

# NCERT solution for Microorganisms: Friend and Foe Science

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## Question 1

Fill in the blanks:

- (a) Microorganisms can be seen with the help of a \_\_\_\_\_.
- (b) Blue green algae fix \_\_\_\_\_ directly from air to enhance 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
- (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 3

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

Column I		Column II	
(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

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

### Question 4

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

### Answer

No as they are too small. They can be seen with the help of a magnifying glass or microscope.

### Question 5

What are the major groups of microorganisms?

### Answer

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There are five major groups of micro-organisms:

Bacteria	They are single celled disease-causing micro-organisms. They can be spiral or rod- shaped
Algae	They include multicellular, photosynthetic organisms such as Spirogyra, Chlamydomonas, etc.
Protozoa	They mainly include organisms such as Amoeba, Plasmodium, etc. They can be unicellular or multicellular
Virus	Viruses are disease-causing microbes that reproduce only inside the host organism.
Fungi	They are mostly multicellular disease-causing microbes. Bread moulds are common examples of fungi

### Question 6

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

### Answer

Bacteria such as Rhizobium and certain blue-green algae can fix atmospheric nitrogen in the soil.

### Question 7

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

### Answer

Micro-organisms are too small to be seen through naked eyes.

Here are 10 lines on the usefulness of microorganisms in our lives

- 1) Bacteria present in our intestine helps in proper digestion
- 2) The bacterium Lactobacillus promotes the formation of curd.
- 3) Rhizobium present in the roots of pulse plants fix nitrogen from air and supply nitrogen compounds to the pulse plants.
- 4) Microbes are used to reduce pollution. Some microorganisms decompose the organic waste and dead plants and animals into simple substances and clean up the environment.

- 5) Micro-organisms are also used in winemaking, baking, pickling, and other food making processes.
- 6) Microorganisms are used for the manufacturing of antibiotics. Antibiotics are chemicals produced by micro-organisms to kill bacteria. Penicillin is an antibiotic made from *Penicilium*.
- 7) Alcoholic fermentation by yeast is widely used in the preparation of wine and bread.
- 8) Many vaccines are prepared from micro-organisms. These vaccines are given to children to protect them from disease.
- 9) Certain microbes are also used in the biological treatment of sewage and industrial effluents.
- 10) Yeast is used in making idlis, bhaturas, bread, pastries and cakes.

### Question 8

Write a short paragraph on the harms caused by microorganisms.

### Answer

Micro-organisms cause diseases in animals. In humans, bacteria cause diseases such as cholera, common cold, chicken pox and tuberculosis etc. In animals, the foot and mouth disease in cattle is caused by a virus. Also, several microbes cause diseases in plants. For example, the productivity of wheat, orange, apple, etc. is reduced due to microbial diseases in plants.

Microorganisms that grow on our food sometimes produce toxic substances which are poisonous and cause illness and even death. Some micro-organisms such as fungus spoil our food. For example, bread when left unused under moist conditions gets spoilt by fungus, producing a white cotton-like growth on the bread.

### Question 9

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

### Answer

#### What are Antibiotics

Medicines produced by certain micro-organisms to kill other disease-causing micro-organisms. There are number of antibiotics that are being produced by bacteria and fungi.

#### Precautions to be taken while using antibiotics:

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- 1) Antibiotics should be taken under the supervision of a well-qualified doctor.
- 2) Course of antibiotics should be completed as per the prescription given by the doctor.
- 3) Antibiotics should be taken in the right amount and at the right time. A wrong dose of antibiotics makes the drug ineffective. Also, excessive consumption of drugs may kill the useful bacteria present in our body.

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