



## Microorganisms: Friend and Foe

### Question 1.

Fill in the blanks.

- (a) Microorganisms can be seen with the help of a \_\_\_\_\_
- (b) Blue-green algae fix \_\_\_\_\_ directly from the air to enhance the fertility of soil.
- (c) Alcohol is produced with the help of \_\_\_\_\_
- (d) Cholera is caused by \_\_\_\_\_

Answer:

- (a) microscope
- (b) nitrogen
- (c) yeast
- (d) bacteria

### Question 2.

Tick the correct answer.

- (a) Yeast is used in the production of
  - (i) sugar
  - (ii) alcohol
  - (iii) hydrochloric acid
  - (iv) oxygen

Answer:

- (ii) alcohol

- (b) The following is an antibiotic:

- (i) sodium bicarbonate
- (ii) streptomycin
- (iii) alcohol
- (iv) yeast

Answer:

- (ii) streptomycin

- (c) Carrier of malaria-causing protozoan is:

- (i) female Anopheles mosquito
- (ii) cockroach
- (iii) housefly
- (iv) butterfly

Answer:

- (i) female Anopheles mosquito

- (d) The most common carrier of communicable diseases is

- (i) ant
- (ii) housefly
- (iii) dragonfly
- (iv) spider

Answer:

(ii) housefly

(e) The bread or idli dough rises because of:

(i) heat

(ii) grinding

(iii) growth of yeast cells

(iv) kneading

Answer:

(iii) growth of yeast cells

(f) The process of conversion of sugar into alcohol is called

(i) nitrogen fixation

(ii) moulding

(iii) fermentation

(iv) infection

Answer:

(iii) fermentation

Question 3.

Match the organisms in column A with their action in column B.

| A                   | B                        |
|---------------------|--------------------------|
| (i) Bacteria        | (a) Fixing nitrogen      |
| (ii) Rhizobium      | (b) Setting of curd      |
| (iii) Lactobacillus | (c) Baking of bread      |
| (iv) Yeast          | (d) Causing malaria      |
| (v) A protozoan     | (e) Causing cholera      |
| (vi) A virus        | (f) Causing AIDS         |
|                     | (g) Producing antibodies |

Answer:

(i) (e)

(ii) (a)

(iii) (b)

(iv) (c)

(v) (d)

(vi) (f)

Question 4.

Can microorganisms be seen with the naked eye? If not, how can they be seen?

Answer:

The microorganisms cannot be seen with our naked eyes because they are very small in size. Some of these, such as fungus growing on bread, can be seen with a magnifying glass. Others cannot be seen without the help of a microscope.

Question 5.

What are the major groups of microorganisms?

Answer:

Microorganisms are classified on the basis of their size into four major groups. These groups are:

- (a) Bacteria
- (b) Fungi
- (c) Protozoa
- (d) Some algae

Question 6.

Name the microorganisms which can fix atmospheric nitrogen in the soil.

Answer:

Rhizobium, Clostridium and Azotobacter.

Question 7.

Write 10 lines on the usefulness of microorganisms in our lives.

Answer:

Microorganisms are useful to us in many ways. For example,

- Bacteria like Lactobacillus convert milk into curd.
- Bacteria are also involved in the making of cheese.
- Acetobacter aceti is used for producing acetic acid from alcohol.
- Yeast is used in the commercial production of alcohol, wine and bakery products.
- Some specific microorganisms are helpful in manufacturing of antibiotics.
- Microorganisms act as cleansing agents and decompose the waste products into manure.
- Dead or weakened microbes are used in the preparation of vaccines.
- Some bacteria fix atmospheric nitrogen and increase soil fertility.
- Algae, yeast, fungi or bacteria may be used as an ingredient or a substitute for protein-rich foods that are suitable for human or animal consumption.
- Some microorganisms are taken as probiotics, that are believed to provide health benefits when consumed.

Question 8.

Write a short paragraph on the harms caused by microorganisms.

Answer:

Microorganisms are harmful to us in many ways. For example, microorganisms, called pathogens cause disease in humans, plants and animals. Pathogens or germs enter a healthy body through air, water, contaminated food and infected person by direct or indirect contact or by the carrier. Common ailments like cold, influenza (flu), cough, polio, chicken pox are caused by viruses. Foot and mouth diseases in the cattle are also caused by viruses. Typhoid, tuberculosis (TB) are caused by bacteria. Anthrax a dangerous human and cattle diseases is also caused by bacteria.

