

**Faculty of Life Sciences**  
Aligarh Muslim University, Aligarh  
**Syllabus for Ph.D. Admission Test, 2020-21**

**Section-A**

(Common to all Departments of the Faculty)

Research Aptitude/ Research Methodology

- 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