

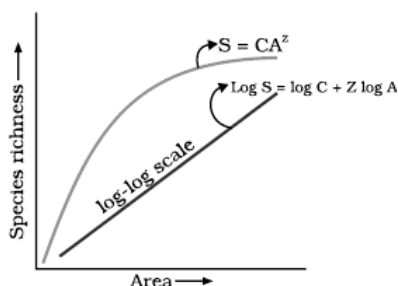
Sample Paper – 2010
Class – XII
Subject – Biology

General Instructions:

1. All questions are compulsory.
2. This question paper consists of four Sections A, B, C and D. Section -A contains 8 questions of 1 mark each, Section -B is of 10 questions of 2 marks each, Section -C has 9 questions of 3 marks each and Section D is of 3 questions of 5 marks each.
3. There is no overall choice .However, an internal choice has been provided in one question of 2 marks, one question of 3 marks and all the three questions of 5 marks. Attempt only one of the choices in such questions.
4. Wherever necessary, the diagrams drawn should be neat and properly labelled.

SECTION A

1. What is the Ploidy of PEN ? [1]
2. A human zygote has XXY sex chromosomes along with 22 pairs of autosomes
What sex will the individual be? [1]
3. What is the significance of slope of regression in a species – area relationship graph as shown below? [1]



4. Which enzyme is known as 'molecular scissors'? [1]
5. Name the Ecological pyramid that can be inverted in Tree ecosystem. [1]
6. Explain the term emasculation. When and why does a plant breeder employ this technique? [1]
7. Expand MOET. Write its one advantage.

8. Choose any four of following groups in an ascending evolutionary scale. [1]
Herbaceous Lycopods(ferns), Psilophytons, Bryophytes, Angiosperms,
Sphenopsids(Horsetails/Ferns), Tracheophyte ancestors.

SECTION B

9. What are sacred groves? What is their role in Biodiversity conservation? [2]
10. Mention the advantages of selecting Pea plant for experiment by Mendel. [2]

Or

Explain with reference to Founder effect how genetic drift affect Hardy-Weinberg equilibrium?

11. What measures would you take to prevent water borne disease? [2]
12. What are the disadvantages of human use of Insulin from other animal sources? [2]
13. Name the diseases diagnosed by (a) WIDAL test (b) ELISA test [2]
14. How do biofertilisers enrich the fertility of soil? Explain giving examples? [2]
15. Differentiate between Geitonogamy and Allogamy. [2]
16. Study the following carefully and explain why Mutation did not cause any adverse change in the structure of protein H in spite of change in the molecular structure of the gene which codes the protein H. (here C=codons, a= amino acids) [2]

Codons for Perotein H: C₁-C₂-C₃-C₄-CGU-GGC-C₇

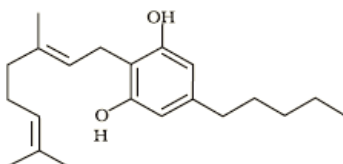
Amino acids in Perotein H: a₁-a₂- a₃- a₄- arg- Gly – a₇

Mutation : C₁-C₂-C₃-C₄-CGU-GGA-C₇

Structure of Perotein H : No change

17. Name the technique used for separation of DNA fragments. What is its principle? [2]
18. Identify the following chemical structure. Give the scientific name of the plant from which it is obtained. Which two plant parts are used to extract this compound? Name the body system most affected by this compound.

[2]



SECTION C

- 19 Why does one get two peaks in the graphical representation of effects of disruptive selection? Differentiate it from stabilizing selection. [3]
- 20 What is menstruation? What are the specific functions of FSH, LH, estrogen and progesterone in the menstrual cycle. [3]
- 21 What do the differently written terms 'Cry' and 'cry' represent? Crystals of Bt toxin produced by some bacteria do not kill the bacteria themselves, but kill insects such as beetles and mosquitoes etc. Explain why? [3]

OR

How does the gene of an enzyme α -galactosidase can be used as selectable marker? How is it better than other traditional markers like antibiotic resistance genes?

- 22 What is meant by ozone shield? Name two ozone depleting substances. How do the ozone depleting substances affect the ozone shield? Write two damaging effect of ozone- depletion on humans. [3]
- 23 The first clinical gene therapy was given in 1990 to a four year old girl with adenosine deaminase deficiency. Explain how this was brought about? [3]
- 24 How are microbes helpful in Sewage Treatment? [3]
- 25 Three Codons on mRNA are not recognized by tRNA. What are they? What is the general term used for them? What is their role in protein synthesis? [3]
- 26 Why is the length of a food chain in an ecosystem generally limited to 3 - 4 trophic levels? Why do you think that DFC is the major source of energy for Terrestrial ecosystem? [3]
- 27 A colour blind man marries a woman with normal vision, whose father was colour blind. Work out a cross to show the genotype of couple and their prospective sons [3]

SECTION D

28. Who demonstrated the semi-conservative replication of DNA? Explain the procedure in detail.

OR

Explain the process of Transcription in prokaryotes. How it differs in eukaryotes?[5]

29. What are Algal blooms? How are they formed? Give two harmful effects of formation of algal blooms in a water body.

OR

Describe the different causes of Biodiversity Loss. [5]

30. Describe the process of 7 celled monosporic embryo sac formation in Angiosperms with the help of labeled diagram.

OR

30. i) Write the role of acrosome and tail, the parts of human sperm.
ii) Write about the different barriers used for population control.
iii) Expand ZIFT & IUI. 2 + 2 + 1=5