



# SIR C.R.REDDY AUTONOMOUS COLLEGE, ELURU

(Affiliated To Adikavi Nannaya University, Rajamahendravram)

II B.Sc- III SEM Syllabus

SUBJECT: ZOOLOGY-PAPER-III

CYTOLOGY, GENETICS AND EVOLUTION

Period: 60

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## UNIT-I

### 1 Cytology-1

- 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 ribosome's
- 2.5 structure and functions of mitochondria
- 2.6 nucleus
- 2.7 Chromatin-structure and significance, chromosomes-structure, types, functions.

## UNIT-III

### 3. GENTICS-I

- 3.1.1 Mendels work on transmission on traits.
- 3.1.2 Principles of inheritance
- 3.1.3 Incomplete dominance and co-dominance
- 3.1.4 Lethal alleles, epistasis, pleiotropy
- Additional input
- 3.1.5 Chromosomal disorders
- 3.1.6 Supplementary genes, complementary genes

## UNIT-IV

### 4. GENETIC-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
- Additional input
- 4.1.5 Human karyotyping
- 4.1.6 Multiple alleles, blood groups

## UNIT-V

### 5. 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 (allopathic & sympatric)
- 5.1.7 macro evolutionary principles (examples: Darwin's finches)

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**SIR C.R.REDDY AUTONOMOUS COLLEGE, ELURU**

II B.Sc, III semester Model paper (CBCS pattern)

Subject: ZOOLOGY

Paper-II, Cytology, genetics& evolution

Time: 3hrs

Max.marks: 75

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**SECTION-A**

This section consists of two parts.

Candidates have to answer FOUR questions choosing atleast ONE question from each part

Each question carries 10 marks.

4x10=40M

**Part-I(cytology,cell organelles)**

1. Describe structure and functions of plasma membrane
2. Describe the structure and functions of golgi complex
3. Describe the structure and functions of mitochondria
4. Describe the structure of chromosomes with labeled diagrams

**Part-II**

5. Describe mendel's dihybrid ratio
6. Describe the sex linked inheritance in drosophila
7. Write an essay on the modern synthetic theory of evolution
8. Write an essay on the speciation

**SECTION-B**

Answer FIVE of the following.each question carries 5 marks

5x5=25M

9. Viroids
10. Nucleus
11. Lethal genes
12. Functions of ribosomes
13. Incomplete dominance
14. Linkage in female drosophila
15. Human karyotyping
16. Hardy-weinberg law

**SECTION-C**

Answer any FIVE of the following.each question carries TWO marks

5x2=10M

17. Mycoplasma
18. Rough endoplasmic reticulum
19. Autolysis
20. Epistasis
21. Barr body
22. Crossing over
23. Gene flow