

3 (Sem-2) BOT M 1

2013

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 petrification?
- (b) How many cotyledons are found in the embryo of *Cycas*?
- (c) Who first reconstructed *Rhynia*?
- (d) Name the major components of cell wall of higher plants.
- (e) What is meant by quiescent centre? (10/roots & etc)
- (f) What are ring porous and diffuse porous wood?
- (g) State the function of phellogen.

A13—1300+300/1219

( Turn Over )

2. Answer the following : 2×4=8

- (a) Are gymnosperms monophyletic or polyphyletic? Give evidences.
- (b) Give an account of the *Bowmanites dowsoni*.
- (c) Comment on the difference between collenchyma and sclerenchyma.
- (d) Mention the fundamental differences in the internal structures of monocotyledonous and dicotyledonous roots.

3. Answer any *three* of the following : 5×3=15

- (a) Elucidate the development of male gametophyte before and after pollination in *Cycas*.
- (b) Describe the structure and morphological nature of the ovuliferous scale of *Pinus*.
- (c) Describe male and female strobili of *Cordaites*.
- (d) Draw and describe the histological features of *Lyginopteris oldhamia*.
- (e) Explain Körper-Kappe theory of root meristem.

4. Answer any *three* of the following :  $10 \times 3 = 30$

- (a) Trace the development of male and female gametophytes of *Gnetum* with suitable sketches. 5+5
- (b) Describe in detail the structure of sporophyte and strobilus of *Lepidodendron*. 6+4
- (c) Discuss the evidences in support of fluid mosaic model for the structure of plasma membrane. How has this model been modified in view of recent information? 8+2
- (d) What are meristems? Classify meristems according to their position in the plant body. Describe the structure and functions of each kind. 1+2+7
- (e) Discuss the activities of cambium in the intrastelar secondary growth of dicotyledonous stem. 10

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