# B. Sc. Part III (THEORY) Zoology

From 2013-14

There will be three written papers and one practical examination. The following courses are prescribed.

## PAPER-I Applied and Economic Zoology

### Unit-I

## Parasitology:

(a) Structure, life cycle, pathogenicity, including diseases, causes, symptoms and control of the following parasites of domestic animals and humans: *Trypanosoma*, *Giardia and Wuchereria*.

### **Unit-II**

<u>Vectors and pests:</u> Life cycle and their control of following pests:

Gundhi bug, Sugarcane leafhopper, Rodents.

Termites and Mosquitoes and their control

#### **Unit-III**

<u>Animal breeding and culture</u>: Aquaculture, Pisciculture, Poultry, Sericulture, Apiculture, Lac-culture.

#### **Unit-IV**

<u>Wild Life of India</u>: Endangered species. Important sanctuaries; national parks of India; Different projects launched for the preservation of animal species; *in-situ* and *ex-situ* conservation of wild life.

## PAPER-II Biotechnology, Immunology, Biological Tools and Techniques and Biostatistics

## Unit-I

**Biotechnology:** Genetic Engineering (concept and recombinant DNA technology) and its application in agriculture & medical areas and energy production. Biotechnology of foodprocessing, pharmaceuticals (e.g. use of microbes in insulin production) and fermentation.

#### Unit-II

<u>Immunology</u>. Concepts of immunity, types of immunity, Antigen and Antibodies, vaccines of different diseases and immunological reactions.

#### Unit-III

Biological Tools and Techniques: Principles and uses of instruments: pH Meter, Calorimeter, Microtome, Spectrophotometer & Centrifuge.

Microscopy (light, transmission and scanning electron microscopy)
Chromatography and Electrophoresis.

#### **Unit-IV**

<u>Biostatistics</u>: Sampling, Measures of central tendency (mean, median and Mode) and dispersion (variance, standard deviation and standard error); Correlation and Regression

## PAPER-III Ecology, Microbiology Animal Behavior and Pollution and Toxicology.

### Unit- I

**Ecology:** 

Ecosystem: Concept, components, fundamental operations, energy flow, food-chain, foodwebs and trophic levels, ecological niche, abiotic and biotic factors. Population: Characteristics and regulation. Ecological succession. Adaptation: Aquatic, terrestrial, aerial and arboreal.

### Unit-II

<u>Microbiology:</u> Morphology, physiology and infection (outline) of bacteria and viruses. Bacterial and viral diseases.

#### Unit-III

<u>Animal Behavior:</u> Introduction to Ethology, Patterns of behavior (taxes, reflexes, instinct and motivation); biorhythms; learning and memory, Migration of fishes & birds.

#### **Unit-IV**

<u>Pollution and Toxicology</u>: Concept, sources, types (air, water, soil, noise & radiation), and control of environmental pollution. Exposure of toxicants (routes of exposure, and duration and frequency of exposure); dose -response relationship categories of toxic effects.