Diseases like dysentery and malaria are caused by protozoa. Ringworm is caused by fungi. Several microbes cause diseases in plants and thus reduces the yield. Citrus canker, a bacterial disease, affects trees of citrus fruit and is spread by air. Bendi yellow vein mosaic disease is caused by a virus and is spread by insects in lady fingers. Rust of wheat is a fungal disease spread through air. Microorganisms that grow on our food sometimes produce toxic substances. These make the food poisonous causing serious illness and even death. This food-borne illness is called food poisoning.

Question 9.

What are antibiotics? What precautions must be taken while taking antibiotics?

Answer:

Antibiotics are the medicines which kill or stop the growth of the disease-causing microbes. They are manufactured by growing specific microorganisms. They are used to cure a variety of diseases.

It is important to take antibiotic only on the advice of a qualified doctor. One must finish the course prescribed by the doctor to make the drug more effective. Antibiotics must not be taken unnecessarily because it may kill beneficial bacteria also. Antibiotics are, however, not effective against cold and flu as they are caused by viruses.

1 Mark Questions and Answers

Question 1.

Name the bacteria responsible for the disease typhoid.

Answer:

Salmonella typhi.

Question 2.

Chicken pox is caused by ..... virus.

Answer:

Varicella zoster.

Question 3.

..... (disease) is caused by mycoplasma.

Answer:

Pleuropneumonia.

Question 4.

Name the toxin released by T.B. bacteria.

Answer:

Tuberculin toxin is released by T.B. bacteria.

Question 5.

Which microorganism is the cause of malaria?

Answer:

A Protozoan, Plasmodium.

Question 6.

Write two diseases caused by bacteria.

Answer:

Two diseases caused by bacteria are tuberculosis and diphtheria.

Question 7.

Name any two items that are prepared by using yeast.

Answer:

Yeast is used to prepare bread and alcohol.

### Question 8.

Fill in the blanks :

1. Microorganisms can be seen with the help of a .....
2. Blue-green algae fix ..... directly from air to enhance fertility of soil.
3. Alcohol is produced with the help of .....
4. Cholera is caused by .....

Answer:

1. Microscope
2. Nitrogen
3. Yeast
4. Bacteria.

### Question 9.

Tick the correct answer :

- (a) Yeast is used in the production of
  - (i) sugar
  - (ii) alcohol
  - (iii) hydrochloric acid
  - (iv) oxygen.
- (b) The following is an antibiotic
  - (i) Sodium bicarbonate
  - (ii) Streptomycin
  - (iii) Alcohol
  - (iv) Yeast.
- (c) Carrier of malaria-causing protozoan is
  - (i) female anopheles mosquito
  - (ii) cockroach
  - (iii) housefly
  - (iv) Butterfly.
- (d) The most common carrier of communicable diseases is
  - (i) ant
  - (ii) housefly
  - (iii) dragonfly
  - (iv) spider.
- (e) The bread or idli dough rises because of
  - (i) heat
  - (ii) grinding
  - (iii) growth of yeast cells
  - (iv) kneading.
- (f) The process of conversion of sugar into alcohol is called
  - (i) nitrogen fixation
  - (ii) moulding
  - (iii) fermentation
  - (iv) infection.

**Answer:**

- (a) → (ii)
- (b) → (ii)
- (c) → (i)
- (d) → (ii)
- (e) → (iii)
- (f) → (iii)

**Question 10.**

Match the organisms in Column I with their action in Column II.

| Column I          | Column II             |
|-------------------|-----------------------|
| (a) Bacteria      | (i) Fixing nitrogen   |
| (b) Rhizobium     | (ii) Setting of curd  |
| (c) Lactobacillus | (iii) Baking of bread |
| (d) Yeast         | (iv) Causing malaria  |
| (e) A protozoan   | (v) Causing cholera   |
| (f) A virus       | (vi) Causing AIDS     |

**Answer:**

| Column I          | Column II             |
|-------------------|-----------------------|
| (a) Bacteria      | (i) Causing cholera   |
| (b) Rhizobium     | (ii) Fixing nitrogen  |
| (c) Lactobacillus | (iii) Setting of curd |
| (d) Yeast         | (iv) Baking of bread  |
| (e) A protozoan   | (v) Causing malaria   |
| (f) A virus       | (vi) Causing AIDS     |

**Question 11.**

Name the microorganisms which can fix atmospheric nitrogen in the soil.

