

3 (Sem-2) BOT M 1

2 0 1 4

BOTANY

(Major)

Paper : 2.1

**(Gymnosperms, Palaeobotany and
Plant Anatomy)**

Full Marks : 60

Time : 2½ hours

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

1. Answer the following : 1×7=7
- (a) What is meant by index fossil?
 - (b) Name the genus which is assigned to ovular fructifications of Cordaites.
 - (c) What is the age of Rhynia according to the geological periods?
 - (d) What do you mean by concentric vascular bundle?
 - (e) Define cupule.
 - (f) What is idioblast?
 - (g) Differentiate between interfascicular and intrafascicular cambium.

(2)

2. Answer the following : $2 \times 4 = 8$
- (a) Explain xerophytic adaptations of Cycas leaf.
 - (b) In regions where there are no seasonal fluctuations, annual rings are not formed. Explain why.
 - (c) Give an account on Crossothea.
 - (d) Distinguish between phragmosome and phragmoplast.
3. Answer any *three* of the following : $5 \times 3 = 15$
- (a) Write a short note on salient features of Williamsonia.
 - (b) Describe the megasporangium and megagametophyte of Cryptomeria.
 - (c) Give a critical account on the affinities of Gnetum with Gymnosperms and Angiosperms.
 - (d) What is xylem fibre? Describe the different types of xylary fibres found in plants.
 - (e) Give an outline classification of living Gymnosperms.

(3)

4. Answer any *three* of the following : $10 \times 3 = 30$
- (a) Give an illustrated account of the development of male and female gametophytes of Ginkgo. 10
 - (b) Describe in detail the morphology and reproduction of Sphenophyllum. $6 + 4 = 10$
 - (c) What are plant fossils? Discuss the factors responsible for the process of fossilization and the theories regarding fossilization process. $1 + 3 + 6 = 10$
 - (d) Describe the cell wall in higher plants. Discuss the roles of microfibrils and lignin in structural organization and functions of the cell wall. $6 + 4 = 10$
 - (e) Discuss the various theories concerned with the organization of the shoot apex. 10
 - (f) Describe the following with sketches : $5 + 5 = 10$
 - (i) Secondary growth in a dicot root
 - (ii) Secondary growth in monocot stem
