4. Discuss the salient features and phylogeny of Hemichordates with reference to Balanoglossus.

5. Justify 'Sey mouria' as an amphibian on the point of becoming a reptile.

6. Discuss parental care with reference to amphibian.

7. What are migratory fishes? Give an account on the phenomenon and peculiarities associated with migratory fishes.

8. Discuss the evolutionary causes for transition of amphibians from water to land highlighting their adaptations to amphibious life.

2. Define mitotic apparatus. Explain the mechanism of movement of chromosomes to the poles and theories.

3. Describe the ultra structure and functions of Golgi Complex.

4. Comment on the various components of respiratory chain.

5. How did Meselson and Stahl proved that DNA replication is semiconservative.


7. What do you mean by "Genetic code"? Discuss in brief the special features of genetic code.

8. Give a short account of the following:
   (a) Polymorphism of DNA
   (b) Peroxisomes.
4. Write an essay on prawn culture, pond management and difficulties in prawn culture.

5. Explain in detail about poisonous snakes in India.

6. Explain the genetic basis of at least four syndromes in human.

7. Describe the life cycle and preventive measures of malarial parasite.

8. Give an account of parasitic diseases in cattle

Answer any FIVE of the following
Each answer should not exceed 1500 words

(5 x 20 = 100)

1. Describe the life cycle, rearing methods and uses of silkworm and honeybees.

2. Explain the biology, life cycle, infestation potential and control measures of *sitophilus oryzae*.

3. Give an detailed account on
   (i) Lac culture
   (ii) Pearl culture
1. Write a note on the structure and classification of various amino acids based on their physical and chemical properties.

2. Explain the biological significance of proteins.

3. Write notes on:
   (a) Glycogenesis
   (b) Glycogenolysis
   (c) Glyconeogenesis
   (d) Cori's cycle
   (e) Electron transport chain.

4. Enumerate the physical and chemical properties of fats.

5. Describe different types of enzyme inhibition.

6. Write notes on:
   (a) Tautomerism
   (b) Nucleotides
   (c) Nucleosides
   (d) mRNA
   (e) RNA world hypothesis

7. Describe any two spectroscopic techniques with their principles and applications.

8. Write the principle, instrumentation and applications involved in electrophoretic techniques.
5. Compare human population growth against environment towards environmental conservation.

6. Discuss the distribution of major terrestrial communities and the biomes.

7. Explain any two of the following:
   (a) Wild life conservation,
   (b) Marine Ecosystem and
   (c) Threats to biodiversity.

8. Differentiate sanctuary and national parks. Give a detailed account on one sanctuary and National Park in India.