**KARIM CITY COLLEGE, JAMSHEDPUR**

**DEPARTMENT OF BOTANY**

**SYLLABUS DISTRIBUTION**

**AS PER FYUGP, NEP -2022**

**MAJOR –III SESSION (2023-2027) CREDIT-03 THEORY-03 PRACTICAL-01**

**GYMNOSPERMS & Morphology PALAEOBOTANY MAJOR PAPER-4 SEMESTER III**

**DR. SHARMILA CHAKERBORTY:**

**FULL MRKS: 60 TIMES: 3 HOURS 20 LECTURES**

**Unit I:** Gymnosperms General characteristics, classification (up to family),

Morphology, anatomy and reproduction of Cycas, Pinus and Gnetum

(Excluding developmental details); Cycas and Pinus of India, Ecological and

Economic importance.

**Unit II:** PALAEOBOTANY 25 lectures 1. Basic principles of Pale botany-

Conditions of fossilization, different types of Sedimentary rocks bearing fossils.

2. Study of Lyginopteris and Cycadeoidea. 3. Modes of fossilization-kinds of

Fossils-Techniques involve in the study of plant Fossils, Paleobotanical

nomenclature. 4. A brief idea about the Plant Fossils of Rajmahal area of

Jharkhand

**ADAPTIVE AND PROTECTIVE SYSTEM PAPER -5 SEMESTER III PAPER: 05**

**DR. AFTAB ALAM KHAN:**

**MARKS 60 CREDIT: 04**

**Unit I:** Adaptive and Protective Systems 10 lectures Introduction to Epidermal

tissue system, cuticle, trichomes, stomata (structure, function and

classification); Anatomical adaptations of xerophytes, mesophytes and

hydrophytes.

**Unit II:** Introduction to plant anatomy and plant body 10 lectures Internal

Organization of plant body: tissue system, types of cells and tissues.

Classification of tissues; Simple and complex tissues,

**Unit III:** Apical meristems 10 lectures Evolution of concept of organization of

Shoot apex (Apical cell theory, Histogen theory, Tunica Corpus theory,

continuing meristematic residue, cyto-histological zonation); Organization of

root apex (Apical cell theory, Histogen theory, Korper- Kappe theory). Unit

**UNIT IV:** Vascular Cambium and Wood 15 lectures Structure, function and

seasonal activity of cambium; Secondary growth in root and stem. Anomalous

secondary growth; Sapwood and heartwood; Ring and diffuse porous wood;

Early and late wood, tyloses; Dendrochronology. Development and

composition of periderm, rhytidome and lenticels.