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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 : 1×5=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?

(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) : 2×4=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

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) : 6×2=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

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 cordaitean stem

Or

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

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