

SYLLABUS

Life and Diversity from Annelida to Arthropoda & Genetics - I

External Marks: 40

**Internal Assessment : 10
Hours**

Time allotted : 3

Note : *Nine questions are to be set in all and the candidate are required to attempt five questions including compulsory question.*

1. Question 1 is compulsory consisting of 10 parts (1.0 marks each) converting the entire syllabus. Answer to each part should not exceed 20 words.
2. Out of remaining eight, four questions are to be set from each section A & B, possibly splitting them in parts. Candidates is required to attempt four questions, two from each section

1. Phylum – Annelida :

- i) General characters and classification up to order level
- ii) Biodiversity and economic importance of Annelida
- iii) Type study – *Pheretima* (Earthworm)
- vi) Metamerism in Annelida
- v) Trochophore larva

2. Phylum – Arthropoda :

- i) General characters and classification up to order level
- ii) Biodiversity and economic importance of insects
- vi) Type study – *Grasshopper*

3. Elements of Heredity and variations.

4. The varieties of gene interactions

5. Linkage and recombination : Coupling and repulsion hypothesis, crossing-over and chiasma formation; gene mapping.

6. Sex determination and its mechanism : male and female heterozygous systems, genetic balance system; role of Y-chromosome, male haploidy, cytoplasmic and environmental factors, role of hormones in sex determination.

7. Sex linked inheritance : Haemophilia and colour blindness in man, eye colour in *Drosophila*, Non-disjunction of sex-chromosome in *Drosophila*; Sex-linked and sex-influenced inheritance

8. Extra chromosomal and cytoplasmic inheritance:

- i) Kappa particles in *Paramecium*
- ii) Shell coiling in snails.
- iii) Milk factor in mice.