

3 SEM TDC BOT M 1

2017

(November)

BOTANY

(Major)

Course : 301



Pteridophytes, Gymnosperms and Paleobotany)

Full Marks : 48

Pass Marks : 19/14

Time : 2 hours

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

1. (a) Answer the following as directed : $1 \times 5 = 5$

(i) Each of the sorus of Marsilea is covered by a thin delicate layer known as ____.

(Fill in the blank)

(ii) In which species of pteridophyte, the sporophyll has the form of a stalked peltate disc?

(2)

(iii) Gymnospermic endosperm is haploid/diploid/triploid/tetraploid.

(Choose the correct answer)

(iv) The genus *Cycas* is peculiar in its ovulate strobilus in that it is not a true compact cone or strobilus but simply a rosette of ____.

(Fill in the blank)

(v) The stamen of Cycadofilicales in which the microsporangia were borne within a cup-like structure formed at the end of a naked branch.

(Express in one word)

(b) Write short notes on the following (draw the diagrams where necessary) : $2 \times 4 = 8$

(i) Theories on evolution of sporophylls in pteridophytes

(ii) Economic importance of *Marsilea*

(iii) Xerophytic characters of *Pinus* leaves

(iv) Examples of petrification

2. (a) Distinguish between protostele and siphonostele. Give an account of the various types of protosteles found in the pteridophytes with their evolutionary significance. $2+5=7$

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(Continued)

(3)

Or

Explain the characteristic features of the synangium of *Psilotum*. Mention the primitive characters of this plant. $3+4=7$

(b) What is heterospory? Write briefly the role of heterospory in the evolution of seed habit with special reference to a heterosporous pteridophyte that you have studied. $1+6=7$

Or

Give illustrated accounts of the gametophytes of *Lycopodium* and *Equisetum*. Mention the differences between these gametophytes. $5+2=7$

3. Answer/Write explanatory notes on any two of the following (draw the diagrams where necessary) : $6 \times 2 = 12$

(a) Classification of gymnosperms

(b) Homologies of female cone of *Pinus* with angiosperms

(c) Why *Ginkgo* is called 'living fossil'?

(d) Resemblances of *Gnetum* with angiosperms

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(Turn Over)

4. Write short notes on the following (draw the diagrams where necessary) : 3×3=9

- (a) Comparative account of the sporophyte of *Rhynia* and *Psilophyton*
- (b) Spore producing organs of *Sphenophyllum*
- (c) Salient features of cordaitan stem

Or

Give a general account of the *Bennettitales* stating its affinities. 6+3=9
