

BIJENDRA PUBLIC SCHOOL, PURNEA

Class : 8

Subject : Science

Chapter 2 Microorganisms and Viruses

Friend and Foe

A. Very Short Answer Questions.

1. Name two typical habitats of microorganisms.

Ans. Air and water

2. Name a disease caused by bacteria.

Ans. Tuberculosis

3. Name the microorganism that is used for obtaining alcohol from sugar.

Ans. Yeast

4. Name one carrier of disease - causing microorganism.

Ans. Malaria is caused by the protozoan plasmodium and spread by female Anopheles (carrier).

5. Where do the external parasites of animals live?

Ans. External parasites of animals mainly live on the skin.

B. Short Answer Questions.

1. What are the general characteristics of microorganism?

Ans. Some general characteristics of microorganisms are:-

i. A microorganism may occur as a single cell or a collection of cells.

ii. They are very small in size and can't be seen with naked eyes.

iii. Microorganisms are found everywhere in the air, in water, in the soil and inside the bodies of other living organism.

iv. They are capable of existing in extreme conditions of temperatures and dryness.

2. How do the blue green algae and symbiotic bacteria convert atmospheric nitrogen into nitrogen compounds?

Ans. Blue green algae and symbiotic bacteria convert free nitrogen into nitrogenous compounds such as ammonia, nitrate with the help of enzyme nitrogenase.

3. What is fermentation? Describe the commercial use of microorganism.

Ans. The enzymatic break down of large organic molecules into smaller ones in the absence of air is called fermentation.

Certain microorganism are used as a commercial purposes such as for the manufacture of alcohol from sugar or starch and wine from fruit juices in industry.

4. What are the symptoms of food poisoning? Name two microorganisms which cause food poisoning.

Ans. Symptoms of food poisoning are:-

i. Headache

ii. Fever

iii. Vomiting

iv. Diarrhoea

The two microorganisms which cause food poisoning are:

i. Clostridium botulism

ii. Aspergillus etc.

5. What is meant by food preservation? Name two food preservatives used for preserving fruit juices, jams and jellies.

Ans. The process by which spoilage of perishable foods is prevented by using physical or chemical methods is called food preservation.

Sodium benzoate is the chemical preservative used to preserve fruit juices and potassium metabisulphite (chemical preservative) used for preserving jams and jellies etc.

C. Long Answer Type Questions.

1. Write the beneficial action of:

a. Bacteria b. Fungi c. Algae

Ans. a. Bacteria : Beneficial action of certain bacteria are:

- i. The bacterium, Lactobacillus helps in the formation of curd from milk.
- ii. The bacterium, Renin is used in cheese production.
- iii. The bacterium, Rhizobium is helpful in nitrogen fixation.
- iv. Certain bacteria is also useful for the formation of antibiotics.

2. Describe the natural fixation of nitrogen.

Ans. There are two ways of natural fixation of nitrogen:

- i. By symbiotic bacteria: There are certain symbiotic bacteria such as Rhizobium can take up atmospheric nitrogen and convert it into nitrates that get mixed up with the soil.
- ii. During lightning : When lightning strikes, nitrogen and oxygen of the air react to form nitric acid. And this nitric acid comes with rain on the ground and reacts with limestone in the soil to form nitrates.

3. How do microorganism cleanse the environment?

Ans. Certain microorganism plays an important role to cleanse the environment. Such microorganism decompose the dead organic waste of plants and animals into simpler and harmless substances. The simpler substances get mix with the soil and used by other plants.

4. Name the causative microorganism which causes:

- a. Rust in wheat
- b. Blast in paddy
- c. Yellow - vein mosaic in Bhindi (okra)

Ans. a. Rust in wheat : The causative microorganism of rust in wheat is Fungi.
b. Blast in paddy : The causative microorganism of this disease is Fungi.
c. Yellow - vein mosaic in Bhindi (okra) : The causative microorganism of this disease is Virus.

D. Tick (✓) the odd - one out giving reason.

1. Bacteria, Fungi, Virus, Algae, Protozoa

Ans. Virus : Viruses are the submicroorganisms that have the characteristics of both the living and nonliving things and rest has the characteristics of living thing.

2. Milk, Curd, Renin, Lactobacillus.

Ans. Renin is odd one because lactobacillus is used for the formation of curd from milk.

3. Anaerobic bacteria, Blue green algae, Animals dung, Biogas.

Ans. The odd one is blue green algae because Anaerobic bacteria, Animal dung and Biogas are associated with the biogas plant whereas Blue green algae not.

4. Skin disease, Malaria Dysentery, Giardiasis.

Ans. Skin disease is odd one because it is caused by Fungi while others are caused by protozoa.

5. Salt, Sugar, Oil, Clostridium botulinum, Sodium metabisulphite.

Ans. Clostridium botulinum is odd one and the rest are used as a food preservative.

E. Define the following terms.

1. Food poisoning

2. Nitrogen Cycle

3. Pasteurization

Ans.

1. Food poisoning :

It is kind of illness mainly caused by eating contaminated food. Sometimes food get spoiled due to enzymatic action present in it or due to growth of bacteria and fungi. When it is consumed by a person then it is responsible for the food poisoning.

2. Nitrogen Cycle:

Nitrogen cycle is a cyclic process in nature by which nitrogen is changed into many different forms that are used by living organisms and again back into the atmosphere. It involves several processes such as nitrogen fixation, nitrification, denitrification, decay and putrefaction.

3. Pasteurization:

Pasteurization is a method of food preservation which was first developed by French scientist Louise Pasteur. By this method we preserve milk. In this method, milk is heated to about 60-65°C for about 30 minutes to kill the bacteria present in it and then cooling it quickly to prevent the remaining bacteria from growing.

HOTS - Higher Order Thinking Skills:

1. Why is virus not included in the category of microorganism?

Ans. Viruses are not included in the category of microorganism because they do not have their own entity, they behave like both living and non living. They behave as living organism only inside the host body and remain inactive in the environment.

2. Why does curd sets faster in summer than in winter?

Ans. Curd sets faster in summer than in winter because the bacteria need heat to transform the milk into curd. In summer season the optimum temperature can be easily get by bacteria from the environment as comparison to winter season.