



LOYOLA COLLEGE (AUTONOMOUS) CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION

PLANT BIOLOGY AND PLANT BIOTECHNOLOGY

SECOND SEMESTER – APRIL 2025



UPB 2502 – PTERIDOPHYTES, GYMNOSPERMS AND PALEOBOTANY

Date: 29-04-2025

Dept. No.

Max. : 100 Marks

Time: 09:00 AM - 12:00 PM

SECTION A - K1 (CO1)

Answer ALL the Questions

(10 x 1 = 10)

1. Fill in the blanks

- a) A star-shaped stele is otherwise called _____
- b) *Adiantum* is otherwise called the _____ fern.
- c) The resin from conifers commonly used as varnish is _____.
- d) The tissue involved in the lateral conduction of nutrients and water in *Cycas* leaflet is called _____
- e) The father of Indian paleobotany is _____.

2. State whether the following statements are TRUE or FALSE

- a) Pteridophytes are vascular cryptogams.
- b) Synangium is four-chambered sporangium.
- c) There are no living members in Pteridospermales.
- d) *Cycas* is monoecious.
- e) The isotope used for radio-carbon dating ^{15}C .

SECTION A - K2 (CO1)

Answer ALL the Questions

(10 x 1 = 10)

3. Choose the correct answer

- a) All the members are homosporous, except _____
a) *Psilotum* b) *Marsilea* c) *Equisetum* d) *Adiantum*.
- b) Prothallus represents _____
a) sporophytic phase in a fern b) gametophytic phase in a fern c) sporophytic phase in a gymnosperm
d) gametophytic phase in a gymnosperm
- c) Which of the following serves as a connecting link between the angiosperms and gymnosperms.
a) Gnetales b) Coniferales c) Ginkgoales d) Cycadales
- d) Inverted omega-shaped organization of vascular bundles is seen in _____ of *Cycas*.
a) root b) stem c) leaflet d) rachis
- e) Fossil deposits are commonly found in _____ rocks.
a) igneous b) metamorphic c) sedimentary d) basalt

4. Answer the following, each in about 50 words

- a) What is Stele?
- b) Express diagrammatically the structure of plant body of *Psilotum*.
- c) Identify any 4 important features of gymnosperms.
- d) Mention the features of coralloid roots.
- e) Indicate the role of fossils.

SECTION B - K3 (CO2)	
	Answer any TWO of the following in 500 words (2 x 10 = 20) Draw diagrams / flowcharts wherever necessary
5.	Discover the evolution of stelar system in Pteridophytes.
6.	Examine the internal structure of the sporocarp of <i>Marsilea</i> .
7.	Describe the anatomy of pine needle.
8.	Describe briefly the techniques to study fossils.
SECTION C – K4 (CO3)	
	Answer any TWO of the following in 500 words (2 x 10 = 20) Draw diagrams / flowcharts wherever necessary
9.	Describe the cone structure of <i>Lycopodium</i> .
10.	Analyze the important characteristics of Cycadales, Coniferales, Gnetales and Pteridospermales.
11.	Organize the details on the economic importance of Gymnosperms.
12.	Describe a brief overview of <i>Williamsonia</i> .
SECTION D – K5 (CO4)	
	Answer any ONE of the following in 1000 words (1 x 20 = 20) Draw diagrams / flowcharts wherever necessary
13.	Compare the anatomy of stem of <i>Psilotum</i> and <i>Equisetum</i> .
14.	Evaluate the lifecycle of <i>Adiantum</i> .
SECTION E – K6 (CO5)	
	Answer any ONE of the following in 1000 words (1 x 20 = 20) Draw diagrams / flowcharts wherever necessary
15.	Summarize the lifecycle of <i>Cycas</i> with suitable diagrams.
16.	Compile the different types of fossils and add a note on dating of fossils.

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