



**IAS ZOOLOGY (MAIN) - 2004**  
**PAPER - I**

**Time Allowed: 3 hours**

**Maximum Marks: 300**

Candidates should attempt Questions 1 and 5 which are compulsory, and any THREE of the remaining questions selecting at least ONE question from each Section.

Illustrate your answers with suitable diagrams wherever necessary.

**SECTION – A**

1. Write concise account of any three of the following in about 200 words each : 20 x 3 = 60
- (a) Protista and Parazoa and their status
  - (b) Comparison of hearts of pigeon and rabbit
  - (c) Pedicellariae of echinoderms
  - (d) Paedomorphosis in amphibians
2. Describe the salient features of phylum Annelida. Classify the phylum upto orders - giving their characteristics and suitable examples. 60
3. Describe the morphological features of Fasciola hepatica. Write an account of its life history in detail with a note on mode of infection. 60
4. What are the endocrine glands? Write a detailed account of the structure and hormone's of mammalian pituitary gland. Discuss 'why the pituitary gland is not a master of endocrine orchestra now: 60

**SECTION- B**

5. Write brief account of any three of the following in about 200 words each: 20 x 3 = 60
- (a) Green house gases and green house effect
  - (b) Pheromones and their role in alarm signaling
  - (c) Pest of rice, *Stilohphilus oryzae* and its control
  - (d) Designing- of experiments and its importance
6. What is meant by the population? Describe various characteristics of a population. Discuss the phenomenon of stabilization of populations. 60
7. What is understood by the learning and innate behaviors? Give an account of various methods of studying animal behavior. 60
8. (a) Explain the 'F' test. How is the one way F-test applied? 30
- (b) Describe the principle and working of a flame photo- meter. 30

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## PAPER - II

**Time Allowed: 3 hours**

**Maximum Marks: 300**

Candidates should attempt Questions 1 and 5 which are compulsory, and any THREE of the remaining questions selecting at least ONE question from each Section.

Illustrate your answers with suitable diagrams wherever necessary

### SECTION-A

1. Write distinguishing characteristics about any three of the following in about 200 words each : 20 x 3 = 60
- (a) Peroxisome and Glyoxysome
  - (b) Southern blotting technique and Western blotting technique
  - (c) Eohippus and Parahippus
  - (d) Phenogram and Phylogram
2. Give a detailed account of the process of protein synthesis. 60
3. Write an essay on the genetic analysis of Rh blood groups. 60
4. Write short notes on the following: 15 x 4 = 60
- (a) Lamarckism
  - (b) Methods of zoological classification
  - (c) Dating of fossils
  - (d) Hardy-Weinberg law

### SECTION-B

5. Give short descriptions of any three of the following: 20x 3=60
- (a) Immunoglobulins
  - (b) Chloride shift
  - (c) Organogenesis in the frog embryo
  - (d) Regeneration
6. What is an enzyme? Give a detailed account of the structure and functions of enzymes. 5 + 15 + 40= 60
7. Give an account of factors and physiology of blood coagulation. 15 + 45 = 60
8. Write short notes on the following: 15 x 4 = 60
- (a) Primitive streak
  - (b) Indeciduate Placenta
  - (c) Metamorphosis in insects
  - (d) Cell death (Apoptosis)