

Ch-10 Microbes in Human Welfare

- 1) Bacteria cannot be seen with the naked eyes, but can be seen with the help of a microscope. If you have to carry a sample from your home to your biology laboratory to demonstrate the presence of microbes under a microscope, which sample would you carry and why?
- 2) Give examples to prove that microbes release gases during metabolism.
- 3) In which food would you find lactic acid bacteria? Mention some of their useful applications.
- 4) Name some traditional Indian foods made of wheat, rice and Bengal gram (or their products) which involve using microbes.
- 5) In which way microbes have played a major role in controlling diseases caused by harmful bacteria?
- 6) Name any two species of fungus, which are used in the production of the antibiotics.
- 7) What is sewage? In which way can this be harmful for us?
- 8) What is the key difference between primary and secondary sewage treatment?
- 9) Do you think microbes can also be used as source of energy? If yes, how?
- 10) Microbes can be used to decrease the use of chemical fertilizers and pesticides. Explain how this can be accomplished?
- 11) Three water samples namely river water, untreated sewage water and secondary effluent discharged from a sewage treatment plant were subjected to BOD test. The samples were labelled A, B and C; but the laboratory attendant did not note which was which. The BOD values of the three samples A, B and C were recorded as 20mg/L, 8mg/L, and 400mg/L, respectively. Which sample of the water is most

polluted? Can you assign the correct label to each assuming the river water is relatively clean?

12) Find out the name of the microbes from which Cyclosporin A (an immunosuppressive drug) and Statins (blood cholesterol lowering agents) are obtained.

13) Find out the role of microbes in the following and discuss it with your teacher. (i) Single cell protein (SCP) (ii) Soil bacteria.

14) Arrange the following in the decreasing order (most important first) of their importance, for the welfare of human society. Give reasons for your answer: Biogas, Citric acid. Penicillin and Curd.

15) How do biofertilizers enrich the fertility of the soil?

16) The vitamin whose content increases following the conversion of milk into curd by lactic acid bacteria is

(a) vitamin-C (b) vitamin-D

(c) vitamin-B12 (d) vitamin-E

17) Waste water treatment generates a large quantity of sludge, which can be treated by

(a) An aerobic digesters (b) floe

(c) Chemicals (d) oxidation pond

18) Methanogenic bacteria are not found in

(a) rumen of cattle (b) gobar gas plant

(c) bottom of water-logged paddy fields (d) activated sludge

19. Why does 'Swiss cheese' have big holes?

20. What are fermentors?

21. Name a microbe used for statin production. How do statin lower blood cholesterol level?

22. Why do we prefer to call secondary waste water treatment as biological treatment?
23. What for nucleo polyhedro viruses are being used now a-days?
24. How has the discovery of antibiotics helped mankind in the field of medicine?
25. Why is distillation required for producing certain alcoholic drinks?
26. Write the most important characteristic that *Aspergillus niger*, *Clostridium butylicum*, and Lactobacillus.
27. What would happen if our intestine harbours microbial flora exactly similar to that found in the rumen of cattle?
28. Give any two microbes that are useful in biotechnology.
29. What is the source organism for Eco RI, restriction endo nuclease?
30. Name any genetically modified crop.
31. Why are blue-green algae not popular as bio fertilisers?
32. Which species of Penicillium produces Roquefort cheese?
33. Name the states involved in Ganga Action Plan.
34. Name any two industrially important enzymes.
35. Name an immune immunosuppressive agent?
36. Given an example of a rod-shaped virus.
37. What is the group of bacteria found in both the rumen of cattle and sludge of sewage treatment?
38. Name a microbe used for the production of swiss cheese.
39. Why are flocs important in biological treatment of waste water?
40. How has the bacterium Bacillus thuringiensis helped us in controlling caterpillars of insect pests?
41. How do mycorrhizal fungi help the plants harbouring them?
42. Why are cyanobacteria considered useful in paddy fields?
43. How was penicillin discovered?
44. Name the scientists who were credited for showing the role of penicillin Asian antibiotic?
45. How do bioactive molecules of fungal origin help in restoring good health of humans?

46. What roles do enzymes play in detergents that we use for washing clothes? Are these enzymes produced from some unique microorganisms?
47. What is the chemical, nature of biogas? Name an organism which is involved in biogas production?
48. How do microbes reduces the environmental degradation causes by chemicals?
49. What is a broad spectrum antibiotic? Name one such antibiotic.
50. What are viruses parasitizing bacteria called? Draw a well labeled diagram of the same.
51. Which bacterium has been used as a clot buster? What is its mode oraction?
52. What are biofertilisers? Give two examples.
53. Why is aerobic degradation more important than anaerobic degradation for the treatment of large volumes of wastewaters rich in organic matter? Discuss,
54. (a) Discuss about the major programs that the Ministry of Environment and Forests, Government of India, has initiated for saving Major Indian Rivers from pollution. (b) Ganga has recently been declared the national river. Discuss the implication with respect to pollution of this river.
55. Describe the main ideas behind the biological control of pests and diseases.
56. (a) What would happen if a large volume of untreated sewage is discharged into a river? (b) In what way anaerobic sludge diagestion is important in sewage treatments?
57. Which type of food would have lactic acid bacteria? Discuss their useful application.

