2023

BOTANY

Paper : BOTHC3056

(Anatomy of Angiosperms)

Full Marks : 60
Pass Marks : 24

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. Choose the correct answer of the following (any *five)* :

1×5=5

(a) The vascular tissue in flowering plants develops from

(i) periblem

(ii) phellogen

(iii) dermatogen

(iv) plerome

(b) The waxy substance associated with the wall of cork cell is

(i) cutin

(ii) suberin

(iii) lignin

(iv) hemicellulose

(c) Which is living mechanical tissue?

(i) Phloem

(ii) Parenchyma

(iii) Collenchyma

(iv) Sclerenchyma

(d) Diffuse-porous woods are the characteristics of plants growing in

(i) Alpine region

(ii) Cold winter regions

(iii) Temperate climate

(iv) Tropics

(e) Axillary bud and terminal bud are derived from the activity of

(i) Lateral meristem

(ii) Intercalary meristem

(iii) Apical meristem

(iv) Parenchyma

(f) The most important function of the trichomes is that

(i) they prevent water loss due to transpiration

(ii) they prevent herbivory

(iii) they are sensory structures that decipher the wind velocity and direction

(iv) they play an important part in pollination of plants.

(g) In dicot root, the vascular cambium

(i) is absent

(ii) is completely secondary in origin

(iii) does not form a continuous ring

(iv) originates from the tissue just above the phloem bundles

(h) Specialized epidermal cells surrounding the guard cells are called

(i) subsidiary cells

(ii) bulliform cells

(iii) lenticels

(iv) complementary cells

(i) Water-containing cavities in vascular bundles are found in

(i) *Helianthus annuus*

(ii) *Zea mays*

(iii) *Cycas*

(iv) *Pinus*

(j) Vessels are found in

(i) all angiosperms and some gymnosperms

(ii) most of angiosperms and few gymnosperms

(iii) all angiosperms, all gymnosperms and some pteridophyta

(iv) all pteridophyta

2. Give short answers of the following questions (any *five*) : 2×5=10

(a) What are ergastic substances?

(b) What are sclereids? Where do you find it?

(c) Differentiate between Exarch and Endarch condition.

(d) Explain nectarines. Where is it found?

(e) Differentiate between Softwood and Hardwood.

(f) Give reason for the absence of secondary growth in monocots.

(g) Give an account of external secretory tissues in plants.

3. Answer the following (any *five*) : 5×5=25

(a) Write briefly on the role of anatomy in systematics and forensics.

(b) Give a detailed account on different types of wood.

(c) Write a concise note on the adaptive features of xerophytic plants.

(d) How is meristem classified on the basis of origin and its position?

(e) Compare the anatomy of dicot and monocot stems.

(f) Differentiate between lenticel and hydathode. Explain with illustrations.

(g) Write shortly on periderm and its constituents.

(h) Give a detailed account of conjoint vascular bundles with diagram.

(i) Describe the internal structure of a dicot leaf with labelled diagram.

4. Answer any *two* of the following questions : 10×2=20

(a) Give a detailed account of adaptive and protective systems of plants with diagrams.

(b) Briefly discuss various theories related with organization of root apex and shoot apex.

(c) What are tissues? Give a concise note on different classifications of tissues with their functions.

(d) What is cambium? Describe its types, structure and function. Add a note on the accessory cambium and its significance.

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