

- a) State the difficulties in the application of Biological species concept. What do you mean by Biological species concept. 1+3=4
- b) State four important avian or four important reptilian features of *Archeopteryx*. 2
- c) Mention at least two characters of therapsid reptiles that indicate mammalian ancestry. 2
- d) State the conditions of primitive earth to explain the pre-biotic condition of origin of life. 2

5. What is the causative agent and vector of lymphatic filariasis. With a neat diagram explain the life cycle of the pathogen. Mention the prophylactic measures of the disease. 2+(4+2)+2=10

or

- a) What is the cause, pathogenecity and control measures of the disease Cholera. 1+2+1=4
- b) Name the various larval stages of *Fasciola hepatica*. 2
- c) What is Loeffler's syndrome? 2
- d) What are the symptoms of Ascariasis. 2

6.a) Give the life history, damage and control measure of *Sitophilus* sp. 5

b) Name various products obtained from Apiary. What are the problems and prospects of it in West Bengal. 5

7. a. Difference between cladistics and phonetics?
 b. How feeding management is done in case of culture of *Penaeus* sp.?
 c. Name two plant origin toxicant and their composition? 3+5+2=10

or

- a. What is Type? State the main codes of ICZN ?
 b. What is the scientific thought behind the composite fish culture?
 c. What is meant by demand feeder? 2+3+3+2=10

8. a. Explain the hypothesis "One gene one polypeptide" in brief.
 b. What is cis-trans test?
 c. Explain the statement "p⁵³ is guardian of genome" 5+2+3=10

or

- a. Why Taq polymerase is used in PCR ?
 b. How UvrABC complex help to remove bulk DNA adduct?
 c. What is catabolic repression?
 d. Write a short note on cDNA. 2+3+2+3=10

9. Define mimicry. What is the significance of concealing coloration? Explain "fixed action pattern" of animal behavior with examples. 2+3+5=10

or

State the principal criteria of instinctive behavior. Explain the parental care found in fishes. Discuss the differences between altruism and reciprocal altruism. 2+5+3=10

10. Give at least two important features of the following breeds of fowl i) Aseel, ii) Rhode Island Red. Discuss the basic requirements to design a deep litter for poultry birds in Intensive system of management. 2+2+6=10

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11. Discuss briefly the asexual cycle of development of the organism causing cerebral malaria with the severity of the disease. 6+4=10

or

Answer **any two** of the following: 5X2=10

- (a) Mention the different stages of bacterial growth with graphical representation.
- (b) Describe the activation process of T_H cell.
- (c) Importance of the variable parts of Ig molecule.
- (d) Mention specific role of B lymphocyte in acquired immunity.