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G. VENKATASWAMY NAIDU COLLEGE (AUTONOMOUS), KOVILPATTI – 628 502.



UG DEGREE END SEMESTER EXAMINATIONS - APRIL 2025.

(For those admitted in June 2023 and later)

PROGRAMME AND BRANCH: B.Sc., BOTANY

SEM	CATEGORY	COMPONENT	COURSE CODE	COURSE TITLE
IV	PART-III	CORE-7	U23BO404	PLANT DIVERSITY IV – GYMNOSPERMS, PALEOBOTANY AND EVOLUTION

Date & Session: 28.04.2025/AN

Time : 3 hours

Maximum: 75 Marks

Course Outcome	Bloom's K-level	Q. No.	SECTION – A (10 X 1 = 10 Marks) Answer <u>ALL</u> Questions.
CO1	K1	1.	What type of seeds are produced by Gymnosperms? a) Enclosed b) Naked c) Covered d) Winged
CO1	K2	2.	How many classes are there in Sporne's classification of Gymnosperms? a) Two b) Three c) Four d) Five
CO2	K1	3.	Pinus reproduce by? a) Flowers b) Spores c) Seeds d) Bulbs
CO2	K2	4.	Resin from Pinus is used to produce a) Turpentine b) Paper c) Cement d) Textiles
CO3	K1	5.	Petrification involves the replacement of organic material with a) Sand b) Fossil Fuels c) Coal d) Minerals
CO3	K2	6.	Birbal Sahni is considered the father of a) Indian geology b) Indian Paleobotany c) Indian archaeology d) Indian microbiology
CO4	K1	7.	Rhynia is classified as which type of plant? a) Gymnosperm b) Angiosperm c) Bryophyte d) Pteridophyte
CO4	K2	8.	Lepidocarpon is known for its association with which period? a) Jurassic b) Permian c) Devonian d) Carboniferous
CO5	K1	9.	Who proposed the theory of natural selection as a mechanism for evolution a) Jean-Baptiste Lamarck b) Hugo de Vries c) Charles Darwin d) None of these
CO5	K2	10.	The process through which new species arise is called a) Adaptation b) Speciation c) Variation d) Mutation

Course Outcome	Bloom's K-level	Q. No.	<p align="center">SECTION – B (5 X 5 = 25 Marks) Answer ALL Questions choosing either (a) or (b)</p>
CO1	K3	11a.	Classify gymnosperms according to Sporne and explain their key features. (OR)
CO1	K3	11b.	List out the external features of Cycas male cone with neat diagram.
CO2	K3	12a.	Describe the internal structure of Pinus needle with neat diagram. (OR)
CO2	K3	12b.	Illustrate the internal structure of Gnetum leaf.
CO3	K4	13a.	Construct the fossilisation processes of molds and casts. (OR)
CO3	K4	13b.	Enumerate the contribution of Prof. Birbal Sahni in fossil science.
CO4	K4	14a.	Discuss the internal structure of Lepidocarpon stem. (OR)
CO4	K4	14b.	Draw the anatomical features of Calamites stem.
CO5	K5	15a.	Discuss the major mechanisms of evolution according to the modern synthetic theory. (OR)
CO5	K5	15b.	Evaluate the process of speciation, including allopatric, sympatric speciation with examples.

Course Outcome	Bloom's K-level	Q. No.	<p align="center">SECTION – C (5 X 8 = 40 Marks) Answer ALL Questions choosing either (a) or (b)</p>
CO1	K3	16a.	Write the general characters of Gymnosperms. (OR)
CO1	K3	16b.	Describe the anatomy of Cycas leaf in detail.
CO2	K4	17a.	Analyse the economic importance of gymnosperms, focusing on timber, resins, and medicinal values. (OR)
CO2	K4	17b.	Comment the life cycle of Pinus.
CO3	K4	18a.	Explain the different fossilization processes with suitable examples. (OR)
CO3	K4	18b.	Classify the geological time scale in detail, highlighting the key features and major events.
CO4	K5	19a.	Criticize the structural features of <i>Williamsonia seawardiana</i> . (OR)
CO4	K5	19b.	Compare and contrast the morphological characteristics of Rhynia, Lepidodendron.
CO5	K5	20a.	Explain the principles of Lamarckism. (OR)
CO5	K5	20b.	Prove that Darwin's finches represents adaptive radiation.