CBSE Board
Class XII Biology
Question Paper

Time: 3 hrs **Total Marks: 70**

General Instruction:
(i) All questions are compulsory.
(ii)This question paper consists of four Sections A, B C and D. Section **A** contains **8** questions of **one** mark each, Section **B** is of **10** questions of **two** marks each, Section **C** is of **9** questions of **three** marks each, and Section **D** is of **3** questions of **five** marks each.
(iii)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 weight age. A student has to attempt only one of the alternatives in such questions.
(iv) Wherever necessary, the diagrams drawn should be neat and properly labelleled.

SECTION A

1. An anther with malfunctioning tapetum often fails to produce viable male gametophytes. Give any one reason. [1]
2. Why sharing of injection needles between two individuals is not recommended? [1]
3. Name the enzyme and state its property that is responsible for continuous and discontinuous replication of the two strands of a DNA molecule. [1]
4. Identify the examples of convergent evolution from the following: [1]
   (i) Flippers of penguins and dolphins
   (ii) Eyes of octopus and mammals
   (iii) Vertebrate brains
5. Write the importance of MOET. [1]
6. Why is the enzyme cellulase needed for isolating genetic material from plant cells and not from the animal cells? [1]
7. Name the type of biodiversity represented by the following: [1]
   (a) 50,000 different strains of rice in India.
   (b) Estuaries and alpine meadows in India.
8. Write the equation that helps in deriving the net primary productivity of an ecosystem. [1]

SECTION B

9. Geitonogamous flowering plants are genetically autogamous but functionally cross-pollinated. Justify. [2]
10. When and where do chorionic villi appear in humans? State their function. [2]
11. In a cross between two tall pea plants, some of the offsprings produced were dwarf. Show with the help of Punett square how this is possible. [2]

12.Name two commonly used bioreactors. State the importance of using a bioreactor. [2]
Write the function of adenosine deaminase enzyme. State the cause of ADAdeficiency [2]

symptoms disappeared. What is a such response called?
How does the body produce it?

13. Name two commonly used bioreactors. State the importance of using a bioreactor.
14. Write the function of aden ine deaminase enzyme. State the cause of A deficiency in humans. Mention a possible permanent cure for a ADA deficiency patient. [2]
15. Expand the following and mention one application of each: [2]
(i) PCR (ii) ELISA

OR

(a) Mention the difference in the mode of action of exonuclease and endonuclease.
(b) How does restriction endonuclease function?

16. Name any two sources of e-Wastes and write two different ways for their disposal. [2]
17. Why the pyramid of energy is always upright? Explain. [2]
18. Explain why very small animals are rarely found in polar region. [2]

SECTION C

19. Draw a diagram of the microscopic structure of human sperm. Label the following parts in it and write their functions. [3]
(a) Acrosome
(b) Nucleus
(c) Middle piece
20. With the help of any two suitable examples explain the effect of anthropogenic actions on organic evolution. [3]
21. [3]
(a) Why is human ABO blood group gene considered a good example of multiple alleles?
(b) Work out a cross up to F1 generation only, between a mother with blood group A (Homozygous) and the father with blood group B (Homozygous). Explain the pattern of inheritance exhibited.
22. Describe the structure of a RNA polynucleotide chain having four different types of nucleotides. [3]
23. Differentiate between inbreeding and outbreeding in cattle. State one advantage and one disadvantage for each one of them. [3]
24. [3]
(a) Why are the fruit juices bought from market clearer as compared to those made at home?
(b) Name the bioactive molecules produced by *Trichoderma polysporum* and *Monascus purpureus*.

25.

(a) Why are transgenic animals so called? [3]

(b) Explain the role of transgenic animals in

(i) Vaccine safety and

(ii) Biological products with the help of an example each.

26. How have human activities caused desertification? Explain. [3]

OR

How does algal bloom destroy the quality of a fresh water body? Explain.

27. Explain mutualism with the help of any two examples. How is it different from commensalism? [3]

SECTION D

28. [5]

(a) Draw a diagrammatic sectional view of a mature anatropous ovule and label the following parts in it:

(i) that develops into a seed coat.

(ii) that develops into an embryo after fertilization.

(iii) that develops into an endosperm in an albuminous seed.

(iv) through which the pollen tube gains entry into the embryo sac.

(v) that attaches the ovule to the placenta.

(b) Describe the characteristics features of wind pollinated flowers.

OR

(a) Draw a diagrammatic sectional view of the female reproductive system of human and label the parts,

(i) where the secondary oocytes develop

(ii) which helps in collection of ovum after ovulation.

(iii) where fertilization occurs.

(iv) where implantation of embryo occurs.

(b) Explain the role of pituitary and the ovarian hormones in menstrual cycle in human females.

29. Describe the asexual and sexual phases of life cycle of *Plasmodium* that causes malaria in humans. [5]

OR

(a) What is plant breeding? List the two steps the classical plant breeding involves.

(b) How has the mutation breeding helped in improving crop varieties? Give one example where this technique has helped.

(c) How has the breeding programme helped in improving the public nutritional health? State two examples in support of your answer.

30. A child suffering from Thalassemia is born to a normal couple. But the mother is being blamed by the family for delivering a sick baby. [5]
    (a) What is Thalassemia?
    (b) How would you counsel the family not to blame the mother for delivering a child suffering from this disease? Explain.
    (c) List the values your counselling can propagate in the families.