2015

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 are the different components in Environmental Management ? Discuss different steps of Environmental Monitoring. Add a note on the advantages and disadvantages of Biomonitoring.

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

2. What is EIA ? What are the different steps involved in the process ? Discuss global conservation strategy.

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

3. What is Vermitechnology ? What are the different components of vermitechnology ? Mention the criteria for the selection of earthworms in vermicomposting. Highlight the merits of vermicompost over other organic manures.

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

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

(a) Biomarkers ;

(b) Bag-Filter ;

(c) Criteria for the selection of suitable plant species in green-belt development ;

(d) Enlist four major laws pertaining environmental protection ;

(e) Bioindicator species and its different types.

Unit—II

[*Developmental Biology*]

5. (a) In which area noggin and chordin mRNA is expressed ?

(b) Mention the axis specified by BMP gradient and wnt gradient.

(c) Name two diffusible proteins blocking wnt pathway.

(d) Name the gene involved in axis formation in hydra which has evolutionary role.

(e) Name the neural substances involved in regeneration.

$5\times2\frac{1}{2}$

6. (a) Enumerate the function of Resact as a sperm activating peptide in sea-urchin.

(b) In Xenopus, why premetamorphic tadpoles can regenerate their hindlimb, but the latter stages can not ?

(c) Explain the head regeneration of hydra in terms of two different gradient.

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

7. (a) Explain the events for mesoderm induction and organiser formation by the interaction of β catenin and TGF-β proteins with the help of a model studied by you.

   (b) Narrate briefly the function of bone morphogenesis protein 4.

$7\frac{1}{2}+5$

8. (a) How can you correlate Src protein kinase activity and function of phospholipase cγ (gamma family) through G protein ?

   (b) What are the differences in cell surface properties of proximal & distal blastema in amphibian regeneration ?

$7+5\frac{1}{2}$
