

## **PART II ZOOLOGY HONOURS**

### **Course: Evolution**

#### **Course outcomes:**

##### **Theory**

- CO 01.** Define Geological Time Scale and describe zoogeographical Realms.
- CO 02.** Describe the barriers, dispersals and their impact on animal Distribution
- CO 03.** Describe the adaptive features of both primary and secondary aquatic vertebrates.
- CO 04.** Describe the adaptive features of desert reptile and mammals
- CO 05.** Write down the Chemical basis of origin of life and experiments for supporting that idea.
- CO 06.** Describe the Theory of Evolution considering Darwinism and Modern Synthetic Theory
- CO 07.** Write down the adaptive significance of coloration and mimicry
- CO 08.** Describe the Isolating mechanisms, modes of speciation, Biological & Evolutionary Species concept
- CO 09.** Write down the Hardy-Weinberg equilibrium and factors affecting it with special reference to genetic drift.

### **Course: Cell biology and Genetics**

#### **Course outcomes:**

##### **Theory**

- CO 01.** Briefly state the Ultra structure & Functions of Plasma membrane, Mitochondria, Golgi complex, Endoplasmic reticulum, and Ribosome
- CO 02.** State the chemical and physical structure of nucleic acids. And the nucleosome model
- CO 03.** Describe the cell cycle, mitosis and meiosis cell division with special reference to structure and functions of spindle apparatus and synaptonemal complex.

- CO 04.** Describe the Mendelian principles, simple mendelian inheritance, sex linked inheritance and allele concept with examples.
- CO 05.** Write down the types of Linkage, method of linkage map construction and Holiday model of crossing over.
- CO 06.** Describe the process of Sex determination in man and fruit fly.
- CO 07.** Describe the types of ecosystem with example, Food chains and food web.
- CO 08.** Describe the process of ecosystem energetic nutrient and biogeochemical cycle.
- CO 09.** Write down the general characteristics of human modified ecosystem.
- CO 10.** Briefly describe the major ways of Wildlife Conservation with special reference to tiger conservation.
- CO 11.** Write a note on the Wildlife protection act (1972).

## **Course: Biochemistry and Physiology**

### **Course outcomes:**

#### **Theory**

- CO 01.** Briefly state the Biophysical interactions viz. Hydrophobic and hydrophilic interactions, hydrogen bond, S-S bond, van der Waal's force, optical isomerism, pH an buffer.
- CO 02.** State the Biophysical processes such as osmosis, diffusion, Donnan membrane equilibrium.
- CO 03.** Describe the types, structure and functions of biological macromolecules and enzymes.
- CO 04.** Describe the principles and outline structures of light (bright-field, dark-field and phase contrast) microscopes, electron (SEM and TEM) microscopes.
- CO 05.** Write down the role of glycolysis, pentose phosphate pathway and gluconeogenesis in carbohydrate metabolism.
- CO 06.** Describe the process of protein metabolism considering transamination, oxidative deamination and non-oxidative deamination with examples.

- CO 07.** Describe the types and steps of beta oxidation of fatty acid.
- CO 08.** Describe the process of Krebs's cycle, and electron Transport chain.
- CO 09.** Write down the ways of oxygen and carbon dioxide transport in human body.
- CO 10.** Briefly describe the types and mechanism nerve impulse propagation in a neuron and via synapses.
- CO 11.** Write a note on skeletal muscle contraction with special reference to sliding filament theory.

## **Course: Practical**

### **Course outcomes:**

#### **Practical**

- CO 01.** Describe the process of studying mitotic stages from onion and meiosis stages from grasshopper testis.
- CO 02.** Analyze Pedigree charts.
- CO 03.** Identify with character the pests, fishes and ectoparasites.
- CO 04.** Describe the process of quantitative estimation of total carbohydrates and total proteins.
- CO 05.** Describe studying the action of salivary amylase and differential count of human blood.
- CO 06.** Describe the steps to write a report on a visit to research lab / excursion.