**Answer:**

Rhizobium, Clostridium md Azotobacter fix atmospheric nitrogen.

**Question 12.**

Can microorganisms be seen with the naked eye ? If not, how can they be seen ?

**Answer:**

No, microorganisms cannot be seen with the naked eye. They can only be seen with the help of microscope.

**Question 13.**

What are the major groups of microorganisms ?

**Answer:**

- Bacteria
- Fungi
- Protozoa
- Algae.

**Question 14.**

What are microorganisms ?

**Answer:**

Microorganisms are organisms that are so small that they can only be seen through a microscope.

**Question 15.**

Name two diseases caused by viruses.

**Answer:**

Influenza and cough.

**Question 16.**

Name two diseases caused by protozoans.

**Answer:**

Dysentery and malaria.

**Question 17.**

Which microorganisms are unicellular ?

**Answer:**

Bacteria and protozoa are unicellular.

**Question 18.**

Name two multicellular microorganisms.

**Answer:**

Algae and fungi are multicellular.

**Question 19.**

Name the bacterium used for production of acetic acid from alcohol.

**Answer:**

Acetobacter aceti.

**Question 20.**

Define fermentation.

**Answer:**

The process of conversion of sugar into alcohol is called fermentation.

**Question 21.**

Why antibiotics are not effective against cold and flu ?

**Answer:**

Cold and flu are caused by viruses, so the antibiotics are not effective against them.

**Question 22.**

What are antibodies?

**Answer:**

When a disease carrying microbe enters our body, the body produces antibodies to fight the invader.

**Question 23.**

Name two diseases which can be prevented by vaccination.

**Answer:**

Cholera and tuberculosis can be prevented by vaccination.

**Question 24.**

Name the diseases for which oral drops are given as vaccination.

**Answer:**

Polio.

**Question 25.**

What are biological nitrogen fixers?

**Answer:**

Some bacteria and blue-green algae are able to fix nitrogen from the atmosphere to enrich soil with nitrogen and increase fertility, are known as biological nitrogen fixers.

**Question 26.**

What are pathogens?

**Answer:**

Diseases-causing microorganisms are called pathogens.

**Question 27.**

What are communicable diseases?

**Answer:**

Microbial diseases which can spread from an infected person to a healthy person through air, water, food or physical contact are known as communicable diseases.

**Question 28.**

Name two communicable diseases.

**Answer:**

Chicken pox and tuberculosis.

**Question 29.**

Name two carriers of disease-causing microbes.

**Answer:**

Housefly and female Anopheles mosquito.

**Question 30.**

Name the causative microorganism of tuberculosis and its mode of transmission.

**Answer:**

Causative microorganisms – Bacteria.

Mode of transmission – Air.

**Question 31.**

How are cholera and typhoid transmitted?

**Answer:**

Cholera is transmitted through water or food.

Typhoid is transmitted through water.

**Question 32.**

Which microorganism causes foot and mouth disease of cattle?

**Answer:**

Virus.



**Question 33.**

Name one plant disease caused by bacteria and its mode of transmission.

**Answer:**

Citrus canker is caused by bacteria and transmitted through air

**Question 34.**

Name one plant disease transmitted by insects and caused by virus.

**Answer:**

Yellow vein mosaic of bhindi.

**Question 35.**

Name one plant disease caused by fungi and its mode of transmission.

**Answer:**

Rust of wheat. It is transmitted through air and seeds.

**Question 36.**

What is meant by food poisoning ?

**Answer:**

Food poisoning is caused by consuming food that has been spoilt by some microorganisms.

**Question 37.**

What are preservatives?

**Answer:**

Chemicals (salts, etc.) that check the growth of microorganisms are called preservatives.

**Question 38.**

How are pickles preserved?

**Answer:**

Pickles are preserved by adding salt or acid.

