**zoology syllabus for iV semester**

**ZOOLOGY - PAPER - IV**

**embryology, physiology and ecology**

**Periods:60 Max. Marks: 100**

**Zoo4306 credits-4**

**Unit - I**

**1.1 Developmental Biology and Embryology**

1.1.1 Gametogenesis

1.1.2 Fertilization

1.1.3 Types of eggs

1.1.4 Types of cleavages

1.2 Development of Frog upto formation of primary germ layers

1.3 Formation and functions of Foetal membrane in chick embryo

1.4 Development, types and functions of Placenta in mammals

**Unit - II**

**2.1 Physiology - I**

2.1.1 Elementary study of process of digestion

2.1.2 Absorption of digested food

2.1.3 Respiration - Pulmonary ventilation, transport of oxygen and carbondioxide

2.1.4 Circulation - Structure and functioning of heart, Cardiac cycle

2.1.5 Excretion - Structure of nephron, urine formation, counter current mechanism

**Unit - III**

**3.1 Physiology - II**

3.1.1 Nerve impulse transmission - Resting membrane potential, origin and   
 propagation of action potentials along myelinated and non-myelinated nerve   
 fibers

3.1.2 Muscle contraction - Ultra structure of muscle fibre, molecular and   
 chemical basis of muscle contraction

3.1.3 Endocrine glands - Structure, secretions and the functions (of hormones)   
 of pituitary, thyroid, parathyroid, adrenal glands and pancreas

3.1.4 Hormonal control of reproduction in a mammal

**Unit - IV**

**4.1 Ecology - I**

4.1.1 Meaning and scope of Ecology

4.1.2 Important abiotic factors of Ecosystem - Temperature, light, water, oxygen and CO2

4.1.3 Nutrient cycles - Nitrogen, carbon and phosphorus

4.1.4 Components of Ecosystem (Example:lake), food chains and food web,   
 energy flow in ecosystem

**Unit - V**

**5.1 Ecology - II**

5.1.1 Habitat and ecological niche

5.1.2 Community interactions - Mutualism, commensalism, parasitism, competition,   
predation

5.1.3 Ecological succession

5.1.4 Population studies

**5.2 Zoogeography**

5.2.1 Zoogeographical regions

5.2.2 Study of physical and faunal peculiarities of Oriental, Australian and Ethiopian   
regions

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**zoology practical syllabus for iV semester**

**ZOOLOGY - PAPER - IV**

**embryology, physiology and ecology**

**Periods: 24 Max. Marks: 50**

**Zoo4306P Credits-2**

**I. Embryology**

1. Study of T.S. of testis, ovary of a mammal

2. Study of different stages of cleavages (2, 4, 8 cell stages)

3. Study of chick embryos of 18 hours, 24 hours, 33 hours and 48 hours of incubation

**II. Physiology**

1. Qualitative tests for identification of carbohydrates, proteins and fats

2. Qualitative tests for identification of ammonia, urea and uric acid

3. Study of activity of salivary amylase under optimum conditions

4. Study of prepared slides of T.S. of duodenum, liver, lung, kidney, spinal cord, bone   
 and cartilage

**III. Ecology**

1. Determination of pH of given sample

2. Estimation of dissolved oxygen of given sample

3. Estimation of total alkalinity of given sample

4. Estimation of salinity of given sample

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**LEARNING OUTCOMES:**

* **Learn about finer details of organs.**
* **Genetics gives idea about genetically transmitted character including disorders**
* **To explore the process of evolution.**
* **to explore the mysteries of ontogeny repeating of phylogeny**