**zoology syllabus for iIi semester**

**ZOOLOGY - PAPER - III**

**CYTOLOGY, GENETICS AND EVOLUTION**

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

**Zoo-3306 credits-4**

**Unit - I**

**1. Cytology - I**

1.1 Definition, history, prokaryotic and eukaryotic cells, virus, viroids, mycoplasma

1.2 Electron microscopic structure of eukaryotic cell.

1.3 Plasma membrane –Different models of plasma membrane.

**Unit – II**

**2. Cell organelles**

2.1 Structure and functions of Endoplasmic Reticulum

2.2 Structure and functions of Golgi apparatus

2.3 Structure and functions of Lysosomes

2.4 Structure and functions of Ribosomes

2.5 Structure and functions of Mitochondria

2.6 Nucleus

2.7. Chromatin - Structure and significance, Chromosomes - Structure, types, functions

**Unit - III**

**3.1 Genetics - I**

3.1.1 Mendel’s work on transmission on traits

3.1.2 Principles of inheritance

3.1.3 Incomplete dominance and codominance

3.1.4 Lethal alleles, Epistasis, Pleiotropy

**Unit - IV**

**4.1 Genetics - II**

4.1.1 Sex determination

4.1.2 Sex linked inheritance

4.1.3 Linkage and crossing over

4.1.4 Extra chromosomal inheritance

4.1.5 Human karyotyping

**Unit - V**

**5.1 Evolution**

5.1.1 Origin of life

5.1.2 Lamarckism, Darwinism, Neo – Darwinism, Hardy-Weinberg Equilibrium.

5.1.3 Variations, isolating mechanisms, natural selection

5.1.4 Types of natural selection (directional, stabilizing, disruptive)

5.1.5 Artificial selection and forces of evolution

5.1.6 Speciation (Allopatric and Sympatric)

5.1.7 Macro evolutionary principles (Example: Darwin’s finches)

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**zoology practical syllabus for iIi semester**

**ZOOLOGY - PAPER - III**

**CYTOLOGY, GENETICS AND EVOLUTION**

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

**Zoo3306 credits-2**

**I. Cytology**

1. Preparation of temporary slides of Mitotic divisions with onion root tips

2. Observation of various stages of Mitosis and Meiosis with prepared slides

3. Mounting of salivary gland chromosomes of *Chiranomous*

**II. Genetics**

1. Study of Mendelian inheritance using suitable examples

2. Study of linkage recombination, gene mapping using the data

3. Study of human karyotypes

**III. Evolution**

1. Study of fossil evidences

2. Study of homology and analogy from suitable specimens and pictures

3. Phylogeny of horse with pictures

4. Darwin’s finches (pictures)

5. Visit to natural history museum and submission of report

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