**Question 39.**

Name the chemicals used to preserve jams and squashes.

**Answer:**

Sodium benzoate and sodium metabisulphite are added to jams and squashes to preserve them.

**Question 40.**

How are meat and fish preserved?

**Answer:**

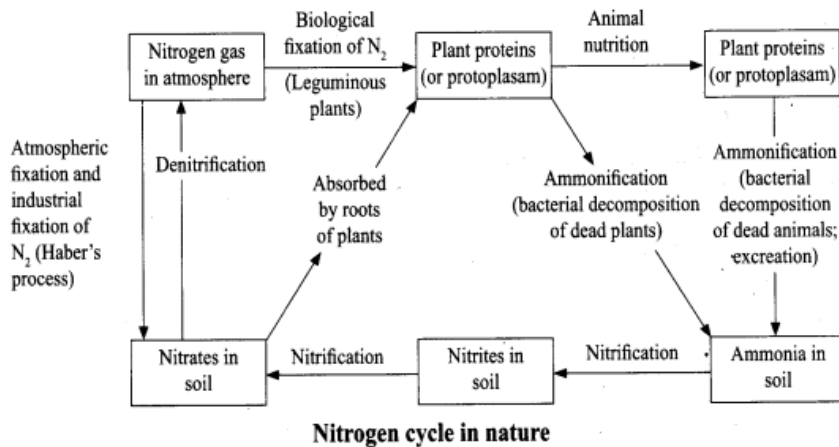
Meat and fish are preserved by covering them with dry salt to check the growth of bacteria.

5 Mark Questions and Answers

**Question 1.**

Describe the nitrogen cycle with the help of a neat and labelled diagram.

Answer:



Question 2.

Write 10 lines on the usefulness of microorganisms in our lives.

Answer:

Microorganisms are useful in our lives in the following ways :

- Bacteria cause the decay of dead plants and animals.
- Nitrogen fixing bacteria convert the atmospheric nitrogen into nitrates.
- Bacteria are used in the production of vinegar, curd, cheese, etc.
- Bacteria are used in sewage disposal plants.
- Scientists have discovered ways to change bacteria so that they produce valuable medical, agricultural and industrial products.

Question 3.

Write a short paragraph on the harms caused by microorganisms.

Answer:

- Microorganisms cause diseases in human beings, plants and animals.
- Microorganisms spoil food and cause food poisoning.

Question 4.

How can we control the spread of malaria or dengue ?

Answer:

All mosquitoes breed in water. Hence, by keeping the surroundings clean and dry, we can prevent mosquitoes from breeding. We should not allow water to collect in coolers, flower pots, etc. We should wear full sleeves shirts in the evenings and at night. We can also use mosquito repellent creams and mosquito nets

### MCQs

Question 1.

Microorganisms exhibiting the characteristics of living and non-living organisms are known as

- (a) bacteria
- (b) virus
- (c) algae
- (d) fungi

Answer:

(b)

Question 2.

A person bitten by dog gets

- (a) malaria
- (b) tetanus
- (c) typhoid
- (d) rabies

Answer:

(d)

Question 3.

Amoebic dysentery is transmitted by

- (a) sneezing
- (b) using contaminated water
- (c) direct contact
- (d) wound

Answer:

(b)

Question 4.

Anthrax in cattle is caused by

- (a) fungi
- (b) virus
- (c) bacteria
- (d) algae

Answer:

(c)

Question 5.

Smut of rice is caused by

- (a) virus
- (b) protozoa
- (c) fungi
- (d) bacteria

Answer:

(c)

Question 6.

Wheat, maize and oats are preserved by

- (a) using sugar and salt
- (b) pasteurisation
- (c) drying
- (d) using chemical preservatives

Answer:

(c)

Question 7.

Jams and jellies are preserved by

- (a) drying
- (b) using chemical preservatives
- (c) using acetic acid
- (d) using heat and cold treatments

Answer:

- (b)

**Question 8.**

Pasteurisation is the method used for preserving

- (a) milk
- (b) jams
- (c) pickles
- (d) grains

Answer:

- (a)

**Question 9.**

Fermentation is the process used for making

- (a) curd
- (b) cheese
- (c) idlis
- (d) chappatis

Answer:

- (c)

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