



M.Sc. Department of Botany

B.Sc. PLANT BIOLOGY & PLANT BIOTECHNOLOGY

Paper 3a BRYOLOGY, PTERIDOLOGY, AND GYMNOSPERMOLOGY

B.Sc. va (Candidates admitted from the academic year 2008-2009)

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Core Theory

Bryology

UNIT I

Origin, Evolution and Characteristics of Land plants. Geological Time-scale.

Key words: Telomes, Overtopping, Planation, Webbing, Precambrian, Paleozoic era, Mesozoic era, Cenozoic era, Jurassic period.

UNIT II

Classification of Bryophytes, Life History of *Riccia* and *Marchantia*.

Key words: Rhizoids, Scales, Fragmentation, Adventitious branches, Persistent apices, Tubers, Gemmae, Antheridiophore, Archegoniophore, Calyptra, Elaters.

Pteridology

UNIT III

Characteristics, Interrelationships and Classification of Fossils and fossilization.

Key words: Relative dating, Absolute dating, Compression, Impression, Mold, Cast, Petrification, Coprolites.

UNIT IV

Life History of *Lycopodium* and *Marsilea*.

Key words: Cortical root, Mixed Protostele, Actinostele, Plectostele, Amphiphloic solenostele, Sporocarp, Sporophore, Indusium, Sori.

Gymnospermology

UNIT V

Characteristics, Interrelationships, Classification (Sporne, 1974), Distribution and Economic importance of Gymnosperms.

UNIT VI

Life history of *Cycas* and *Pinus*.

Key words: Manoxylic wood, Pycnoxylic wood, Homoxylous wood, Crassulae, Cone dome, Circinate vernation, Bisaccate pollen, Pollination drop, Haplochelic stomata, Paranuclear bodies.

Suggested Reading

Bryology

Parihar, N.S. 1965. An Introduction to Embryophyta (Vol.I), Bryophyta. Central Book Depot, Allahabad.

Vashista, P.R. 1970. Text Book of Botany. Bryophyta. S. Chand & Co., New Delhi.

Watson, E.V.1974. The structure and life of Bryophytes. B.I. Publications. New Delhi.

Pteridology

Bierhost, D.N. 1971. Morphology of vascular plant. MacMillan Pub., New York.

Eames. J.A. 1964. Morphology of vascular plants (Lower groups). McGraw-Hill Book Company, New York.

Parihar, N.S. 1967. An introduction to Embryophyta. Vol.II. Pteridophyta. Central Book Depot. Allahabad.

Sporne, K.R. 1976. Morphology of Pteridophytes. 4th Ed. B.I. Publications, New Delhi.

Smith, G. M. 1955. Cryptogamic Botany. Vol. III. McGraw Hill.

Vashista, P.C. 1971. Botany for degree students: Pteridophyta. S. Chand & Co., New Delhi.

Gymnospermology

Sporne, K.R. 1965. Morphology of Gymnosperms – Hutchinson Co., Ltd, London.

Vashista, P.C. 1978. Botany for degree students – gymnosperms. S. Chand & Co., New Delhi.

Paper 4a BRYOLOGY, PTERIDOLOGY AND GYMNOSPERMOLOGY

B.Sc. va (Candidates admitted from the academic year 2008-2009)

Core Practical

Vegetative and reproductive structures of the following.

Bryophytes: *Riccia, Marchantia*. Knowledge of some Bryophytes of MCC campus. .

Pteridophytes: *Lycopodium, Marsilea*.

Gymnosperms: *Cycas, Pinus*.

MCC, Department of Botany