



# LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

**B.Sc. DEGREE EXAMINATION – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY**

**SECOND SEMESTER – APRIL 2023**

## **UPB 2502 – PTERIDOPHYTES, GYMNOSPERMS AND PALEOBOTANY**

Date: 03-05-2023

Dept. No.

Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

### **SECTION A - K1 (CO1)**

**Answer ALL the Questions**

**(10 x 1 = 10)**

**1. Fill in the blanks**

- a) Prothallus is the other name for the \_\_\_\_\_ of Pteridophytes.  
b) The water containing cavity in the vascular bundle in *Equisetum* is called \_\_\_\_\_ canal.  
c) Canada balsam is obtained from the genus \_\_\_\_\_.  
d) Arm parenchyma is present in the mesophyll of \_\_\_\_\_.  
e) The Father of Indian Palaeobotany is \_\_\_\_\_.

**2. State whether the following statements are TRUE or FALSE**

- a) Medullated protostele is called siphonostele.  
b) The sporangium bearing structure of *Adiantum* is called sporangiophore.  
c) Resin canals are common in members of Coniferales.  
d) *Gnetum* is monoecious.  
e) *Lepidodendron* is an extant pteridophyte.

### **SECTION A - K2 (CO1)**

**Answer ALL the Questions**  
**10)**

**(10 x 1 =**

**3. Choose the correct answer**

- a) Stele consists of all, except  
i) Pith ii) Endodermis iii) Pericycle iv) Vascular bundles  
b) Indicators of gold belong to the genus  
i) *Psilotum* ii) *Marsilea* iii) *Lycopodium* iv) *Equisetum*  
c) Cedar wood oil is obtained from the heartwood of \_\_\_\_\_.  
i) *Macrozamia* ii) *Pinus cembra* iii) *Cephalotaxus drupacea* iv) *Juniperus virginiana*  
d) *Gnetum* ovules are \_\_\_\_\_.  
i) anatropous ii) campylotropous iii) amphitropous iv) atropous  
e) Coal is a form of \_\_\_\_\_ fossil.  
i) Impression ii) Compression iii) Petrification iv) Mold

**4. Answer the following, each in about 50 words**

- a) Differentiate sporophyte and gametophyte.  
b) What is the significance of heterospory and seed habit?  
c) Write a note on progymnosperms.  
d) What is circinate vernation?  
e) Give a note on radiocarbon dating of fossils.

### **SECTION B - K3 (CO2)**

**Answer any TWO of the following in 500 words**  
**20)**

**(2 x 10 =**

**Draw diagrams / flowcharts wherever necessary**

5.	Classify Pteridophytes based on Reimer's system of classification.
6.	Illustrate and describe the internal structure of <i>Lycopodium</i> cone.
7.	Draw and describe the internal structure of coralloid roots.
8.	Explain the techniques for the study of fossils.
<b>SECTION C – K4 (CO3)</b>	
	<b>Answer any TWO of the following in 500 words (2 x 10 = 20)</b> <b>Draw diagrams / flowcharts wherever necessary</b>
9.	Describe the structure of the female cone of <i>Pinus</i> .
10.	Give a brief account on the economic importance of Pteridophytes.
11.	Infer with a diagram, the T.S. of the <i>Cycas</i> leaflet.
12.	Give an account on the geological time scale.
<b>SECTION D – K5 (CO4)</b>	
	<b>Answer any ONE of the following in 1000 words (1 x 20 = 20)</b> <b>Draw diagrams / flowcharts wherever necessary</b>
13.	Evaluate the evolution of the stelar system in Pteridophytes.
14.	Compare the anatomical features of the stem of <i>Psilotum</i> and <i>Marsilea</i> .
<b>SECTION E – K6 (CO5)</b>	
	<b>Answer any ONE of the following in 1000 words (1 x 20 = 20)</b> <b>Draw diagrams / flowcharts wherever necessary</b>
15.	Construct the events in the lifecycle of <i>Gnetum</i> .
16.	Write in detail on the different types of fossils.

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