CBSE Test Paper 04 Ch-10 Microbes in Human Welfare

- 1. The most abundant prokaryotes helpful to humans in making curd from milk and in production of antibiotics are the ones categorized as
 - a. Heterotrophic bacteria
 - b. Cynobacteria
 - c. Chemosynthetic autotrophs
 - d. Archaebacteria
- 2. During anaerobic digestion of organic waste, such as in producing biogas, which one of the following is left undergraded?
 - a. Lipids
 - b. Lignin
 - c. Cellulose
 - d. Hemi-cellulose
- 3. Treatment of waste water is done by
 - a. Heterotrophic microbes
 - b. Virus
 - c. Protozoa
 - d. Autotrophic microbes
- 4. Which of the following infectious disease cannot be controlled by antibiotics
 - a. Whooping cough
 - b. Diphtheria
 - c. Common cold
 - d. Pneumonia
- 5. Morphine, which is used as an analgesic is obtained from
 - a. Papaver somniferum
 - b. Cinchona officinalis
 - c. Berberis nilghiriensis
 - d. Taxus brevifolia
- 6. One of the free-living anaerobic nitrogen-fixer is
 - a. Rhodospirillum
 - b. Beijerinckia

- c. Azotobacter
- d. Rhizobium
- 7. The discovery that led to development of first antibiotic was made by
 - a. Pasteur
 - b. Flemming
 - c. Jenner
 - d. Pauling
- 8. Name a bioactive molecule used as immuno suppressive agent in organtransplantation.
- 9. Name a yeast used in beverages as well as bread making.
- 10. Bottled fruit juices brought from the market are clearer as compared to those made at home. (give reason)
- 11. Give examples to prove that microbes release gases during metabolism.
- 12. What is LAB? What is its role in human stomach?
- 13. What are biopesticides? Give the scientific name and the use of the first commercially used biopesticide in the world?
- 14. Do you think microbes can also be used as source of energy? If yes. How?
- 15. What are flocs? State their role in effluent treatment and their ultimate fate in sewage treatment tank.

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Answer

- a. Heterotrophic bacteria, Explanation: Heterotrophic bacteria are prokaryotic unicellular microbes that obtain their food from other organism or live as parasite. These bacteria are helpful to humans in making curd from milk and in production of antibiotics.
- b. Lignin, Explanation: During anaerobic decomposition of organic wastes by bacteria biogas is produced but lignin do not get decomposed by these bacteria and left over in biogas plants.
- a. Heterotrophic microbes, Explanation: Treatment of waste water is done by the heterotrophic microbes naturally present in the sewage. This treatment is carried out in two stages: primary treatment and secondary treatment.
- c. Common cold, Explanation: Common cold is an infectious disease caused by virus. It cannot be controlled by antibiotics as antibiotics are not effective against viral disease.
- a. Papaver somniferum, Explanation: Morphine is a very common drug used as analgesic or painkiller especially for patient undergone surgery. It is obtained from Papaver somniferum or opium poppy is a species of plant from which opium and poppy seeds are obtained.
- a. Rhodospirillum, Explanation: Rhodospirillum is a free living anaerobic nitrogen-fixer. Rhizobium lives as symbiotic with leguminous plants and Azotobacter and Beijerinckia are symbiotic nitrogen fixer.
- 5. Flemming, Explanation: The discovery of first antibiotic was related to A.Flemming observations about the secretion of some chemicals from Penicillium notatum that prohibited the growth of bacteria.
- 8. Cyclosporin-A
- 9. Both baker's and brewer's yeast are products of a one-celled fungus called Saccharomyces cerevisiae
- 10. The fruit juices available in the market (the bottled ones) are made clarified by

treating them with the enzymes - pectinases and proteases. So, they are clearer as compare to those made at home.

- 11. The dough, which is used for making dosa and idli is fermented by bacteria. After fermentation the dough shows puffed appearance due to the production of CO_2 gas.
- 12. Lactic Acid Bacteria (LAB) or Lactics constitute a diverse group of microorganisms associated with plants, meat, and dairy. They are used in the manufacture of dairy products such as acidophilus milk, yogurt, buttermilk, and cheeses.

Role of LAB in human stomach: lactic acid bacteria have a number of wellestablished benefits. They can improve lactose digestion, play a role in preventing and treating diarrhea and act on the immune system, helping the body to resist and fight infection. It play a very beneficial role in checking disease-causing microbes

13. Biopesticides are those biological agents that are used for control of weeds/ insect pathogens.

- Bascillus thuringiensis (Bt)

- Use: It produces insecticidal cry protein which can kill larvae of certain insects e.g. bollworm

- 14. Yes, microbes can be used as a source of energy. Bacteria such as Methane bacterium is used for the generation of gobar gas or biogas. The generation of biogas is an anaerobic process in a biogas plant, which consists of a concrete tank (10–15 feet deep) with sufficient outlets and inlets. The dung is mixed with water to form the slurry and thrown into the tank. The digester of the tank is filled with numerous anaerobic methane-producing bacteria, which produce biogas from the slurry. Biogas can be removed through the pipe which is then used as a source of energy, while the spent slurry is removed from the outlet and is used as a fertilizer.
- 15. Flocs are meshlike structures, formed due to the association of aerobic bacteria and fungal filaments. While growing, they consume large amount of organic matter in the effluent reducing BOD. The effluent in then passed into a settling tank, where the bacterial flocs are allowed to sediment for activated sludge. A small part of the activated sludge is pumped back into the serration tank to serve as the inoculums. The remaining major part of the sludge is pumped into large tanks, where the anaerobic bacteria digest the bacteria and fungi in the sludge and they produce bio gas.