

Class: 12
Subject: Biology
Topic: Microbes in human welfare
No. of Questions: 25

- Q1. In which food would you find lactic acid bacteria? Mention some of their useful applications.
- Q2. What are the processes through which soil nutrients are lost and what process restores them. What is the justification of using artificial methods of maintaining soil fertility.
- Q3. What is BOD? What does it mean if a water sample has more BOD?
- Q4. What kinds of microorganisms are employed in the treatment of sewage? Give their activities.
- Q5. Name any two cyanobacteria and explain how they serve as main sources of biofertilisers.
- Q6. Name the water fern that is an excellent biofertiliser for rice cultivation. What helps the fern to do so?
- Q7. During the secondary treatment of the primary effluent how does the significant decrease in BOD occurs?
- Q8. A. Define biofertilisers. Give examples of any two free-living nitrogen fixing microorganisms.
B. What are mycorrhiza? Give their importance in crop production.
- Q9. What is mycorrhiza? Explain with an example.
- Q10. Name the bacterium responsible for the large holes seen in "Swiss Cheese". What are these holes due to?
- Q11. A. Name two important macronutrients which are made available for plants by biofertilisers.
B. Name the cyanobacterium which forms symbiotic association with Azolla.
C. Give the names of the partners which form symbiotic association in the following: (i) Lichen (ii) Mycorrhiza (iii) Root nodules (iv) Coralloid roots.
D. Give the name of bacterium which was used as first biopesticide on a commercial scale in the world.

- Q12. 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*.
- Q13. Name 'A' and 'B' in the following equations:
Sugary juice $\xrightarrow{'A'}$ Ethanol + H₂O; Ethanol $\xrightarrow{\text{Acetobacter aceti}}$ 'B'
- Q14. What is the role of microbes in sewage treatment plant?
- Q15. What will happen if you add a small amount of curd to the fresh milk and keep it for few hours at 25°C.
Name the process, chemical changes and the resultant products. Name any three edible products prepared from it.
- Q16. Name the gobar gas liberated from biogas plant. Which type of bacteria are responsible for its production? What are the advantages of using it as a source of energy?
- Q17. Explain why some microorganisms are called biofertilizers. Give two examples.
- Q18. Recommend the specific biofertilizer for the following. Give reasons for your recommendations.
(i) Paddy field
(ii) Wheat crop
(iii) Cotton crop.
- Q19. Identify the microorganism (i) A soil inhabiting bacteria that forms symbiotic association with the roots of leguminous plants. (ii) A cyanobacteria that forms symbiotic association with an aquatic fern. (iii) A methanogenic bacteria used in the production of biogas. (iv) A methanogenic bacteria used in the production of biogas.
- Q20. Protein is an important constituent of our food and its deficiency leads to many health problems. A large population of developing countries can not afford pulses. Ramesh learnt that many microorganisms are good source of proteins and can be used commercially as food supplement so he thought of culturing these microorganisms to provide a cheap source of proteins.
Read the above passage and answer the following questions:
(i) What are single cell protein (SCP)?
(ii) Name two microorganisms which provide SCP.
(iii) Why did Ramesh want to culture microorganisms?

- Q21. A symbiotic relationship/interaction in which 'one species benefits and the other species is not affected' is called:
- a) Ectomycorrhizae
 - b) Endomycorrhizae
 - c) Commensalism
 - d) Helotism
- Q22. Ethanol is commercially produced through a particular species of
- a) Aspergillus
 - b) Saccharomyces
 - c) Clostridium
 - d) Trichoderma
- Q23. Human insulin is being commercially produced from a transgenic species of
- a) Saccharomyces
 - b) Escherichia
 - c) Mycobacterium
 - d) Rhizobium

- Q24. Azolla is used as a biofertilizer because it
- a) Has association of nitrogen fixing Cyanobacteria
 - b) Has association of nitrogen fixing Rhizobium
 - c) Multiplies very fast to produce massive biomass
 - d) Has association of mycorrhiza
- Q25. Crop rotation is used by farmers to increase
- a) Organic content of soil
 - b) Nitrogenous content of soil
 - c) Soil fertility
 - d) All of these