CBSE Test Paper 05

Ch-10 Microbes in Human Welfare

1. Which of the following microbes cannot be grown into nutritive media?
   a. Yeast
   b. Bacteria
   c. Fungi
   d. Virus
2. Ethanol is commercially produced through a particular species of
   a. Clostridium
   b. Saccharomyces
   c. Aspergillus
   d. Trichoderma
3. The most common fungal partners of mycorrhiza are _____ species.
   a. Azolla
   b. Azotobacter
   c. Glomus
   d. Frankia
4. Organisms called Methanogens are most abundant in a
   a. Cattle yard
   b. Hot spring
   c. Sulphur rock
   d. Polluted water
5. Cyanobacteria serves as important biofertilizers in the fields of
   a. Wheat
   b. Rice
   c. Maize
   d. Sugarcane
6. Azolla is used as a biofertilizers because it
   a. Has association of nitrogen fixing Rhizobium
   b. Has association of mycorrhiza
   c. Multiplies very fast to produce massive
   d. Has association of nitrogen fixing Cyanobacteria

7. An important drug is obtained from the bark of
   a. Withania
   b. Papaver
   c. Momordica
   d. Cinchona

8. Name the blank spaces a, b, c and d in the table given below:

Types of microbes	**Scientific name**	**Commercial Product**
Bacterium	a	Clot buster enzyme
b	Aspergillus niger	citric acid
Fungus	trichoderma Polysporum	c
bacterium	d	Butyric acid

9. The insects which are the so called pests are not eradicated in organic farming. (reason)

10. Write the scientific name of the microbe used for fermenting malted cereals and fruit juices.

11. Name two acid producing bacteria.

12. Name the blank spaces a, b, c and d in the table given below:

Types of Microbes	**Name**	**Commercial product**
Fungus	a	Penicillin
Bacterium	Acetobacter aceti	b
c	aspergillus niger	citric acids
yeast	d	ethanol

13. What is the use of aeration tank in the treatment of sewage?

14. What are biofertilizers? Name the two elements which are made available by them.

15. Microbes play a dual role when used for sewage treatment as they not only help to retrieve usable water but also generate fuel. Write in points how this happens.

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Answer

1. d. Virus, **Explanation:** Virus cannot be grown into nutritive medium because it lacks all cellular apparatus required for reproduction. It reproduces using cellular apparatus of host cell.
2. b. Saccharomyces, **Explanation:** Saccharomyces is an yeast which is used to ferment sugar to produce ethanol in absence of oxygen or by anaerobic respiration.
3. c. Glomus, **Explanation:** Mycorrhiza is symbiotic association between fungus and angiosperms. The most common fungal partners of mycorrhiza are Glomus species.
4. a. Cattle yard, **Explanation:** Methanogens is present in cow dung that produces methane gas. It is most common in cattle yard that provide unique smell in surrounding areas.
5. b. Rice, **Explanation:** Rice field contain water all the time. In this water Cyanobacteria grows easily that have ability to fix atmospheric nitrogen into nitrates and nitrites that increase the fertility.
6. a. Has association of nitrogen fixing Cyanobacteria, **Explanation:** Azolla is used as a biofertilizers because it has association of nitrogen fixing Cyanobacteria. They increase the fertility of soil without any chemical fertilizers.
7. a. (d) Cinchona, **Explanation:** From the bark of Cinchona an important drug is obtained which is used to treat malaria. The drug named quinine has ability to plasmodium protozoa that cause malarial disease in human beings.
8. a. Streptococcus
   b. Fungus
   c. Cyclosporin A
   d. Clostridium butylicum
9. The insect pests are not eradicated because the beneficial predatory insects and other parasites which depend on these insects can survive.

10. Saccharomyces cerevisiae (yeast)
11. i. Acetobacter aceti species is used for the mass production of Acetic Acid, the main component in vinegar. During the fermentation process of vinegar production, the bacteria, Acetobacter aceti is used to act on wines and ciders resulting in vinegar with Acetic acid.
    ii. Clostridium butylicum produces butyric acid
12. a. Penicillium notatum
    b. Acetic acid
    c. Fungus
    d. Saccharomyces cerevisiae
13. Aeration tank is meant for agitating the liquid effluent from the primary settling tank, where the air is allowed to pass through agitating mixture to make it aerobic. The activated sludge process is the most common option in secondary treatment. Aeration in an activated sludge process is based on pumping air into a tank, which promotes the microbial growth in the wastewater. The microbes feed on the organic material, forming flocs which can easily settle out.
14. Biofertilizers are defined as preparations containing living cells or latent cells of efficient strains of microorganisms that help crop plants' uptake of nutrients by their interactions in the rhizosphere when applied through seed or soil. Biofertilizers are added to soil to increase its fertility. Nitrogen and phosphorus elements are added by biofertilizers.
15. Heterotrophic microbes naturally present in sewage are used. Vigorous growth of aerobic microbes as flocs use up organic matter in effluent and reduce BOD of waste water. Other kinds of bacteria grow in it anaerobically and digest the bacteria and fungi called flocs. As they digest flocs, as mixture of $CH_4, H_2S and CO_2$ (biogas) are evolved which can be used as a fuel.