Water Pollution Questions

1. Bottled water is a product with enormous annual sales. What are the advantages of using this source of drinking water? What are the environmental disadvantages of this product?
2. What is BOD? Give the difference between carbonaceous BOD and nitrification BOD. 5 day BOD of some wastewater was found to be 200mg/L. If the reaction rate constant K = 0.22/day, find ultimate BOD.
3. During an educational trip, a student of Chemistry saw a beautiful lake in a village. He collected many plants from that area. He noticed that villagers were washing clothes around the lake and at some places waste material from houses was destroying its beauty. After few years, he visited the same lake again. He was surprised to find that the lake was covered with algae, stinking smell was coming out and its water had become unstable. Can you explain the reason for this condition of the lake?
4. What is the purpose of the return sludge step in the activated sludge process?
5. What are the two processes by which the activated sludge process removes soluble carbonaceous material from sludge?
6. How many litres of CH_3OH would be required daily to remove the nitrogen from a 200,000-L/day sewage treatment plant producing an effluent containing 50 mg/L of nitrogen? Assume that the nitrogen has been converted to NO_3^- in the plant.
7. How does reverse osmosis differ from a simple sieve separation or ultrafiltration process?
8. Many fish are suddenly found floating dead on a lake. There is no evidence of toxic dumping, but you find an abundance of phytoplankton. Suggest a reason for the fish kill and explain the phenomenon.
9. At one time, hand pump water was considered to be pure and used freely for drinking in villages but not now. Why?
10. How fluoride in the toothpaste protects teeth against decay? Explain the chemistry behind it.
11. Have you ever observed any water pollution in your area? How can you control it?
12. What are pesticides and herbicides? Explain giving examples.
13. For your agricultural field or garden, you have developed a compost producing pit. Discuss the process in the light of bad odour, flies, and recycling of wastes for a good produce.
14. How can domestic waste be used as manure?
15. What could be the harmful effects of improper management of industrial and domestic solid waste in the city?
16. A person was using water supplied by Municipality. Due to shortage of water he started using underground water. He felt laxative effect. What could be the cause?
17. What are the pollutants present in the industrial effluent of petroleum industry? How can these pollutants be taken care off?
18. Define DO. Discuss the method for the estimation of DO in water sample.
19. List the pollutants present in wastewater of 'electroplating' and 'dairy' industries. Suggest a treatment method for the same
20. Give three properties of water that make it essential for life.
21. What is eutrophication and how can it be controlled? What is Liebig's Law? How can Liebig's law be explained with eutrophication as an example?
22. Name the pollutants present in the effluents of each tannery and textile industries. Suggest a method for the treatment for the same.
23. Draw a labelled diagram of a thermally stratified water body specifying the temperature, chemical species and biota existing in each region.
24. Discuss the role of ion exchange method for the water purification.
25. How is sludge disposed during secondary treatment of water, explain with reactions?
26. How do fertilizers pollute a water body? How can this pollution be controlled? Give Liebig's law of minimum and explain its significance.
27. Write shot notes on the disposal methods of different nuclear wastes.
28. Discuss aerobic digestion process applied during treatment of water.
29. Write short notes on the following:
    (ii) Disposal of sludge, (ii) Oil spills as water pollutant, (iii) Tertiary treatment of water