



# BIOLOGY

## BOOKS - PEARSON IIT JEE

### FOUNDATION

# MICROORGANISMS - FRIEND AND FOE

## Master Your Test Solved Example

1. What are microorganisms? List their different types.



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2. Discuss three characteristics of microorganisms.



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3. Can microorganisms be seen with the naked eyes? If not, how can they be seen?



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4. How do microbes from colonies?



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5. How do microbes survive in adverse environmental conditions?



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6. Classify bacteria into four types based on their shapes.





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7. What are anaerobic and aerobic bacteria?



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8. Name the unicellular and multicellular forms of algae.



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**9.** What are saprophytic fungi?



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**10.** Name the fungi present on bread mould.



**Watch Video Solution**

**11.** What are filamentous algae?



**Watch Video Solution**

**12.** State how fungi are different from plants.



**Watch Video Solution**

**13.** State one characteristic difference between saprophytic and parasitic fungi.



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**14.** Name one unicellular and macroscopic fungi.



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**15.** Name one filamentous algae.



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**16.** Is spirogyra a plant or animal.



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**17.** Choose the odd one out. Give a reason for your answer.

Yeast, Rhizopus, Penicillium



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**18.** Give common examples of protozoa.



**Watch Video Solution**



**19.** Name few diseases caused by virus in humans and animals.



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**20.** Give one example of protozoan which causes malaria.



**Watch Video Solution**

**21.** What is the proces of fermentation?



**Watch Video Solution**

**22.** Explain the formation of curd from the milk.



**Watch Video Solution**

**23.** What is antibody?



**Watch Video Solution**

**24.** Name some common antibiotics.



**Watch Video Solution**

**25.** What are antigens?



**Watch Video Solution**

**26.** Name some bacteria that convert the nitrogen present in the atmosphere into nitrites and nitrates.



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27. Vaccination protects a person from disease because of



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28. How does Lactobacillus help in the formation of curd?



[Watch Video Solution](#)

**29.** Explain how does Nitrobacter increase the soil fertility.



**Watch Video Solution**

**30.** Explain how diseases such as common cold are transmitted through air.



**Watch Video Solution**

**31.** Name any two diseases each caused by pathogens in plants and animals. Also specify the type of pathogen responsible for each disease.



**Watch Video Solution**

**32.** What are communicable diseases?



**Watch Video Solution**

**33.** What is coronavirus disease?



**Watch Video Solution**

**34.** Explain the process of transmission of malaria and its preventive measures.



**Watch Video Solution**

**35.** What happens when food items that are spoiled by the action of microorganisms are

consumed?



**Watch Video Solution**

**36.** Name two plant diseases which are caused by the action of microorganism.



**Watch Video Solution**

**37.** Name the pathogens responsible for:

(a) Anthrax

(b) Foot and mouth disease



(c) Rust of wheat

(d) Citrus canker



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**38.** Name the mode of transmission in common communicable diseases caused in humans.

(a) Common cold

(b) Cholera

(c) Malaria

(d) Ringworm



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**39.** Name three ways by which disease-causing pathogens can enter our body.



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**40.** List any three methods of food preservation. Why are these methods important?



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**41.** What is pasteurization?



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**42.** Why salt is used to preserve meat, fish, chips and pickles?



**Watch Video Solution**

**43.** Why is perishable food items such as milk and vegetables are often stored in

refrigerators in homes?



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**44.** What are preservatives?



**Watch Video Solution**

**45.** Why is the nitrification process necessary in the nitrogen cycle after ammonification?



**Watch Video Solution**

**46.** Explain how Rhizobium bacteria help in nitrogen fixation.



**Watch Video Solution**

**47.** What is symbiotic relationship?



**Watch Video Solution**

**48.** Explain denitrifying process.



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49. Why it is important for ammonia to be converted into nitrate?



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## Track Your Learning I

1. Microorganisms are \_\_\_\_\_.

A. unicellular

B. multicellular

C. both

D. none of these

**Answer: B**



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2. When microorganisms are made up of just one cell, they are called \_\_\_\_\_.

A. unicellular

B. multicellular

C. both

D. none of these

**Answer: A**



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**3.** Under unfit conditions microbes remain inactive inside till they find the conditions around them fit for survival. The structure is called \_\_\_\_\_.



A. colonies

B. cyst

C. spores

D. none of these

**Answer: B**



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4. \_\_\_\_\_ are non-living organisms.

A. Bacteria

B. Virus

C. Protozoa

D. Algae

**Answer: B**



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5. \_\_\_\_\_ can synthesize their own food.

A. Bacteria

B. Virus

C. Protozoa

D. Algae

**Answer: D**



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6. \_\_\_\_\_ non-green plants. They cannot synthesize their own food. They depend for their food on others.

A. Fungi

B. Protozoa

C. Bacteria

D. Algae

**Answer: A**



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**Track Your Learning li**

1. Spirogyra is \_\_\_\_\_.

A. an algae

B. a fungi

C. a protozoa

D. a bacteria

**Answer: B**



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2. Mushroom belongs to \_\_\_\_\_.

A. algae

B. virus

C. fungi

D. none of these

**Answer: C**



**Watch Video Solution**

**3. Amoeba belongs to \_\_\_\_\_.**

A. algae

B. fungi

C. Protozoa

D. virus

**Answer: C**



**Watch Video Solution**

4. Fungi that consume dead plants and animals are called \_\_\_\_\_ fungi.

A. saprophytic

B. parasitic

C. yeast

D. macroscopic

**Answer: A**



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5. Which microorganism do you not need a microscope to look at?

