

3 (Sem-2) BOT M 1

2016

BOTANY

(Major)

Paper : 2:1

(Gymnosperm, Paleobotany and Plant Anatomy)

Full Marks : 60

Time : 3 hours

The figures in the margin indicate full marks
for the questions

1. Answer the following : 1×7=7

- (a) Name the fossil order of pteridophytes you have studied from Paleozoic era.
- (b) Name the renowned Indian paleobotanist and the premier institute of paleobotany in India.
- (c) What are sacci and where are they found?
- (d) Write the systematic position of *Cryptomeria japonica*.

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(Turn Over)

- (e) What is velamen?
- (f) Give the names of two plants of monocotyledons where secondary growth takes place.
- (g) What is inulin?

2. Answer the following : 2×4=8

- (a) What are stromatolites?
- (b) What are the functions of collenchyma?
- (c) What is the difference between pycnoxylic wood and manoxylic wood? Where are they found?
- (d) Write the main differences between Cycadales and Bennettitales.

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

- (a) Write the general characteristic features of meristematic tissue. Are there any exception to these? Draw a diagram of shoot apex of pteridophytes. 3+1+1=5
- (b) What are the characters used in classification of gymnosperms? Give an outline of a modern classification as proposed by an Indian botanist. 3+2=5

(c) Write about different types of stomata giving diagram as found in Dicot leaves. What are water stomata? 4+1=5

(d) Describe briefly the male fructification of *Cordaites* giving diagram. 3+2=5

(e) Draw and describe the anatomy of pine needle as observed in transverse section. 3+2=5

4. Answer the following questions : 10×3=30

(a) Give an illustrated account of male and female gametophytes of *Ginkgo*. 5+5=10

Or

Trace the angiospermic characters in *Gnetum*. Why is it included in gymnosperm? 5+5=10

(b) What is periderm? With the help of diagram, describe how it is formed. What are lenticels? 1+7+2=10

Or

Draw and describe the tissues found in a transverse section of a Dicotyledonous root. How does secondary growth take place in such root? 5+5=10

(c) Describe the external vegetative structures of *Sphenophyllum* and a strobilus found in actual association with vegetative *Sphenophyllum*. Illustrate your answer with diagram.

5+5=10

Or

Describe the external vegetative structures of *Lyginopteris oldhamia* and the ovular structure associated with it. Illustrate your answer with diagram.

5+5=10
