Sri A.S.N.M. GOVERNMENT COLLEGE (Autonomous)
CBCS SYLLABUS SCHEDULE 2016-17
II B.SC. ZOOLOGY SYLLABUS FOR III SEMESTER
ZOOLOGY - PAPER - III
CYTOLOGY, GENETICS AND EVOLUTION

Periods: 48 **Max. Marks: 75**

Unit - I

1.1 Cytology - I

1.1.1 Electron microscopic structure of cell
1.1.2 Plasma membrane - Fluid mosaic model Transport functions of plasma membrane
1.1.3 Structure and functions of cell organelles - Endoplasmic reticulum, Golgi body, Ribosomes, Lysosomes and Mitochondria

1.2 Cytology - II

1.2.1 Nucleus
1.2.2 Chromosomes - Structure, types, functions
***Additional Input-**Cell division- Mitosis, Meiosis and its significance

Unit - II

2.1 Biomolecules

2.1.1 Carbohydrates - Classification of carbohydrates, Structure of glucose
2.1.2 Proteins - Classification of proteins, General properties of amino acids
2.1.3 Lipids - Classification of lipids

2.2 Nucleic acids

2.2.1 Deoxyribo Nucleic Acid - Structure, replication
2.2.2 Ribo Nucleic Acid - Structure, types

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
5.1.3 Variations, isolating mechanisms, natural selection
5.1.4 Types of natural selection (directional, stabilising, 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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II B.SC. ZOOLOGY MODEL PAPER FOR III SEMESTER
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CYTOLOGY, GENETICS AND EVOLUTION

Time : 3 hrs **Max. Marks : 75**

I. Answer any FIVE of the following: **5x5=25M**

Draw labelled diagrams wherever necessary

1. Diffeerence between Prokaryotes and Eukaryotes
2. Functions of Endoplasmic reticulum
3. Nucleous
4. Epistatis
5. Pleiotropy
6. Downs syndrome
7. Extra chromosomal inheritance with example
8. Speciation

II. Answer any FIVE of the following: **5x10=50M**

Draw labelled diagrams wherever necessary

9. a) Describe the ultra structure of a cell

(or)

b) Give an account on structure of plasma membrane and function

10. a) Describe the structure and functions of lysosomes.

(or)

b) Give an account of the structure and functions of Golgi complex.

11.a)Give an account of Mendal's laws of laws of heredity and explain with suitable examples

(or)

b) Explain Incomplete dominance and Co dominance with examples.

12. a) What are sex chromosomes ? Explain their role in determination of sex.

(or)

b) What is sex linked inheritance and explain sex lined in heritance in man.

13.a) Write as essay on isolation.

(or)

b) What is macro evolution? Explain it with adoptive radiation in Darwin's finches (birds).

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II B.SC. ZOOLOGY PRACTICAL SYLLABUS FOR III SEMESTER
ZOOLOGY - PAPER - III
CYTOLOGY, GENETICS AND EVOLUTION

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

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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CBCS SYLLABUS SCHEDULE 2016-17
II B.SC. ZOOLOGY SYLLABUS FOR IV SEMESTER
ZOOLOGY - PAPER - IV
EMBRYOLOGY, PHYSIOLOGY AND ECOLOGY

Periods: 48 **Max. Marks: 75**

Unit - I

1.1 Developmental Biology and Embryology

1.1.1 Gametogenesis
1.1.2 Fertilisation
1.1.3 Types of eggs
1.1.4 Types of cleavages
1.2 Development of Frog up to 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
***Additional input-**Regeneration

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 carbon dioxide
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 fibres
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, paratisism, 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 - PAPER - IV
EMBRYOLOGY, PHYSIOLOGY AND ECOLOGY

Time : 3 hrs Max. Marks : 75

I. Answer any FIVE of the following : 5x5=25
Draw labelled diagrams wherever necessary
1. Types of cleavage
2.Proteins Digestion
3.Transport of carbondioxide
4.Structure of neuron
5.Pancreas
6.Carbon cycle
7.Food chains
8.Growth curves

II. Answer any FIVE of the following : 5x10=50

Draw labelled diagrams wherever necessary
9. a) Describe the process of spermatogenesis and draw the structure of sperm

(OR)

b)What is placenta? Describe the different types of placenta.

10. a) Describe the structure and working of heart

(OR)

b) Explain the formation of urine in mammals

11. a) Describe the mechanism of muscle contraction

(OR)

b) Describe the structure and hormones of pituitary gland

12. a)Explain the importance of light as an abiotic factor in ecosystem

(OR)

b) Describe the components in Lake ecosystem

13. a) Describe the different types of community interactions

(OR)

b)Give an account of physical and faunal features of oriental region

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

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 embroyos 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