

CBSE Test Paper 02
Ch-10 Microbes in Human Welfare

1. Rotenone is
 - a. An insect hormone
 - b. A bio herbicide
 - c. A natural herbicide
 - d. A natural insecticide
2. Typhoid fever could be confirmed by
 - a. ECG
 - b. ELISA
 - c. Widal test
 - d. Western blot
3. Which one of the following is not used in organic farming?
 - a. Snail
 - b. Oscillatoria
 - c. Earthworm
 - d. Glomus
4. Select the cytokine barrier
 - a. Leucocytes
 - b. Saliva
 - c. Skin
 - d. Interferon
5. Which one is the correct sequence of steps involved in sewage treatment?
 - i. Filtration
 - ii. Biological treatment
 - iii. Sedimentation
 - iv. Chlorination
 - a. a) Step i, ii, iii and iv
 - b. b) Step ii, iii, i and iv
 - c. c) Step i, iii, ii and iv
 - d. d) Step ii,i, iii and iv
6. The bacteria which helps in the fermentation of Swiss cheese is

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- a. Lactobacillus
 - b. Cyclosporin
 - c. Yeast
 - d. Penicillin
7. Bioreactor is a
- a. Culture containing radioactive isotopes
 - b. Energy generator
 - c. Fermentation tank
 - d. Hybridoma
8. Name the biocontrol agents that get rid of aphids and mosquitoes.
9. Name the physical processes employed in the primary treatment of sewage
10. Which of the following is a cyanobacterium that can fix atmospheric nitrogen?
Azospirillum, Oscillatoria, Spirulina
11. What is sewage? In which way can sewage be harmful to us?
12. Name the organism that causes large holes in 'Swiss cheese'. How are these holes caused?
13. What is the key difference between primary and secondary sewage treatment?
14. 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 labeled 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 20 mg/L, 8 mg/L and 400 mg/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?
15. How are biofertilisers different from fertilizers such as NPK that we buy in the market? Justify the role of Rhizobium as a biofertilizer.

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Answer

1. d. A natural insecticide, **Explanation:** Rotenone is a naturally occurring chemical with insecticidal properties, obtained from the roots of the several tropical and subtropical plant species.
2. c. Widal test, **Explanation:** Widal test is a milestone invention in medicine. This test was devised by Frank Widal in 1896.
Widal test is most widely used diagnostic test for typhoid fever in developing countries. The Widal test has been in use for more than a century as an aid in the diagnosis of typhoid fever. It measures agglutinating antibody levels against O and H antigens.
3. a. Snail, **Explanation:** In organic farming snail is not used. Glomus is kind of fungi used in organic farming for maintaining fertility of soil. Earthworm the process of composting to form vermiform compost and Oscillatoria is an algae that fix the nitrogen.
4. d. Interferon, **Explanation:** To communicate, immune cells use cytokines, which are a group of proteins secreted by cells of the immune system that act as chemical messengers.
Cytokines released from one cell affect the actions of other cells by binding to receptors on their surface. You can think of these receptors as mailboxes. They receive the cytokine's chemical message, and then the receiving cell performs activities based on that message.
There are different types of cytokines, including chemokines, interferons, interleukins, lymphokines and tumor necrosis factor.
They can act alone, work together or work against each other, but ultimately the role of cytokines is to help regulate the immune response.
5. c. Step i, iii, ii and iv, **Explanation:** Steps involved in sewage treatment are filtration, sedimentation, biological treatment and chlorination. First two steps are called primary treatment of sewage and last two steps are called secondary treatment of sewage.

6. a. Yeast, **Explanation:** The propionibacterium (yeast) takes in the lactic acid that had been excreted by the other bacteria. Acetate, propionic acid, and carbon dioxide gas are all released. The carbon dioxide creates the bubbles that shape the holes in the cheese. The acetate and the propionic acid give the flavor to the Swiss cheese
7. c. Fermentation tank, **Explanation:** Bioreactor is a fermentation tank in which fermentation is carried out regularly. This tank is fitted with instruments that control the optimal temperature and pressure required for fermentation.
8. The ladybird and dragonflies are useful to get rid of aphids and mosquitoes.
9. Sewage treatment is the process of removing contaminants from wastewater, primarily from household sewage. It includes physical, chemical, and biological processes to remove these contaminants and produce environmentally safer treated wastewater.
physical processes employed in the primary treatment of sewage are Filtration and Sedimentation.
10. Oscillatoria
11. The municipal waste water with large amount of human excreta and other organic wastes is called sewage. Harmful effect: It contains a number of pathogenic microbes, which cause many water borne diseases. It may cause depletion of dissolved O_2 in the water body.
12. Propionibacterium shermanii is responsible for the ripening of Swiss cheese and the production of its characteristic taste and large gas bubbles.
The "eye formation" are due to CO_2 bubbles that create the holes in the cheese.
Contribute greatly to the taste and aroma of these types of cheeses
- 13.

	Primary sewage treatment	Secondary sewage treatment
1.	It is a physical method of treatment	It is a biological method of treatment
2.	It involves in removal of large particles and floating materials such as leaves, papers, rags, solids such as sand, grit and oily substances	It involves the removal of fine suspended and dissolved organic matter.
	It makes the used of sedimentation	It makes the use of aerobic or anaerobic

3.	and filtration process	biological units
4.	It is relatively simple and less time consuming process	It is relatively complex and takes a long time for its completion

14. Biological oxygen demand (BOD) is the method of determining the amount of oxygen required by micro-organisms to decompose the waste present in the water supply. If the quantity of organic wastes in the water supply is high, then the number of decomposing bacteria present in the water will also be high. As a result, the BOD value will increase.

Therefore, it can be concluded that if the water supply is more polluted, then it will have a higher BOD value. Out of the above three samples, sample C is the most polluted since it has the maximum BOD value of 400 mg/L. After untreated sewage water, secondary effluent discharge from a sewage treatment plant is most polluted. Thus, sample A is secondary effluent discharge from a sewage treatment plant and has the BOD value of 20 mg/L, while sample B is river water and has the BOD value of 8 mg/L.

Hence, the correct label for each sample is:

Label	BOD value	Sample
A.	20 mg/L	Secondary effluent discharge from a sewage treatment plant
B.	8 mg/L	River water
C.	400 mg/L	Untreated sewage water

15. Biofertilisers

- They are organisms that enrich the nutrient quality of the soil.
- They provide almost all the nutrients, but slowly.

Fertilizers

- They are synthetic chemicals add to soil to supply specific nutrients.
- They supply only the specific nutrient, but immediately after application.

Rhizobium lives in the root nodules of leguminous plants and fixes the atmospheric nitrogen into those form of nitrogen compounds that can be utilized by the plants.