

2019

BOTANY — HONOURS

Paper : CC - 3

Full Marks : 50

*The figures in the margin indicate full marks.**Candidates are required to give their answers in their own words as far as practicable.*

1. Answer **any five** questions from the following :
 - (a) What is quiescent centre? 2
 - (b) Distinguish between blind pit and half bordered pit. 2
 - (c) What is aerenchyma? Where is it found? 1+1
 - (d) Distinguish between ring porous and diffuse porous wood. 2
 - (e) Distinguish between intraxylary and interxylary phloem. 2
 - (f) Define plastochron. 2
 - (g) Define apoplast and symplast. 1+1
 - (h) Differentiate between exarch and endarch xylem. 2

2. Answer **any two** questions from the following :
 - (a) With suitable diagram comment on the anomalous secondary growth in *Tecoma* stem. 5
 - (b) Write a note on stellar evolution. 5
 - (c) Write a brief account on the application of plant anatomy in forensic science. 5

3. Answer **any three** questions from the following :
 - (a) Explain the organisation of shoot apex and root apex in the light of tunica-carpus and Körper-Kappe theories respectively. 5+5
 - (b) What are mechanical tissues? Explain the principles governing their distribution in plants. 2+8
 - (c) Elucidate the different stomatal types according to Stebbins and Khush. Distinguish between stomata and hydathode. 8+2
 - (d) Write a brief account on the chemical constituents of the cell wall of vascular plants. Give an overview of its ultra-structure. 5+5
 - (e) With the help of diagrams discuss the anatomical adaptive features in xeric plants. 10

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BOTANY — HONOURS

Paper : CC-4

Full Marks : 50

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1. Answer **any five** questions : 2×5
- (a) What is epicranoid peristome teeth? Give an example.
 - (b) Distinguish between pseudoelater and elater.
 - (c) What is glossopodium? Mention its function.
 - (d) Name a pteridophyte used in agriculture stating its use.
 - (e) Distinguish between microphyll and megaphyll.
 - (f) Mention any two fern characters of *Cycas*.
 - (g) What is shoot dimorphism? Give an example.
 - (h) What is sulphur shower?
2. Answer **any two** of the following in brief :
- (a) State the role of bryophytes in monitoring pollution. 5
 - (b) Define incipient heterospory. Mention the role of heterospory in developing the seed habit. 1+4
 - (c) Mention two diagnostic characters of Progymnosperms. Comment on the phylogenetic importance of *Archaeopteris*. 2+3
3. Write a brief note on the algal origin of bryophytes. Briefly discuss the progressive concept of sporophyte evolution in bryophytes. 5+5

Or,

Comment on the following :

- (a) Vegetative reproduction in bryophytes
 - (b) Spore dispersal in *Funaria*. 5+5
4. Define the different elementary processes associated with the Telome concept. Explain how the origin of reproductive structures in Lycophyta and Filicophyta could be explained with the help of Telome concept. 4+3+3

Please Turn Over

Or,

Write the following :

- (a) State the morphological nature of synangium in *Psilotum*. 5+5
 - (b) Briefly describe the soral morphology and anatomy in *Pteris* with suitable diagrams. 5+5
5. Distinguish between the wood anatomical features of *cycas* and *Pinus*. State the geographical distribution of *cycas* species in India. Add a note on the economic importance of gymnosperms with reference to wood and essential oil. 3+3+4

Or,

Compare the embryogeny of *cycas* and *Pinus* with suitable diagrams. Add a note on the angiospermic characters of *Gnetum*. 7+3

2021

BOTANY — HONOURS

Paper : CC-3

(Plant Anatomy)

Full Marks : 50

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*Candidates are required to give their answers in their own words
as far as practicable.*

1. Answer **any five** questions from the following: 2×5
- (a) What is Plastochrone?
 - (b) Distinguish between Apoplast and Symplast.
 - (c) Define leaf trace and leaf-gap.
 - (d) State two adaptive anatomical features of xerophyte.
 - (e) Define Stele.
 - (f) State the function of lenticel.
 - (g) What is phelloderm?
 - (h) Distinguish between dorsiventral and iso-bilateral leaves.
2. Answer **any two** questions of the following: 5×2
- (a) Briefly describe the organisation of shoot apices.
 - (b) Comment on the adaptive anatomical features of hydrophytes.
 - (c) Write down the ultrastructure of plasmodesmata.
 - (d) Describe the types of stomata according to Stebbins and Khush (1961).
3. Answer **any three** questions of the following:
- (a) Describe the extrastelar secondary growth in dicots with suitable illustration. Distinguish between fascicular and interfascicular cambium. 7+3
 - (b) Describe ultrastructure and chemical constituents of cell wall. 7+3
 - (c) Comment on the anomalous secondary structure of *Dracaena* with suitable diagram. What is intraxylary phloem? Give an example. 7+3
 - (d) Write a note on mechanical tissues and the principle governing their distribution. 6+4
 - (e) Describe application of plant anatomy in systematics and pharmacognostic study. 5+5
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BOTANY — HONOURS

Paper : CC-4

Full Marks : 50

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as far as practicable.*

1. Answer **any five** questions from the following: 2×5
- (a) Mention two land adaptive features of bryophytes.
 - (b) What is the morphological nature of trabeculae in *Selaginella*?
 - (c) What are telome and syntelome?
 - (d) What is manoxylic wood? Where is it found?
 - (e) Distinguish between sorus and synangium.
 - (f) Distinguish between apophysis and operculum.
 - (g) What is incipient heterospory?
 - (h) Name one resin yielding and one drug yielding gymnosperm.
2. Answer **any two** questions from the following:
- (a) Write short note on the importance of bryophytes in plant succession. 5
 - (b) Describe the male gametophyte of *Cycas*. Mention the fern characters of the genus. 3+2
 - (c) Distinguish between primary protonema and secondary protonema. Give a brief idea of prothallus of *Pteris* with suitable illustration. 2+3
3. Give an account of the structure of sporophyte of *Anthoceros* with sketches. Mention the advanced features of *Anthoceros* sporophyte. (4+3)+3
- Or,*
- Comment on the following: 5+5
- (a) Antithetic theory of alternation of generations in bryophytes.
 - (b) Photosynthetic tissue of *Marchantia* gametophyte.
4. What is heterospory? What are the advantages of seed habit? Discuss how far *Selaginella* reaches the seed habit. 1+3+6

Or,

Please Turn Over

Comment on the following:

5+5

- (a) Economic importance of pteridophytes.
- (b) Nodal anatomy of *Equisetum*.

5. Give a comparative account of the development of the female gametophytes of *Pinus* and *Gnetum*. Add a note on the organization and types of megasporophyll of *Cycas*. 7+3

Or,

Comment on the following:

5+5

- (a) Evolutionary significance of *Archaeopteris*.
 - (b) Leaf anatomical features of *Cycas* and *Pinus*.
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