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3 (Sem-3/CBCS) BOT HC 1

2021

(Held in 2022)

BOTANY

(Honours)

Paper : BOT-HC-3016

(Morphology and Anatomy of Angiosperms)

Full Marks : 60

Time : Three hours

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

1. Answer the following as directed : $1 \times 7 = 7$

(a) When the stamens are united by both filaments and anthers to form a compact body, the condition is termed as _____. (Fill in the blank)

(b) The main constituent of cork cell is

(i) lignin

(ii) cutin

(iii) suberin

(iv) cellulose (Choose the correct one)

Contd.

- (c) Custard apple is an example of
- (i) etaerio of follicles
 - (ii) etaerio of berries
 - (iii) etaerio of drupes
 - (iv) etaerio of achenes
- (Choose the correct one)*
- (d) What is dendrochronology?
- (e) Name the characteristic inflorescence found in the family Lamiaceae.
- (f) Mention the botanical name of a plant where hypanthium is found.
- (g) Give definition of laticifers.

2. Explain the following : *(any four)*

2×4=8

- (a) Characteristic features of primitive stamen
- (b) Structure of circinotropous ovule
- (c) Heartwood and sapwood
- (d) Difference between Tunica-carpus theory and Histogen theory
- (e) Cyathium inflorescence
- (f) Importance of plant anatomy in forensic investigation

3. Answer *any three* of the following :

5×3=15

(a) Give an illustrated account of the morphological nature of the carpel.

(b) Discuss different types of adhesion of stamen with neat diagram. Explain the evolutionary trends in stamen.

3+2=5

(c) Distinguish between protoxylem and metaxylem.

(d) With the help of suitable diagram, write an explanatory note on different types of stomata found in dicot leaves.

(e) Give a brief account of the epidermal tissue system and epidermal outgrowths.

(f) Describe the role of anatomy in classification of plants.

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

(a) What is phyllode theory? Give a detailed account of phyllode theory and explain the significance of the theory.

2+8=10

Or

Give a detailed account of the importance of morphology in classification of angiosperms. 10

- (b) What is cambium? Give an illustrated account of origin, histological structure and function of cambium with the help of diagrammatic sketch.

$$1+(2+4+2+1)=10$$

Or

How are meristematic tissues classified on the basis of the position in the plant body? Give a detailed account of the Korper-Kappe theory of root meristem citing neat and labelled diagram.

$$6+4=10$$

- (c) How would you differentiate between simple and complex tissues? Give an illustrated account of complex tissues with the help of suitable labelled diagrams.

$$2+8=10$$

Or

Give a comparative account of the anatomy of dorsiventral and isobilateral leaf. Explain the structure and adaptive anatomical features of xerophytic leaves citing neat and labelled diagram.

$$4+6=10$$