

Academic Session: 2014-15

Pre Board Examination

Subject: Biology

Time: 3 Hrs.

Max. Marks: 70

General Instructions:

The Question Paper has 5 sections A, B, C, D and E. Section A has 5 questions of 1 mark each, Section B has 5 questions of 2 marks each, Section C has 12 questions of 3 marks each, Section E has 1 value based question of 4 marks and Section D has 3 questions of 5 marks each.

The question paper has 4 printed sides and 26 questions.

Section A

1. What is a gaseous biogeochemical cycle? Give one example.
2. Define Ovipary. Give an example of such an organism.
3. What is the use of Chitinase in biotechnology?
4. Why is secondary immune response more intense than the primary response?
5. Give the use of Baculoviruses.

Section B

6. Explain briefly soil erosion and desertification as improper resource utilization Practices.

OR

How is slash and burn agriculture harmful for forests? Define Reforestation.

7. Discuss in brief any 2 adaptations of wind pollinated plants.
8. What is the importance of Mychorrhiza? Describe organic farming.
9. Define geitonogamy. Give its 1 similarity to autogamy and xenogamy.
10. Taking an example under each category differentiate between genetic and species diversity.

Section C

11. Explain how human Insulin was produced on an industrial scale.

OR

Describe in detail Gene Therapy.

12. Explain in detail the succession on a bare rock.
13. Name and describe the interactions shown by the following—
  - a) Cuckoo laying eggs in the nest of crow
  - b) Orchid growing on a Mango tree
14. Describe in detail the process of Oogenesis.
15. Explain in detail the post transcriptional modifications in the messenger RNA.
16. Draw a neat and well labeled diagram of an Anotropous ovule and label

Microyle, funicle, integument, nucellus and embryo sac.

OR

Draw a neat and well labelled diagram of T.S. Anther and label epidermis middle layers, endothecium tapetum and pollen mother cell.

17. Describe in detail the logistic growth curve. Add a note on how is it a realistic representation of population growth.

18. Explain one reversible and one irreversible contraceptive method for men. Describe GIFT.

19. Describe the principle, procedure and applications of PCR.

20. Mention the compound and its use produced by the following—

a) *Streptococcus*

b) *Lactobacillus*

c) *Saccharomyces*

21. Describe the naming of ECoRI. Taking an example explain the use of marker gene.

22. Explain in detail Bio fortification. Describe the procedure and use of somatic hybridization.

## Section D (Value Based)

23. One of your class mates Reema is the daughter of a HIV positive mother and is herself HIV positive. Most of the classmates do not mingle with her and their parents also want the school to send her out. The principal tries and convinces the parents and Reema continues to study.

- a) Do you agree with your classmates in not mingling with Reema? Why/Why not? Give 2 points.
- b) What values are shown by the Principal? Give 2 points.

## Section E

24. a) Define a molecular disease. Explain in detail how is it caused due to point mutation.

b) Give 2 differences between Down's syndrome and Turner's syndrome.

OR

a) Define Linkage and Recombination. Explain how recombination frequencies were used to

map genes on the chromosome.

b) Describe the mechanism of sex determination in Insects.

25. Explain the principle, procedure and applications of DNA Fingerprinting.

OR

Describe the structure and functioning of Lac Operon.

26. a) Discuss in detail Convergent Evolution.  
b) Describe the Hardy Weinberg equation and its significance.

OR

- a) Taking an example describe how anthropogenic factors affect evolution.  
b) Discuss in detail the experiment that provided proof for Chemical Evolution.

