

ZOOLOGY MODEL PAPER FOR III SEMESTER

ZOOLOGY - PAPER - III

CELL BIOLOGY, GENETICS, MOLECULAR BIOLOGY AND EVOLUTION

Time : 3 hrs

Max. Marks : 75

I. Answer any FIVE of the following :

5x5=25

Draw labeled diagrams wherever necessary

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

II. Answer any FIVE of the following:

5x10=50

Draw labeled diagrams wherever necessary

- 9.

OR

- 10.

OR

- 11.

OR

- 12.

OR

- 13.

OR

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ZOOLOGY PRACTICAL SYLLABUS FOR III SEMESTER

ZOOLOGY - PAPER - III

CELL BIOLOGY, GENETICS, MOLECULAR BIOLOGY AND EVOLUTION

Periods: 24

Max. Marks: 50

Learning Objectives:

- Acquainting and skill enhancement in the usage of laboratory microscope
- Hands-on experience of different phases of cell division by experimentation
- Develop skills on human karyotyping and identification of chromosomal disorders
- To apply the basic concept of inheritance for applied research
- To get familiar with phylogeny and geological history of origin & evolution of animals

I. Cell Biology

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 *Chironomus*

II. Genetics

1. Study of Mendelian inheritance using suitable examples and problems
2. Problems on blood group inheritance and sex linked inheritance
3. Study of human karyotypes (Down's syndrome, Edwards, syndrome, Patau syndrome, Turner's syndrome and Klinefelter syndrome)

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. Study of Genetic Drift by using examples of Darwin's finches (pictures)
5. Visit to Natural History Museum and submission of report

REFERENCE BOOKS

1. Burns GW. 1972. *The Science of Genetics. An Introduction to Heredity*. Mac Millan Publ. Co.Inc.
2. Gardner EF. 1975. *Principles of Genetics*. John Wiley & Sons, Inc. New York.
3. Harth and Jones EW. 1998. *Genetics – Principles and Analysis*. Jones and BarHett Publ. Boston.
4. Levine L. 1969. *Biology of the Gene*. Toppan.
5. Pedder IJ. 1972. *Genetics as a Basic Guide*. W. Norton & Company, Inc.
6. Rastogi VB. 1991. *A Text Book of Genetics*. KedarNath Ram Nath Publications, Meerut, Uttar Pradesh, India.
7. Rastogi VB. 1991. *Organic Evolution*. KedarNath Ram Nath Publications, Meerut, Uttar Pradesh, India.
8. Stahl FW. 1965. *Mechanics of Inheritance*. Prentice-Hall.
9. White MJD. 1973. *Animal Cytology and Evolution*. Cambridge Univ.Press.