

2009
ZOOLOGY - I (Optional)

100091

Standard : Degree**Total Marks : 200****Nature : Conventional****Duration : 3 Hours****Note :**

- (i) *Answers must be written in **English** only.*
- (ii) *Question No. 1 is **Compulsory**. Of the remaining questions, attempt **any four** selecting one question from **each** section.*
- (iii) *Figures to the **RIGHT** indicate marks of the respective question.*
- (iv) *Number of optional questions upto the prescribed number in the order in which they have been solved will only be assessed. Excess answers will not be assessed.*
- (v) *Credit will be given for orderly, concise and effective writing.*
- (vi) *Illustrate your answer with suitable diagrams wherever necessary.*
- (vii) *Candidate should not write roll number, any name (including their own), signature, address or any indication of their identity anywhere inside the answer book otherwise he/she will be penalised.*
- (viii) *For each slab of 10, 15 and 20 marks, the examinee is expected to write answers in 125, 175 and 250 words respectively.*

- 1. Answer any four of the following questions (10 Marks each) : 40**
- (a) Enumerate on the different types of parasitic adaptations in Platyhelminthes.
 - (b) Give general characters of Metatheria and Eutheria with examples.
 - (c) With the help of a neat diagram describe the structure and function of thyroid gland.
 - (d) Explain the mechanisms of biodegradation and biotransformation with examples.
 - (e) What are green house gases? Explain briefly the green house effect and its consequences on the habitat.

SECTION - A

- 2. Answer the following sub-questions :**

- (a) Describe briefly :
 - (i) Characteristics of protozoa 5
 - (ii) Evolution of colour in Metazoa 5

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- (b) Explain the following :
- (i) Leuconoid canal system in Porifera 5
 - (ii) Phenomenon of dimorphic polymorphism in coelenterates 5
- (c) Write notes on :
- (i) Digestion in Earthworm. 5
 - (ii) Affinities of Onychophora with Annelida and Arthropoda 5
- (d) Describe briefly with a diagram :
- (i) Gill respiration in unio 5
 - (ii) Water vascular system in starfish 5
3. Answer the following sub-questions :
- (a) Enumerate on the following :
- (i) Concept of species 5
 - (ii) Evolution of symmetry in Metazoa 5
- (b) Describe :
- (i) Skeleton system of Porifera 5
 - (ii) Types of coral reef and their significance 5
- (c) Write notes on :
- (i) Septal nephridia of Earthworm 5
 - (ii) Different castes in Termites 5
- (d) Describe briefly :
- (i) Torsion in Gastropoda 5
 - (ii) Phylogenic significance of Echinoderm larvae 5

SECTION - B

4. Answer the following sub-questions :
- (a) Write notes on :
- (i) Feeding mechanism in Amphibious 5
 - (ii) Accessory respiratory organ in fishes 5
- (b) Discuss :
- (i) Parental care in Amphibians by means of nest and nurseries 5
 - (ii) Physiological aspects of metamorphosis in frog 5
- (c) Explain briefly :
- (i) Poisonous snakes of India 5
 - (ii) Aquatic adaptations in order chelonina 5
- (d) Enumerate on the following :
- (i) Flight adaptation in birds 5
 - (ii) Dentition in Human beings 5

5. Answer the following sub-questions :

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| (a) Discuss : | |
| (i) Affinities of Balanoglossus with Echinodermata and chordata | 5 |
| (ii) Migration in fishes | 5 |
| (b) Explain the following : | |
| (i) Neoteny in Amphibia | 5 |
| (ii) Aestivation in Amphibians. | 5 |
| (c) Enumerate on : | |
| (i) Mesozoic reptiles | 5 |
| (ii) Adaptive radiation in reptiles | 5 |
| (d) Describe briefly : | |
| (i) Flightless birds of the world | 5 |
| (ii) Evolutionary features of heart from Pisces to Reptilia | 5 |

SECTION - C

6. Answer the following sub-questions :

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| (a) Write notes on : | |
| (i) Osmoregulation in terrestrial animal | 5 |
| (ii) Function of Islets of Langerhans | 5 |
| (b) Describe briefly : | |
| (i) Carbohydrate and protein digestion in the small intestine of man | 5 |
| (ii) Haemoglobin as a respiratory pigment | 5 |
| (c) Explain the following : | |
| (i) Role of Loop of Henle in urine formation | 5 |
| (ii) Structure of internal ear and mechanism of hearing | 5 |
| (d) Write notes on : | |
| (i) Female reproductive cycle in primates. | 5 |
| (ii) Mechanism of impulse conduction. | 5 |

7. Answer the following sub-questions :

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| (a) Explain briefly : | |
| (i) Osmoregulation in marine fishes | 5 |
| (ii) Mechanisms of heat production in mammals | 5 |
| (b) Describe briefly : | |
| (i) Physiology of digestion in Ruminants | 5 |
| (ii) Leucocytes and their functions | 5 |
| (c) Enumerate on the following : | |
| (i) Excretion of uric acid by uricotelic animals | 5 |
| (ii) Structure of Retina and mechanism of photoreception | 5 |
| (d) Write notes on : | |
| (i) Estrous cycle | 5 |
| (ii) Acetylcholine as a neurotransmitter | 5 |

SECTION - D

8. Answer the following sub-questions :

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| (a) Explain briefly : | 5 |
| (i) Role of light on animal life | 5 |
| (ii) Marine ecosystem | |
| (b) Describe : | 5 |
| (i) Carbon cycle | 5 |
| (ii) Depletion of ozone layer and its impact | |
| (c) Write notes on : | 5 |
| (i) Sanctuaries in Maharashtra | 5 |
| (ii) Trace elements as pollutants | |
| (d) Enumerate on the following : | |
| (i) Diurnal rhythms with suitable examples | 5 |
| (ii) Modes of communication in animals | 5 |

9. Answer the following sub-questions :

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| (a) Write notes on : | |
| (i) Lotic aquatic ecosystem | 5 |
| (ii) Two models of energy flow in ecosystem | 5 |
| (b) Enumerate on the following : | |
| (i) Nitrogen cycle | 5 |
| (ii) Adaptation in desert animals | 5 |
| (c) Describe briefly : | |
| (i) Effects of organochlorine pesticides | 5 |
| (ii) Red data book | 5 |
| (d) Explain briefly : | |
| (i) Biological clock | 5 |
| (ii) Protective mimicry. | 5 |

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