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(FOR THE CANDIDATES ADMITTED

DURING THE ACADEMIC YEAR 2024 ONLY)

24PBY102

REG.NO. :

N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI
END-OF-SEMESTER EXAMINATIONS : NOVEMBER-2024
COURSE NAME: M.Sc.- BOTANY MAXIMUM MARKS: 75
SEMESTER: I TIME : 3 HOURS

PLANT DIVERSITY II
(PTERIDOPHYTES GYMNOSPERMS AND PALEOBOTANY)

SECTION – A (10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS.
MULTIPLE CHOICE QUESTIONS. K1

1. Which stage is dominant in the life cycle of Pteridophytes?

   a. Gametophyte b. Sporophyte c. Both are equally dominant d. Neither is dominant

2. Which term describes the formation of a sporophyte without fertilization?

   a. Apospory b. Apogamy c. Parthenogenesis d. Heterospory

3. Which Gymnosperm group has needle-like leaves, a well-developed secondary xylem, and is commonly known for producing wood?

   a. Cycadales b. Pinales c. Ephedrales d. Ginkgoales

4. In terms of reproductive structures, Ginkgoales primarily produce:
   a. Strobili b. Cones c. Ginkgo seeds with a fleshy coat d. Sporangium

5. What is the primary method used for dating fossils and rocks based on radioactive decay?

   a. Carbon Dating b. Potassium-Argon Dating c. Uranium-Lead Dating d. All of the above

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES . K2

6. What is meant by the term "alternation of generations" in the context of Pteridophytes?
7. Name two economic uses of pteridophytes.
8. What is the primary function of cones in Gymnosperms?
9. Name two characteristic features of Gnetales that is similar to Angiosperms.
10. What is the difference between a compression fossil and an impression fossil?

SECTION – B (5 X 5 = 25 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.

11. a) Discuss briefly the systematic position, morphology and sexual reproduction of selaginella.

(OR)

b) Explain the basis of classification of Pteridophytes according to Sporne (1970).

12.a) Explain the significance of the Telome theory in the evolution of stele types in pteridophytes.

(OR)

b) What is the main advantage of heterospory over homospory in pteridophytes?

(CONTD…..2)

13.a) Discuss the key morphological differences between Cycadales and Coniferales..

(OR)

b) Explain the importance of Gymnosperms in the evolution of seed plants.

14.a) Analyze the affinities of Gymnosperms with Angiosperms and Pteridophytes, discussing the evolutionary implications.

(OR)

b) Compare and contrast the reproductive processes of Ginkgoales and Gnetales.

15.a) Describe the process of fossilization and list the different types of fossils that can result from this process.

(OR)

b) Discuss the significance of fossils in understanding the evolutionary history of plants with example..

SECTION – C (5 X 8 = 40 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.

16. a) Compare the gametophytes of Psilotum and Lycopodium

(OR)

b) Discuss the comparative features of sporophytes, gametophytes, and embryogeny in the Pteridophyte

17.a) Compare the gametophyte generation in *Salvinia* and *Ophioglossum*.

(OR)

b) Describe the main differences between the sporophytes of *Adiantum* and *Marsilea*.

18. a) Analyze the evolutionary relationships among Pteridospermales, Bennettitales, and Pentoxylales.

(OR)

b) Describe the comparative anatomy of Ephedrales and Cycadales, focusing on vascular tissues and reproductive structures

19.a) Provide a detailed comparative analysis of the morphology, anatomy, and repeted strategies of Ginkgoales and Gnetales.

(OR)

b) Describe the role of Gymnosperms in the ecosystem and their economic importance, providing examples.

20.a) Describe the geological time scale and its major divisions. How is it used in palaeobotany to understand the evolution of plant life?

(OR)

b) Discuss the various techniques used in palaeobotany for the study of fossil plants and their applications.

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