

2007

ZOOLOGY

PAPER-VIII

Group-B

Full Marks : 50

Time : 2 hours

Answer **any four** questions, **taking two**
from each Unit

The figures in the right-hand margin indicate marks

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

UNIT-1

(Environmental Management)

1. Define EIA. Give a brief account on the 12 steps followed in EIA process as has been suggested by UNEP (1996). 'Add a note on the EIA notification of the Government of India.

21+8+2
2

2. **What is biomonitoring of environmental degradation ? What are the advantages of biomonitoring over chemical monitoring ? Discuss utility of any biotic index which may be effectively used in the assessment of the quality of environment. Mention different types of indicator species with one example each.**

2+5+3+21
2

3. Discuss in brief various measures which may be adopted to combat the problem of air pollution. Describe some post combustion techniques used in industries to prevent pollution of air. Mention important acts pertaining to air pollution.

4+6+21
2

4. **Write notes on any three**

4+4+4
2

- (i) Environmental Kuznets Curve
- (ii) Public Interest Litigation
- (iii) Environmental Education
- (iv) Vermiculture
- (v) Hierarchy of needs
- (vi) Basic principles of ISO 14001.

UNIT-11

(Developmental Biology)

5. (i) State briefly the role of (3-catenin as a nuclear transcription factor in the formation of organizer.

(i) Mention the role of Dsh. (dishevelled) protein in organizer formation.

(iii) Why **dorsal blastopore lip cells** are referred as an organizer ?

(iv) Mention the steps of siamois gene activation using diagram.

4+2+2+4
2

6. (i) With a **recent** hypothetical model how can you **explain** the process of sperm capacitation in **mammal**?

(ii) How grey crescent area is formed during fertilization ?

(iii) State briefly the role of Ca^{2+} in **egg activation** in **sea-urchin**.

(iv) What is the 'late response' of the - mature sea urchin egg to the sperm ?

5+2+3+2
2

7. (i) The head **region** of Hydra acts **both as an organizing region and as an inhibitor**-justify it by grafting experiment.

(ii) Mention two genes those are overexpressed and downregulated during salamander limb regeneration.

(iii) How does retinoic acid proximalize the positional value in amphibian regeneration ?

(iv) Mention the role of thrombin protein in newt regeneration .

6+2+3+1-
2

8. (i) Explain the following :

3 x 3

(a) Role of zp proteins

(b) Determination and competence

(c) Corneal morphogenesis.

(ii) How does Pax 6 help in lens development?

31

2