

Class – 8th

Chapter -2

Microorganisms : Friend and Foe

Section I

A. Select and tick the correct option :

Ans. 1. a

2. c

3. b

4. d

B. Fill in the blanks :

1. Microbiology is the branch of science that deals with the study of microorganisms.

2. Bacilli is the most common shape of bacteria.

3. The size of viruses ranges from 0.015 to 0.2 microns.

4. Iodine is produced by the marine brown algae called chlorella.

5. A paramecium is covered with short hair-like structures called cilia.

C. Write true or false :

1. true

2. true

3. true

4. false

5. false

D. Match the micro-organisms in column A with their in column B:

1. Bacteria -(g) Producing antibiotics

2. Rhizobium - (a) Fixing nitrogen

3. Lactobacillus - (b) Setting of curd

4. Yeast - (c) Baking of bread

5. A protozoan - (d) Causing malaria

6. A virus -(f) Causing AIDS

7. Penicillium - (e) Causing cholera

Section II

A. Very short answer questions:

1. What are microorganisms?

1. Microorganisms are tiny organisms which can be seen only through a microscope.

2. Microorganisms are classified into which five groups?

2. Microorganisms can be classified into following five groups:- Bacteria , Viruses , Algae, Fungi and Protozoans.

3. Name some diseases caused by viruses in humans.

3. Diseases like poliomyelitis, chicken-pox, AIDS, mumps, common cold, influenza and measles are caused in humans by viruses.

4. Define protozoans.

4. Protozoans are unicellular animals without chlorophyll. Amoeba and paramecium are examples of protozoans.

5. What do you mean by shelf life?

5. The period of time which a food item can be kept before it is too old to be sold is called its shelf life.

B. Short answer questions :

1. Where can we find bacteria?

1. Bacteria are found in all the places wherever life is possible. They are in the air we breathe, the food we eat, and the soil upon which we walk. They are on almost anything we touch. A large number of bacteria also occur in animal and human bodies.

2. What are fungi?

2. Fungi are a large group of organisms. Fungi are plants-like heterotrophs. They are like plants because they are stationary. They heterotrophic because they do not have chlorophyll. They obtain their food from dead organic matter or living organisms.

3. State some harmful effects of fungi.

3. The harmful effects of fungi are as follows:

(a) Decay of wood : Some fungi grow on timber-yielding plants such as sal, teak, deodar, etc. These fungi secrete decomposing enzymes and cause heart rot.

(b) Plant diseases : Some fungi infect many economically important plants and minimize the yield of food considerably. For example, potato blight ,rust of wheat etc.

4. What is food preservation?

4. Food preservation is the process of treating food in order to slow down or stop its spoilage, thereby maintaining its nutritive value, texture and flavour.

5. Define the process of freeze – drying.

5. In freeze-drying, food is frozen and kept in vacuum . In vacuum, water sublimates, that is changes from the solid to gaseous state directly. This process is used to make instant coffee and store fruits such as apples.

C. Long answer questions :-

1. With the help of an activity prove that water is full of living organisms.

1. This can be proved by the given activity:

Observation of microorganisms present in water

- Collect water from different sources, like drain, well, canal, lake, pond and river in clean glass test tubes.

- Allow these samples to settle down.

- Observe first with naked eye and then with a with a magnifying glass.

- Put a drop of water (from each sample one by one) on a glass slide and observe it under a microscope.

What do you observe?

- You will observe that many small organisms may be seen under a microscope. These organisms could not be when observed through the naked eye.

2. Give an account of harmful effects of bacteria.

2. Some of the harmful effects of bacteria are as follows:

(a) Food poisoning : Numerous bacteria are found in the food preparations. Some of these excrete toxic substances and cause food poisoning.

(b) Human diseases : Many bacteria are parasites which infect the human body and cause various diseases. These include tetanus, tuberculosis, diphtheria, anthrax, leprosy, etc.

(c) Plant diseases : Many plant diseases are caused by bacteria. Blight of paddy, citrus canker, soft rot, bacterial rot etc., are some diseases caused by bacteria.

3. State the economic importance of algae.

3. Economic importance of algae is as follows:

- Aquatic as well as terrestrial animals including human beings consume green algae as food.

- Brown algae specially the kelps and red algae are used as fodder.

- Many brown algae when added in land increase the fertility of the soil.

- Some blue-green algae fix the atmospheric nitrogen
- Algae like Chlorella are used in fish cultivation
- Agar-agar, a gelatin-like substance, is used as a solidifying agent in the preparation of medicines and some food products.

4. Describes the types of protozoans.

4. Protozoans are classified according to the way they move. Some protozoans move by changing their shape, some move using cilia, while the others move using flagella.

An Amoeba moves by changing its shape sending out pseudopodia which is finger-like projections in its body. A pseudopodium forms in any direction. Thus, Amoeba moves in that direction. Amoebas also used pseudopodia to obtain food, which may be other protests or dead matter.

A paramecium is covered with short hair-like structures called cilia. It uses cilia for movement. It moves through water by beating its cilia. Along one side of a paramecium is a groove lined with cilia. Food enters the cell along the groove. The food is digested inside vacuoles.

5. Describe any two methods of food preservation.

5. Two methods of food preservation are :

Refrigeration and Freezing : Refrigeration at low temperatures is a method that slows down the activity of microorganisms. Bacteria and fungi cannot thrive at low temperatures as enzymes remain inactive at a low temperature. Therefore, food takes a longer time to decay and its nutritive value is also preserved for long. Freezing is used for preserving fresh fruits, vegetables, meat and fish. Freezing food is a common method of food preservation.

Canning : Storing the cooked and sterilised in air-tight containers is another method of preserving it. Since canning makes the food completely sterile, it does not decay until the can (sealed container) is opened. James, pickles, fish, vegetables, etc. are canned and sold in the market.