

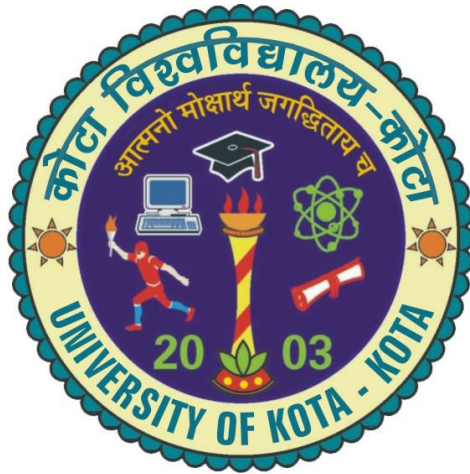
UNIVERSITY OF KOTA, KOTA

SEMESTER SCHEME

ACADEMIC YEAR: 2020-21

**BACHELOR OF SCIENCE- ZOOLOGY**

**SEMESTER-VI**



**B. Sc. Semester- VI**

## **B.Sc. VI Semester**

### **Paper-I Developmental Biology**

#### **Unit-I Basis of embryology**

- (a) History, Theories and scope of developmental Biology.
- (b) General idea of asexual reproduction (fission, budding, gemmule formation, mutagenesis, polyspermy etc).
- (c) General idea of sexual reproduction.
- (d) Neuro endocrine regulation of reproductive organ: estrogen and menstrual cycles.

#### **Unit- II Gametogenesis**

- (a) Gametogenesis : Definition, structure of gametes (sperm & egg).
- (b) Spermatogenesis.
- (c) Oogenesis.
- (d) Types of eggs- Detailed structure of amphibian, avian and mammalian egg.

#### **Unit-III Fertilization**

- (a) Fertilization : definition, Types and Events of fertilization.
- (b) Polyspermy and the mechanism of preventions, significance of fertilization.
- (c) Parthenogenesis.
- (d) Evolution of viviparity.

#### **Unit-IV Cleavage, Gastrulation, Induction.**

- (a) Cleavage: Definition of embryonic cleavage, patterns of cleavage, morula.

- (b) Blastulation, Types of Blastula.
- (c) Types of Gastrulation mechanism & fate maps.
- (d) Embryonic induction, competence.

### **Unit-V Organogenesis, Regeneration.**

- (a) Neurula formation, growth & organogenesis (organogenesis of limb).
- (b) Regeneration.
- (c) Extra embryonic membranes in chick, placentation in mammals.
- (d) Salient feature of development of frog metamorphosis & its endocrine regulation.

## **Paper-II Animal Ecology and Biostatistics**

### **Unit-I**

Ecology – definition, meaning and history. Modern concept, scope, components of ecosystem, abiotic factors temperature, light, water, soil and soil profile, current, pressure, gravity. Biotic factors, Intra specific and interspecific relation. Concept of limiting factors: Liebig's law of minimum, Shelford's Law of tolerance.

### **Unit-II**

Population ecology: population density – Determination & factors affecting population density, demography community ecology, Bio-community, interdependence for reproduction and protection; Ecosystem homeostasis. Ecosystem and productivity concept, types and methods.

Energy flow, food chain, food web, ecological pyramid, ecological niche.

### **Unit-III**

Aquatic ecology-freshwater (lotic and lentic ) habitat and biota .Marine habitat biota and zonation.Ecology and biota of deep sea zone,estuarine habitat and biota.Terrestrial habitat-forest and desert ecosystem and biome.

### **Unit-IV**

Natural resource, renewable resource (forest & wild life), non renewable resources (water, mineral resource), aquaculture and mariculture conservation, management of natural resources-renewable resources, non renewable, resources, Environmental pollution (water, air,soil, noise, insecticide) Bioaccumulation, biomagnifications and biodegradation of pollutants.

### **Unit-V**

Biostatistics – Definition, scope & Importance, frequency distribution ,graphical presentation of data. Mean, Mode and Median.

## **B.Sc. Semester-IV**

### **Practical Exercise (based on paper I & II)**

#### **1. Exercise in Developmental Biology**

- (a). Study of development of chick: whole mounts & sections of 18 to 72 hour's embryo.
- (b). Histological study of development of frog/toad: egg, early cleavage, blastula, gastrula, neurula & different stages of tadpole.
- (c). Study of spermatogenesis, oogenesis, fertilization & metamorphosis of frog/toad through charts/models.

#### **2. Exercise in ecology:**

- (a) Water analysis ; pH, acidity, alkalinity, dissolved O<sub>2</sub> and free CO<sub>2</sub>, chloride (salinity).
- (b) Soil analysis : pH
- (c) Qualitative estimation of Zooplankton in a given sample of water.

#### **3. Biostatistics:-**

- (a). frequency table, bar diagrams, histogram, polygons, pie charts.
- (b). Exercise on mean. Median and mode.

**Scheme of distribution of marks.**

Duration: 4 hr	M.M. 50
Q. 1. Ecology	08
Q. 2. Exercise in developmental biology – Through charts/model	07
Q. 3. Spot 5X2	10
Q. 4. Biostatics	05
Q.5. Record	10
Q. 6. Viva-Voce	10