# 2015

## M.Sc. Part–II Examination

## ZOOLOGY

**PAPER—IX ( Group—A )**

*Full Marks* : 50

*Time* : 2 Hours

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

*Illustrate the answers wherever necessary.*

***Write the Answers to Questions of each Unit in separate Booklet.***

## FISHERY SPECIAL

Answer any *four* questions taking *two* from each unit.

### Unit—I

### [ *Fish Taxonomy and Biology* ]

Answer any *two* questions.

**1.** (i) Enlist different types of plant and animal protein used in supplementary fish feed formulation.

(ii) Discuss about 'least cost best buy' technique using suitable example of fish feed ingredients.

(iii) Add a note on feed attractants.

(iv) Enlist different antinutritional factors present in fish feed ingredients.

$4+3\frac{1}{2}+2\frac{1}{2}+2\frac{1}{2}$

**2.** (i) State the distinctive features of Elasmobranchii. Cite 4 examples.

(ii) Mention distinctive order characters with suitable examples :

- Muguliformes ;
- Anguilliformes ;
- Ophiocephaliformes ;
- Cypriniformes.

(iii) Add a note on fish as living fossil.

$2\frac{1}{2}+8+2$

**3.** (i) Define % Weight gain and Specific Growth Rate of fish.

(ii) Enlist different factors responsible for fish growth. Discuss the role of photoperiod on fish growth.

(iii) Add a note on growth curve of fish.

$3+(2\frac{1}{2}+4\frac{1}{2})+3$





**4.** Write short notes on any *three* of the following :

$4+4+4\frac{1}{2}$

(a) Enlist the pituitary hormones release from fish pituitary and mention their important function.

(b) Impact of Dam Construction on fish migration.

(c) Maturity stages of any one Indian Major Carps.

(d) Immunodefence System in fish.

(e) 'FCR and PER are inversely proportional to each other' — justify.

(f) Diproan fishes.

## Unit—II

### [ *Limnology and Oceanography* ]

**5.** (a) Discuss in brief on the origin of Lakes.

(b) Thermal stratification of sea.

(c) Define periphytons and state its significance in aquatic environment.

$7\frac{1}{2}+2+3$

**6.** (a) State different groups of Biotic community present in different freshwater bodies.

(b) Planktonic rhythms — explain.

(c) Significance and uniqueness of Wetland.

(d) Describe the subdivisions of Oceanic zones/ environment.

$3+3+3+3\frac{1}{2}$

7. (a) Define upwelling and state the causes and effects.
   (b) Physical and Chemical properties of Oceans.
   (c) Modifications of lotic system and adaptation of organisms.
   (d) Classification of planktons and their importance in aquatic body.

$3+3+3+3\frac{1}{2}$

8. Write short notes (any *three*) : $4+4+4\frac{1}{2}$
   (a) Coastal regulation zone and its significance.
   (b) Frosting Lakes.
   (c) Wetlands and lagoons.
   (d) Oceanic current.
   (e) Heat-Flux.

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## ECOLOGY SPECIAL

Answer any *four* questions taking *two* from each unit.

### Unit—I

### [ *Soil Ecology* ]

1. Give a brief account of the physio-chemical properties of alluvial soils, lateritic soils and black soils found in different parts of India.

$4\frac{1}{2}+4+4$





2. Discuss with illustrations the effective methods of sampling and extraction of microarthropods found in soil. How these can be presented ?

$4+6\frac{1}{2}+2$

3. Enumerate the role of annelids and arthropods in increasing the fertility of soil.

$6+6\frac{1}{2}$

4. Write short notes on the following (any *five*) : $5\times2\frac{1}{2}$
   (a) Oribatid mites ;
   (b) Capillary water ;
   (c) Baerman funnel ;
   (d) Euedaphic soil fauna ;
   (e) Necrophagus forms ;
   (f) Soil pH ;
   (g) Rhizospheric fauna ;
   (h) Pathway of leaf litter breakdown.

## Unit—II

### [ *Biodiversity and Wildlife Ecology* ]

**5.** 'Tropical forest, despite having nutrient poor soils, support higher plant's biomass and diversity' — justify the statement. What is turn over time of elements in a forest ? Add a note on animal stratification in tropical forest.

$7+3+2\frac{1}{2}$

**6.** Mention the criteria for declaring an area as biodiversity 'Hot-Spot'. Briefly discuss on the functioning of 'Biosphere Reserve'. What is SLOSS ?

$4+6+2\frac{1}{2}$

**7.** Discuss conservation category geographical distribution, feeding and reproductive biology of *Antilope* occurring in India. Add a note on sexual dimorphism.

$2+3+2\frac{1}{2}+2\frac{1}{2}+2\frac{1}{2}$

**4.** Write short notes (any *three*) : $12\frac{1}{2}$

(a) Nutrient cycling in Coniferous forest.

(b) Significance of Red Data Book.

(c) IUCN definition of protected areas.

(d) Ex-situ conservation.

(e) Threats of *Panthera tigres*.

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