

Syllabus for Integrated PhD (2015-2016)

Paper I: Recent Advances in Zoology

Max. Marks: 100

Time allowed: 3 hours

Unit 1: ADVANCED TRENDS IN APPLIED ZOOLOGY

- 1.1 Latest techniques in Fish- cultures & its products
- 1.2 Parastoides & predators as biocontrol agents of insect pests
- 1.3 Conservation of Biodiversity; In-situ, ex-situ and gene bank
- 1.4 Recent advancements in the diagnosis and control of parasitic diseases
(Protozoan and Helminth)

Unit 2: NANOTECHNOLOGY AND RECOMBINANT DNA TECHNOLOGY

- 2.1 Introduction to Nanotechnology & its Applications in Drug delivery, Therapy Techniques, Diagnostic Techniques
- 2.2 Biosensors in detection of emerging diseases (Cancers, infections etc)
- 2.3 Principles of Hybridoma technology
- 2.4 Production of hormones by rDNA technology

Unit 3: RECENT ADVANCEMENTS IN ZOOLOGY

- 3.1 DNA fingerprinting and its applications
- 3.2 Muta-Mouse for Mutagenicity Test
- 3.3 Animal cell culture and its recent applications
- 3.4 Signal transduction- MAP kinase pathway and JAK-STAT pathway

Unit 4 : LATEST ADVANCES IN IMMUNOLOGY

- 4.1 Hypersensitivity: Mechanism & types of Reactions
- 4.2 Autoimmune diseases: Causes and control
- 4.3 Tumor Immunology: Host immune response to tumors & Tumor escape mechanisms
- 4.4 Tumor immune therapy: Non-Specific and antigen Specific treatment