

FACULTY OF LIFE SCIENCES
Syllabus for Admission test to Ph.D. programme

Part - A : Research methodology

Marks : 40

- Identification/designing of a research problem –hypothesis/objectives/proof of concept
- Biodiversity and its conservation
- Biogeographic zones of the world and India
- Classification of plants and animals
- Adaptations in animals and plants
- Concept of ecosystem, food web, food chain and ecological pyramids
- Environmental pollution –its causes and effects
- Productivity – primary, net and gross
- Biomagnification
- Sampling theory and sampling design
- Species area curve
- Buffer system, mole concept, solution preparation
- Measurement of pH of biological samples
- Concept of titration
- Preservation techniques of biological specimens
- Separation of biomolecules by electrophoresis and chromatography
- Microscopic techniques
- Spectrophotometry – Principles and its applications
- Principles and applications of centrifugation
- Data and its types
- Data summarization, analysis and interpretation
- Basic concept of probability – mean, mode, median
- Biostatistical tests
 - Student's t-test
 - Chi square test
 - One-way ANOVA
 - Correlation coefficient
 - Regression analysis
- Bioethical and biosafety measures