

2016

M.Sc. Part-II Examination

ZOOLOGY

PAPER—VIII (Group—B)

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.

Answer any four questions taking two from each unit.

Unit—I

[Environmental Management]

1. What does it mean sustainable environmental management? Enlist and discuss on the steps pertaining to environmental management. Mention two major environmental laws.

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

(Turn Over)

2. Define EIA. What are the different steps in EIA? Highlight the role of 'Public Hearing' in EIA process. Briefly discuss on the guidelines for developing Green Belt.

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

3. What is Biomonitoring? Discuss on the advantages and disadvantages of the mentioning different Biotic Indices. Briefly explain Biomarkers and Biosensors.

$$2\frac{1}{2}+6(3+3)+4(2+2)$$

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

- Prime objectives of Environmental Conservation.
- Major recommendation for global conservation strategy.
- Criteria for the selection of suitable earthworm species to be used in vermicomposting.
- Biofertilizer — different types and roles.
- Bag filter and Thermostatic Precipitator.

Unit—II

[Developmental Biology]

5. (a) What are the derivatives of the dorsal lip cells?
 (b) How epimorphosis is differed from morphallaxis?
 (c) Describe a model for mesoderm induction in *Xenopus* with proper diagram.
 (d) In *Xenopus* which is considered as epidermal inducer?

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

6. (a) How a preprogrammed set of metabolic events are activated in sea urchin egg after the flux of calcium across the egg?
 (b) Write a note on organizer concept.
 (c) Name the aerosonal protein secreted in sea urchin.

$$6+5\frac{1}{2}+1$$

7. (a) State the role of ZP protein in fertilization.
 (b) How does the newt muscle cell reenter the cell cycle?
 (c) What happens when a distal blastona grafted to a proximal stump of newt?

- (d) What happens when regenerating tadpole limb is treated with retinoic acid ?
- (e) Why premetamorphic mesenchyme is able to regenerate newt forelimb ?

$$2\frac{1}{2} \times 5$$

8. (a) Design an experiment to show that the time needed to acquire head-like inducing properties following amputation increases with distance from Hydra head.

- (b) How Src kinase is activated in sea urchin egg ?
- (c) How BMPs (bone morphogenesis protein) are inhibited in Notochordal mesoderm area in Xenopus embryo ?

$$5+4+3\frac{1}{2}$$