

# COMBINED COMPETITIVE EXAMINATION (MAIN)

## ZOOLOGY

### Paper—I

Time : 3 hours

Full Marks : 200

**Note :** (1) The figures in the right-hand margin indicate full marks for the questions.

(2) Attempt **five** questions in all.

(3) Question No. 1 is compulsory.

(4) Suitable diagrams may be drawn, wherever required.

1. Answer any ten of the following :

4×10=40

- (a) Write four important characters of *Palaemon*.
- (b) Differentiate between a butterfly and a moth.
- (c) What is grazing food chain?
- (d) What is fish lice?
- (e) State the importance of water fleas.
- (f) How does *Paramecium* feed?
- (g) What are 'wheel animalcules'? How do they locomote?
- (h) Name the important characters of silverfish.
- (i) How does fish respire?
- (j) What are fish-food organisms?
- (k) Write the scientific names of any four Helminth parasites.
- (l) What is acid rain?

2. Answer any *eight* of the following :

5×8=40

- (a) Differentiate between poisonous and non-poisonous snakes.
- (b) Name the larval forms of Crustacea and Mollusca.
- (c) What is chronobiology?
- (d) Explain the importance of chi square test.
- (e) Write about flightless birds.
- (f) Indicate the ecological role of temperature.
- (g) What are conservation areas?
- (h) What are nematocysts? Indicate their role.
- (i) Indicate the importance of *Peripatus*.
- (j) What are pollutants?

3. Answer any *five* of the following :

8×5=40

- (a) Highlight the status of prawn culture in India indicating the important cultivable species.
- (b) Explain the terms ecology and ecosystem. Comment on the importance of ecology.
- (c) Discuss inherent and learnt behaviour giving suitable examples.
- (d) Write about correlation and regression analysis.
- (e) Explain the adaptive radiations in reptiles.
- (f) What is biosphere reserve? Write about one biosphere reserve of Northeast India.
- (g) Describe the vision in *Palaemon* and cockroach.

4. Answer any *four* of the following :

10×4=40

- (a) What is ecological succession? Explain ecological succession in a pond ecosystem.
- (b) Discuss host-parasite relationship.
- (c) Explain the aerial adaptations of birds.

- (d) Describe the causes of air pollution.
- (e) Northeast India is rich in its biodiversity. Discuss.
- (f) Write about the Project Tiger in India. Suggest the measures to conserve tiger population.

5. Answer any *two* of the following : 20×2=40

- (a) Describe the locomotion in fishes. Comment on the role of fins in fish locomotion.
- (b) Discuss the role of hormones and pheromones in animal behaviour.
- (c) Give an account of canal system in Porifera giving suitable drawings.

6. Answer any *four* of the following : 10×4=40

- (a) Compare the structure of heart of frog, pigeon and rabbit with suitable diagrams.
- (b) Describe excretory systems of earthworm and Nereis.
- (c) Write about the important insect pests of crops.
- (d) What are coral reefs? How are they formed? Explain the importance of coral reefs.
- (e) Discuss the bionomics of malarial parasite and *Trypanosoma*.
- (f) Explain the larval forms and affinities of Echinodermata.

7. Answer any *two* of the following : 20×2=40

- (a) What are trophic levels? How does energy flow in an ecosystem? Explain ecological pyramids.
- (b) What are minor phyla? Why are these termed as 'minor phyla'? Discuss the salient features of any one such phylum with examples.
- (c) Write about the important wild animals of India. Comment on the conservation of wildlife in India.

8. Write short notes on the following : 10×4=40
- (a) Retrogressive metamorphosis
  - (b) Induced breeding
  - (c) Anatomical peculiarities and affinities of Urodela
  - (d) Five Kingdom Classification
9. Discuss the following in detail : 10×4=40
- (a) Parasitic protozoans
  - (b) Biological clock and circadian rhythms
  - (c) Parental care in fishes
  - (d) Pisciculture and its importance
10. Answer the following in brief : 4×10=40
- (a) Explain the levels of organization in biosphere.
  - (b) Enumerate the differences between a National Park and a Wildlife Sanctuary.
  - (c) Differentiate between standard deviation and standard deviance.
  - (d) Discuss the role of bacteria in nitrogen cycle.
  - (e) Explain the process of pearl formation.
  - (f) Comment on the important pests of rice.
  - (g) Outline the different ecological niches.
  - (h) Write the names of four endangered mammals and birds each of Northeast India.
  - (i) Differentiate between symbiosis and commensalism.
  - (j) Examine the differences between endemic and exotic species.

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