

General instructions:-

- i) All questions are compulsory.
- ii) Question nos.1 - 4 are of 1 mark each.
- iii) Question nos. 5 - 7 are of 2 marks each.
- iv) Question nos. 8 - 12 are of 3 marks each.
- v) Question nos. 13 - 14 are of 5 marks each.
- vi) There is an internal choice in one question of 2 marks, one question of three marks and all the questions of 5 marks. Attempt only one of the options in such questions.
- vii) Give examples and diagrams wherever required.

1. What do the letters Bt stand for in crop production technology? (1)
2. What is meant by stratification in an ecosystem? (1)
3. State the principle on which ELISA works. (1)
4. Why do certain organisms that disappear at the point of sewage disposal reappear after a certain distance in a river? (1)
5. What is the difference between a grazing food chain and a detritus food chain? (2)
6. What is Polyblend? Why did the plastic manufacturers think of producing it? Write its usefulness. (2)
7. What is a Palindromic nucleotide sequence? How do restriction endonucleases act on palindromic sites to create sticky ends?
(OR)
What is insertional inactivation? (2)
8. What are the various stages of PCR? (3)
9. During a visit, students found that a forest has been destroyed totally by fire. The students asked their teacher, "Can the forest grow here again?" The teacher explained, "Yes, of course. Even a bare rock in course of time can also convert into a forest. Growth of forest on a bare rock is known as primary succession while community developed in the burnt forest is known secondary succession."
Now answer the following:
 - i) In your opinion, where will be the growth of community faster - the burnt forest or the bare rock? Why?
 - ii) Why on bare rock succession is called primary while in a burnt forest, succession is secondary?
 - iii) Write down the sequential arrangement of Hydrch and Xearch succession. (3)
10. Saptarshi entered into a quarrel with some farmers who were spraying DDT in their field. Many people gathered at the spot to see and enjoy the incident. The angry mob demanded that Saptarshi should not interfere in the farmers' job. Saptarshi tried to explain his point and finally succeeded. The farmers gave up spraying DDT.
 - a) What did Saptarshi explain to the farmers?
 - b) What is Biomagnification? Explain with an example.
 - c) What values did Saptarshi promote? (3)

11. What is ozone shield and why is it important for us? What are the main gases which damage this ozone shield? (3)
12. a) Why the introduction of genetically engineered lymphocytes into an ADA deficiency patient is not a permanent cure? Suggest a possible permanent cure.
b) A vector is engineered with three features which facilitate its cloning within the host cell. List the three features and explain each one of them. (3)
13. a) What are age pyramids? Represent human population age pyramids of various types.
b) What are the various factors responsible for population change of a region?
(OR)
What is called as EVIL Quartet? Explain conservation approaches of Biodiversity. (5)
14. Explain r-DNA technology.
(OR)
DNA being hydrophilic cannot pass through the cell membrane of a host cell. Explain how recombinant DNA gets introduced into the host cell to transform the latter.
Explain various techniques. (5)

-X-X-X-X-X-