



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

SECOND SEMESTER – APRIL 2024

UPB 2502 – PTERIDOPHYTES, GYMNOSPERMS AND PALEOBOTANY

Date: 15-04-2024

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) The production of two different types of spores in land plants is called _____.
- b) The stem of _____ is characterised by occurrence of Vallecular canal and Carinal canals.
- c) The dominant phase of Gymnosperms is _____.
- d) The endophytic algae present in the coralloid root of *Cycas* is _____.
- e) The study of fossil plants is called _____.

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

- a) Stellar evolution studied in Pteridophytes.
- b) The common name for *Lycopodium* is horse-tail fern.
- c) The members of Coniferales are called as living fossils.
- d) The ovule after fertilization develops into seed.
- e) *Williamsonia* is the extinct genus of Pteridophyte.

SECTION A - K2 (CO1)

Answer ALL the Questions

(10 x 1 = 10)

3. **Choose the correct answer**

- a) An example of Psilophyta is _____.
a) *Marsilea* b) *Lycopodium* c) *Psilotum* d) *Adiantum*
- b) *Psilotum* is commonly called as _____.
a) Whisk fern b) Maiden hair fern c) Club moss d) Water fern
- c) An example of Coniferales is _____.
a) *Cycas* b) *Pinus* c) *Gnetum* d) *Ephedra*
- d) *Gnetum* species have certain characteristics of _____.
a) Bryophyte b) Pteridophytes c) Angiosperms d) none of the above
- e) Eras are split into smaller units known as _____.
a) Epoch b) Period c) Eon d) Age

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

- a) Distinguish between Apospory and Apogamy.
- b) Mention the parts of *Lycopodium* cone.
- c) Comment on the concept of Pro-gymnosperms.
- d) What is meant by Circinate vernation?
- e) List the divisions of Geological time scale.

SECTION B - K3 (CO2)

Answer any TWO of the following in 500 words

(2 x 10 = 20)

Draw diagrams / flowcharts wherever necessary

- 5. Interpret the various types of steles in Pteridophytes.
- 6. Explain the life cycle of *Adiantum*.
- 7. Describe the internal structure of *Pinus* needle.
- 8. Elaborate the sexual reproduction of *Gnetum*.

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 structure of <i>Marsilea</i> sporocarp.
10.	List the salient features of <i>Pteridospermales</i> .
11.	Enumerate the economic importance of Gymnosperms.
12.	Discuss the fossil forms of Pteridophytes.

SECTION D – K5 (CO4)

	Answer any ONE of the following in 1000 words (1 x 20 = 20) Draw diagrams / flowcharts wherever necessary
13.	Elucidate the sexual reproduction and life cycle of <i>Equisetum</i> .
14.	Outline the classification of Gymnosperms as proposed by Sporne (1965). Add a note on its characteristic features.

SECTION E – K6 (CO5)

	Answer any ONE of the following in 1000 words (1 x 20 = 20) Draw diagrams / flowcharts wherever necessary
15.	Illustrate and explain the life cycle of <i>Cycas</i> .
16.	Describe the different methods of fossilization.

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