3 (Sem–3/CBCS) BOT HC 1

2022

BOTANY

(Honours)

Paper : BOT–HC–3016

(Morphology and Anatomy of Angiosperm)

Full Marks : 60

Time : Three hours

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

1. Answer the following as directed : ***(any seven)*** 1×7=7

   (a) When the stamens and carpel unite, the structure is termed as _____. *(Fill in the blank)*

   (b) Mention *one* function of tapetum.

   (c) What are hydathodes ?

(d) When a flower has both androecium and gynoecium, it is called monoecious flower. *(State True **or** False)*

(e) What are the components of xylem tissue ?

(f) The Casperian strip is mainly made of —

(i) Lignin

(ii) Suberin

(iii) Cellulose

(iv) Hemicellulose

(Choose the correct one)

(g) Function of Plasmodesmata is —

(i) to provide cell to cell connection

(ii) to help in cell division and thus plant development

(iii) to maintain coordination and signaling responses during plant interactions

(iv) All of the above

(Choose the correct one)

(h) What is quiescent center ?

(i) Write the botanical name of a plant where cyathium type of inflorescence is found.

(j) Define trichomes.

(k) What are the types of tissue systems found in the primary structure of plants ?

(l) Who proposed 'histogen theory' to explain shoot apical organization ?

2. Explain the following : ***(any four)*** 2×4=8

(a) Stele and its types.

(b) Dendrochronology.

(c) Permanent tissue and its types.

(d) Difference between heartwood and sapwood.

(e) Importance of anatomy in pharmacognosy.

(f) Kranz anatomy.

(g) Structure of amphitropous ovule.

(h) Tunica-corpus theory.

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

(a) Distinguish between xerophytes and hydrophytes with regard to anatomical adaptations.

(b) Describe about the characteristic features of secondary xylem and secondary phloem.

(c) With the help of suitable diagrams explain about sunken and raised stomata found in different plants.

(d) Describe the role of polarity in plant development.

(e) Give an account on the morphological nature of gynoecium.

(f) Discuss about the different types of epidermal outgrowths.

(g) What are secretory tissues ? Write about the external secretory structures.

(h) Give a brief account of the internal structure of dorsiventral leaf with example.

4. Answer the following questions : **(*any three*)** 10×3=30

(a) What is Telome theory ? Explain the theory with suitable diagram, mentioning its significance. 2+6+2=10

(b) Define apical meristems. Explain the mode of growth found in shoot apical meristem with the help of different theories. 2+8=10

(c) What is ground tissue system ? Describe about its different components, mentioning the importance in plant growth and development. 2+8=10

(d) Give a detailed account on application of morphology in Angiospermic plant classification.

(e) Define permanent tissues. What are its types ? Illustrate about the complex tissues with the help of suitable diagrams. 1+2+7=10

(f) With the help of suitable examples discuss about the anatomical characteristics of dicot and monocot stem.

(g) What are periderm and lenticels ? How are they developed during secondary growth ? Explain with diagram. 5+5=10

(h) Explain how lateral roots are developed in flowering plants.

(i) What is cambium ? How is it involved in seasonal activity and secondary growth in dicot plants ? Explain with help of diagrams. 2+8=10