
INSTRUCTIONS:

1. Q.Nos: 1 - 10 are Very Short Answer Type. Each question carries 2 marks.
2. Q. Nos: 11 - 18 are Short Answer Type. Each question carries 4 marks.
3. Q.Nos: 19 - 21 are Long Answer Type. Each question carries 7 marks.

I. Answer ALL questions in 2 or 3 lines each. [10 x 2 = 20]

1. Name the essential elements present in nitrogenase enzyme. What type of essential elements are they?
2. Which element is regarded as the 17th essential element? Name a disease caused by its deficiency.
3. Write briefly on the occurrence of microorganisms.
4. Define alleles.
5. In a typical DNA molecule, the proportion of thymine is 40% of the N-bases. Find the percentages of other N-bases.
6. What is meant by capping and tailing.
7. What is downstream processing.
8. Give different types of cry genes and pests which are controlled by the proteins encoded by these genes.
9. Name the microbe used for statin production. How do statins lower blood cholesterol level.
10. Name any two industrially important enzymes.

II. Answer any SIX of the following questions in about 75 words each. [6 x 4 = 24]

11. Describe C₄ cycle.
12. Write a short notes on seed dormancy.
13. Explain the steps involved in the formation of root nodule.
14. How does ascent of sap occur in tall trees.
15. Draw a neat labelled diagram of T - even bacteriophage and explain its structure.
16. Explain the codominance with an example.
17. How many types of RNA polymerases exist in cells? Write their names and functions.
18. Give a brief account of pest resistant plants.

III. Answer any TWO of the following questions in about 300 words each. [2 x 8 = 16]

19. Give an account of glycolysis. Where does it occur? What are the end products? Trace the fate of these products in both aerobic and anaerobic respiration.
20. Give a brief account of the tools of recombinant DNA technology.
21. You are a Botanist working in the art of plant breeding. Describe the various steps that you will undertake to release a new variety.