

2021

BOTANY — HONOURS

Third Paper

Full Marks : 100

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

Module – V

(Marks : 50)

1. Answer the following questions :

- | | |
|---|---|
| (a) What is glossopodium? | 2 |
| (b) What is carinal canal and where it is found? | 2 |
| (c) Mention the morphological nature of elaters in <i>Equisetum</i> . | 1 |
| (d) What is transfusion tissue? | 2 |
| (e) Write two fern characters of <i>Cycas</i> . | 2 |
| (f) Name the plant yielding Canada balsam. | 1 |

2. (a) Discuss in brief the adaptive modifications in relation to the colonization of early land plants. 5

*Or,*Describe in brief the external and internal morphology of the gametophyte of *Psilotum* with illustrations. 5(b) Give an account of the evolutionary significance of *Archaeopteris*. 5*Or,*Write a note on the embryogeny in *Pinus* with suitable diagrams. 53. (a) Define heterospory. Discuss the possible evolutionary steps towards the evolution of seed habit. How far *Selaginella* reached the level of seed habit? Mention the biological advantages of seed habit. 3+5+5+2*Or,*Name the different organ genera of *Lepidodendron*. Draw and describe the structure of its leaf cushion and strobilus with suitable diagrams. Mention its geological age of occurrence and geographical distribution. 3+5+5+2**Please Turn Over**

- (b) Mention the different organ genera of *Cordaites*. State its geological age and geographical distribution. Describe the morphology of female and male fructifications of *Cordaites* with diagrams. 3+2+5+5

Or,

Describe with diagrams the male and female reproductive organs of *Gnetum*. Mention the angiospermic features of *Gnetum*. 6+6+3

Module – VI

(Marks : 50)

4. Answer the following questions :

- (a) Distinguish between ecads and ecotypes. 2
 (b) What is meant by climax community? 2
 (c) Define ecological niche. 1
 (d) What is diacytic stomata? Where it is found? 2
 (e) Draw the diagram of an actinostele. Where it is found? 2
 (f) What is the chemical composition of middle lamella? 1

5. (a) Discuss the role of Cryopreservation in biodiversity conservation. 5

Or,

Give a brief idea of Geographic Information System (GIS). 5

(b) Write a note on the chemical composition of cell wall. 5

Or,

Discuss with diagrams the ontogeny of sieve tube. 5

6. (a) Define biodiversity. Mention the criteria for designating an area as biodiversity hotspot. Explain with examples the different levels of biodiversity. Name two biodiversity hotspots in India. 2+5+6+2

Or,

Describe the dominant flora of Eastern Himalaya. State the factors responsible for endemism. Name two endemic flora of India. 8+5+2

(b) Define mechanical tissues with examples. Explain the principles governing the distribution of mechanical tissues in plants. Comment on anomalous secondary growth in stem of *Bignonia* with diagram. 2+8+5

Or,

Write short notes on :

- (i) Evolution of stele in plants.
 (ii) Adaptive anatomical features in hydrophytes.
 (iii) Secondary growth in *Tinospora* root. 5+5+5