

2018

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 :

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| (a) What is parichnos? Where is it found? | 2 |
| (b) State the reasons behind the renaming of <i>Rhynia major</i> . | 2 |
| (c) What is glossopodium? | 1 |
| (d) Name two species of <i>Gnetum</i> with two different habits. | 2 |
| (e) What is plicate mesophyll? Where is it found? | 2 |
| (f) Name the paleobotanist who reconstructed <i>Williamsonia seawardiana</i> . | 1 |

2. (a) Comment on the anatomical features at the nodal and internodal regions of *Equisetum* stem. 5

Or,

State the morphological nature of rhizophore and trabeculae in *Selaginella*. 4+1

(b) Discuss the phylogenetic importance of *Archaeopteris*. 5

Or,

State the geographical distribution of *Cycas* species in India. 5

3. (a) State the land adaptive features found in *Rhynia*. Mention the geological age and geographical distribution of *Rhynia*. Comment on the morphological nature of spore bearing organ of *Psilotum*. Characterize the gametophyte of *Psilotum* with relevant illustrations and add a brief note on its evolutionary significance. 3+2+3+5+2

Please Turn Over

Or,

Define heterospory. Comment on the incipient heterospory found in *Equisetum*. State the advantages of heterospory and seed habit. Mention the stages in the evolution of seed habit from heterosporous condition. 2+3+3+7

- (b) Name the different organ genera of the reconstructed plant *Cordaites*. Describe the leaf anatomy and male fructification of this plant with suitable diagrams. Mention its geological age and geographical distribution. 3+5+5+2

Or,

Draw and describe the structure of female fructifications in *Pinus* and *Gnetum*. Briefly describe the development of male gametophyte of *Cycas* with suitable diagrams. Mention two angiospermic features in *Gnetum*. 5+5+3+2

Module : VI**Marks : 50****4. Answer the following questions :**

- (a) Distinguish between primary and secondary succession. 2
 (b) What are ecads and ecotypes? 2
 (c) What is rhizofiltration? 1
 (d) Distinguish between leaf trace and leaf gap. 2
 (e) Distinguish between cell wall growth by intussusception and apposition. 2
 (f) What is tylosis? 1

5. (a) Discuss the role of metallophytes in environmental monitoring. 5

Or,

Comment on the dominant flora of Western Himalaya. 5

- (b) State the adaptive anatomical features of hydrophytes. Name one floating and one submerged hydrophytic plants. 3+2

Or,

Discuss the ontogeny of sieve tube with suitable diagrams. 5

6. (a) Define endemism. Discuss, in brief, the different types of endemism. Explain the factors responsible for endemism. 2+7+6

(3)

K(II)-Botany-H-3

Or,

Write short notes on :

- (i) Role of microclimate on the growth of organisms in a habitat. 5
 - (ii) Different levels of biodiversity. 5
 - (iii) Reasons behind the loss of biodiversity. 5
- (b) What are mechanical tissues? Explain the principles governing the distribution of mechanical tissues in different plant organs. State the 'Tunica-Corpus' theory of shoot apex organisation with suitable diagrams. 2+8+5

Or,

Write short notes on :

- (i) Types of stomata in dicotyledonous plants. 5
 - (ii) Anomalous secondary growth in *Bignonia* stem. 5
 - (iii) Ultrastructure of plant cell wall. 5
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