cells

(iii) guard cells

(iv) None of the above

(c) Richmond and Lang effect is

(i) apical dominance

(ii) foolish disease of rice

(iii) replacement of red light effect

(iv) retardation of leaf senescence

(d) Cryptochromes are a class of

(i) lipoproteins

(ii) flavoproteins

(iii) carbohydrates

(iv) amino acids

(e) When two types of molecules or ions move in opposite direction through plasma membrane, it is called

(i) uniport

(ii) symport

(iii) antiport

(iv) None of the above

(f) Which of the following mineral elements is less soluble and comparatively immobile in soil ?

(i) P

(ii) K

(iii) N

(iv) None of the above

(g) Which of the following categories of phytochrome mediated photoresponses in plants show reversible photoresponses ?

(i) LFRs

(ii) VLFRs

(iii) HIRs

(iv) All of the above

2. Write briefly on the following : 2×4=8

(a) Water potential

(b) Bolting

(c) Source–sink relationship

(d) Brassinosteroids

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

(a) Antitranspirants

(b) Root Pressure theory

(c) Apical dominance

(d) Cytochrome Pump theory

(e) High Irradiation Responses

4. Answer the following questions : 10×3=30

(a) What is vernalization? Mention the sites of vernalization. How plants can be devernalized? Describe various theories of vernalization. 1+1+2+6=10

Or

Give a critical account of modern view of solute transport across membrane in plants. 10

(b) What is photomorphogenesis? Give an account of red light and far red light responses on photomorphogenesis. 2+8=10

Or

What is photoperiodism? What do you mean by LDP and SDP? Write a note on florigen concept. 1+2+2+5=10

(c) What are cytokinins? Describe the discoveries, occurance and transport (movement) of cytokinins. 2+2+2+4=10

Or

Describe the process of phloem loading and unloading. 10