



# **TRIPURA UNIVERSITY**

**(A Central University)  
Suryamaninagar-799022**

**Syllabus**

**OF**

**Zoology (General & Major)**

**Semester – VI**

**2014**

**TRIPURA UNIVERSITY**  
**SEMESTER - VI**  
**Zoology (Major)**  
**Paper - 6A (Theory)**  
(Marks - 100, Total Periods - 60)

Total Marks: 100 (80+20)

**Unit I: Evolutionary Biology**

**(15 Lectures)**

1. Origin of Life: Experimental evidence in favour of Abiotic synthesis of Basic Biomolecules (Urey-Miller Experiment); origin of organized structure of Protocell or Coacervate.
2. Basic ideas on Geologic time table with major examples of fauna.
3. Neo- Darwinism; Genetic variations and sources of variations in a natural populations.
4. Hardy Weinberg Principle and factors influencing changes in the gene frequency (problems excluded).
5. Types of Natural selections: Stabilizing, Directional, and Disruptive selections with examples.
6. Isolating Mechanisms and importance of Reproductive Isolation.
7. Modes of Speciation: Sympatric, Allopatric and Parapatric processes.

**Unit II: Biochemistry**

**(15 Lectures)**

1. Concept of pH and buffer and their biological applications.
2. Structures and functions of carbohydrates, lipids proteins and nucleic acids;
3. Enzymes- general properties; definitions and characteristics of coenzymes, isoenzymes and allosteric enzymes with examples;
4. Mechanism of enzyme action; factors affecting reaction rates;
5. Glycolysis , TCA cycle and ATP generation.

**Unit III: Endocrinology and Reproductive biology****(15 Lectures)**

1. Histological structures and functions of Pituitary, Thyroid, Pancreas, Testes and Ovary;
2. Endocrine disorders in human with special reference to pituitary and thyroid glands.
3. Types of Hormones : vertebrates and invertebrates with special reference to insects ;
4. Hormonal control of spermatogenesis and oogenesis;
5. Process of ovulation and its hormonal control;
6. Reproductive cycles in mammals with special reference to oestrous cycle in rat.

**Unit IV: Molecular Biology and Genetic Engineering****(15 Lectures)**

1. Replication, transcription and translation in prokaryotes;
2. Benzer's rII locus, idea of complementation and non-complementation;
3. Concept of cistron, recon and muton;
4. Genetic regulation in Prokaryotes-*Lac* Operon ;
5. Genetic basis of Cancer:
  - a) Proto-oncogenes and viral oncogenes
  - b) Transformation of proto-oncogene to oncogene
  - c) Functional importance of p53 tumour suppressor gene
  - d) Oncogenes in human cancer: *Src, ras, bcr/abl*
6. Recombinant DNA technology and its applications:
  - a) Cloning vectors
  - b) Types of endonucleases and their roles
  - c) Construction of chimeric DNA
  - d) Copying mRNA into cDNA clones with desired DNA
  - e) Potential benefits and hazards of genetic engineering.



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**Syllabus**

**OF**

**Zoology**

**Major – Semester – VI**

**Paper – VIB (Practical)**

**(Rectified)**

**2014**

**TRIPURA UNIVERSITY**  
**SEMESTER – VI**  
**Zoology (Major)**  
**Paper – VIB (Practical)**

**Total Marks: 100 (80+20)**

1. Identification of bones (comparative aspects): Skull, limb bones (Humerus, Radius-ulna, femur, tibia-fibula) and girdle bones of toad, lizard, pigeon and guinea pig (any one pair of bones representing two different vertebrates). 10 x 1 = 10
2.    a) Study of Salivary amylase action. 10x1=10  
      b) Quantitative estimation of Glucose (by titrimetric method).  
      (any one to be given in the examination)
3. Identification and characterization of the histological slides of the following endocrine glands of mammal with drawing, labeling & comments:  
   i. Pituitary, ii. Thyroid, iii. Adrenal, iv. Pancreas (Islets of Langerhans), v. Testis &  
   vi. Ovary. (slides of any two glands to be given in the examination) 10 x 2 =20
4. Determination of genotype frequency and allele frequency with example (any one to be given in the examination) 10x1=10
5. Identification with characters of Human Syndrome/Disorder from the sample of karyotype provided:  
      i) Klienfelter's  
      ii) Turner's  
      iii) Down's  
      iv) Super female  
      (any one to be given in the examination) 10x1=10
6. Submission of Laboratory Note book. 10
7. Viva 10
- Internal assessment based on practicals (1 to 5 of the above). 20**