

2006
ZOOLOGY
Paper 1

Time : 3 Hours]

[Maximum Marks : 300

INSTRUCTIONS

*Candidates should attempt **all** the questions in Parts A, B & C. However, they have to choose only **three** questions in Part D. The number of marks carried by each question is indicated at the end of the question.*

Answers must be written in English.

This paper has four parts :

- | | |
|----------|-----------|
| A | 20 marks |
| B | 100 marks |
| C | 90 marks |
| D | 90 marks |

Marks allotted to each question are indicated in each part.

SEAL

PART A

4×5=20

Answer each question in about 50 words. Each question carries 5 marks.

1. Write short notes on the following :
 - (a) Morphological adaptations in Helminth parasites
 - (b) Modifications of soft organs in the flight birds
 - (c) Imprinting with a suitable example
 - (d) Green gland and its function in Palaemon

PART B

10×10=100

Answer each question in about 100 words. Each question carries 10 marks.

2. Explain the advantages of Coelom and Metamerism.
3. Considering *Halistemma* as an example, bring out the concept of polymorphism in Siphonophora.
4. Trace the evolution of aortic arches from Amphibians upto mammals.
5. Differentiate capture fisheries from culture fisheries and briefly explain the different steps involved in pond culture practices.
6. Make a survey of the producers and their adaptive relationship in the lentic fresh-water habitats.
7. Explain the general organization of flightless birds.
8. With reference to Poriferans' skeleton, briefly write about meaning, formation and types of spicules.
9. Provide a flow chart with labelled illustrations in aid of identification of poisonous snakes from non-poisonous snakes.
10. "The flow of nitrogen is complicated, multi-directional and each stage is regulated by a specific type of organism." Substantiate the statement with reference to nitrogen cycle.
11. Explain standard deviation as a superior tool over other measures of variation. Add a note on its properties.

[Turn over]

PART C

6×15=90

Answer each question in about 150 words. Each question carries 15 marks.

12. Explain the general organization of Echinoderms and add a note on how they act as an evolutionary link to Hemichordates.
13. Mention the meaning and essence of social life in insects and discuss social organization in Termites.
14. Define a population. List the group properties of a population and explain any four of them.
15. Discuss the role of biological clocks in guiding the rhythmicity of animal behaviour.
16. Explain the general organization of Dipnoi. Mention their primitive and unique characters. Give reason for Romer describing Dipnoi as uncles of Amphibia.
17. Describe the circulatory system of Unio.

PART D

3×30=90

Answer any **three** of the following questions, each in about 300 words.
Each question carries 30 marks.

18. With reference to Plasmodium, describe the cycle of Ross.
19. Give a comprehensive picture of causes, effects and prevention of water pollution. Add a note on the management of polluted water.
20. What is adaptive radiation ? Explain it with reference to extant reptiles.
21. Discuss the origin of Amphibia.
22. With labelled figures, describe retrogressive metamorphosis in Ascidian.

2006

ZOOLOGY

Paper 2

*Time : 3 Hours]**[Maximum Marks : 300***INSTRUCTIONS**

*Candidates should attempt **all** the questions in Parts A, B & C. However, they have to choose only **three** questions in Part D. The number of marks carried by each question is indicated at the end of the question.*

Answers must be written in English.

This paper has four parts :

- | | |
|----------|-----------|
| A | 20 marks |
| B | 100 marks |
| C | 90 marks |
| D | 90 marks |

Marks allotted to each question are indicated in each part.

SEAL

PART A

Answer each question in about 50 words. Each question carries 5 marks.

1. Write short notes on the following :
 - (a) Oxidative phosphorylation
 - (b) Hamburger's phenomenon
 - (c) Singer and Nicolson's model of plasma membrane
 - (d) Cytoplasmic inheritance in Paramecium

PART B

10×10=100

Answer each question in about 100 words. Each question carries 10 marks.

2. Morgan discovered that linkage is an exception to Mendel's principle of independent assortment. Justify.
3. Bring out the concept of neurosecretion from the study of Pituitary and Adrenal.
4. Extra-embryonic membranes are an adaptation in the development of birds. Explain.
5. Write a brief account of types of colouration and their significance in animals.
6. Describe the various events involved in replication of DNA.
7. Briefly explain the biosynthesis of cholesterol.
8. What is aneuploidy ? Explain any three aneuploid conditions in Humans.
9. Explain hormonal control of metamorphosis in Insects.
10. Describe the various changes observed in Prophase-I of Meiosis-1.
11. Outline the role of B-lymphocytes and T-lymphocytes as specific body defences.

[Turn over

PART C

6×15=90

Answer each question in about 150 words. Each question carries 15 marks.

12. What are fossils ? Explain their types and dating.
13. Write the histological classification of placenta in mammals and describe any two of them citing suitable examples.
14. Give a comprehensive picture of the structure, types with examples and biological significance of proteins.
15. Explain the types of chromosomal basis of sex determination in animals.
16. What is mutation ? List the different mutagenic agents and explain CIB technique of identification of mutations.
17. Explain the physiology of coagulation of blood.

PART D

3×30=90

Answer any **three** of the following questions, each in about 300 words.
Each question carries 30 marks.

18. What is a nerve impulse ? How is it propagated ? Explain the physiology of axonal transmission of nerve impulse.
19. Make an overview of positive and negative aspects of eugenics.
20. Discuss the various events involved in the mechanism of fertilization.
21. Explain the second step in the mechanism of protein synthesis in prokaryotes.
22. Neo-Darwinism is the synthetic product of Darwinism and Mendelism. Substantiate.