A. chlamydomonas

B. rhizobium



C. agaricus

D. volvox

**Answer: B**



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## Track Your Learning Iii

1. Viruses that affect bacteria are \_\_\_\_\_.

A. protozoan

B. parasites

C. bacteriophage

D. plasmodium

**Answer: C**



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2. Microorganisms that causes disease are

\_\_\_\_\_.

A. pathogens

B. protozoans

C. algae

D. fungi

**Answer: A**



**Watch Video Solution**

**3.** Trypanosoma is a microbe that belongs to the group of \_\_\_\_\_.

A. bacteriophage

B. protozoans

C. algae

D. fungi

**Answer: B**



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4. \_\_\_\_\_ heterotrophic in nature and do not possess chlorophyll or a cell wall.

A. Protozoans

B. Parasites

C. Fungi

D. Virus

**Answer: A**



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5. \_\_\_\_\_ are believed to be on the borderline between living and non-living things.

A. Virus

B. Bacteria

C. Fungi

D. Algae

**Answer: A**



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**Track Your Learning Iv**

1. Vaccine for small pox is discovered by

-----.

A. Louis Pasteur

B. Alexander Fleming

C. Edward Jenner

D. John Mendal

**Answer: C**



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2. Amount of nitrogen in the atmosphere is

\_\_\_\_\_.

A. 58 %

B. 68 %

C. 78 %

D. 88 %

**Answer: C**



**Watch Video Solution**

**3. Scientist who discovered fermentation is**

\_\_\_\_\_.



A. Alexander Fleming

B. Louis Pasteur

C. John Mendal

D. Edward Jenner

**Answer: B**



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4. Rhizobium bacteria \_\_\_\_\_.

A. help in digestion

B. help in nitrogen fixation

C. cause diseases

D. all of the above

**Answer: B**



**Watch Video Solution**

5. Malaria is caused by \_\_\_\_\_.

A. protozoan

B. virus

C. algae

D. bacteria

**Answer: A**



**Watch Video Solution**

**6. Penicillium is a \_\_\_\_\_.**

A. algae

B. fungus

C. bacteria

D. yeast

**Answer: B**



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7. Which of the following bacteria convert milk into curd?

A. Plasmodium`

B. Yeast

C. Lactobacillus

D. Penicillium

**Answer: C**



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**Track Your Learning V**

1. The dengue virus is spread by the female  
\_\_\_\_\_ mosquito.

A. Anopheles

B. Xanthomonas

C. Aedes

D. Protozoa

**Answer: A**



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2. Anthrax is a disease that affects cattle, while fin rot affects \_\_\_\_\_.

A. fish

B. dog

C. cat

D. fungus

**Answer: A**



**Watch Video Solution**

**3. Name two diseases that spread through water.**

A. Tuberculosis

B. Cholera

C. Malaria

D. Hepatitis B

**Answer: B**



**Watch Video Solution**

**4. Black rust of wheat is caused by**

A. fungus

B. Bacteria



C. protozoa

D. algae

**Answer: A**



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5. COVID-19 infected patients will experience mild to moderate respiratory illness due to \_\_\_\_\_.

A. corona virus

B. protozoa

C. bacteria

D. fungi

**Answer: A**



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**Track Your Learning Vi**

1. \_\_\_\_\_ is important method employed in industries to increase the shelf life of food.

The absence of air ensures a prolonged life of the food product.

A. Vaccum packing

B. Pasteurization

C. Preservatives

D. Storing

**Answer: A**



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2. \_\_\_\_\_, preservation technique, invented by Louis Pasteur, is mainly used in the \_\_\_\_\_ to preserve milk.

A. Pasteurization, Dairy industry

B. Storing, Fruit industry

C. Salting, canning

D. Vaccum packing, Food industry

**Answer: A**



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3. In industries, milk is partially sterilized through a technique known as the \_\_\_\_\_.

A. ultra-heat treatment

B. storing and canning

C. salting

D. preservatives

**Answer: A**



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4. \_\_\_\_\_ is used to preserve food items such as jams, jellies and squashes.

A. Sugar

B. Salt

C. Ultra-heat Treatment

D. Oil

**Answer: A**



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5. Some chemicals such as \_\_\_\_\_ and sodium metabisulphite inhibit the growth of microorganisms

A. sodium benzoate

B. sodium sulphate

C. salt

D. vinegar

**Answer: A**



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1. Rhizobium bacteria and leguminous plants share a \_\_\_\_\_ relationship with each other.

- A. symbiotic
- B. parasitic
- C. commensalism`
- D. mutual

**Answer: A**



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2. Some bacteria, such as \_\_\_\_\_, present in the roots of leguminous plants such as peas and beans, also help convert atmospheric nitrogen into ammonium. These fixations are known as \_\_\_\_\_.

A. Rhizobium, biological nitrogen fixations

B. Protozoa, Nitrification

C. Acetobacter, Ammonification

D. Algae, Denitrification

**Answer: A**



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3. \_\_\_\_\_, the ammonia obtained from the dead in plants and animals is converted into other forms of nitrogen.

A. Atmospheric nitrogen fixation

B. Nitrification

C. Denitrification

D. Biological nitrogen fixation

**Answer: B**



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4. In the process of ammonification, the nitrogen present inside plants and animals in organic form is returned to the soil in the form \_\_\_\_\_.

A. nitrogen oxide

B. nitrogen dioxide

C. ammonia

D. nitrates

**Answer: C**



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5. Leguminous plants such as pea, groundnut and beans play a special role in the process of \_\_\_\_\_.

A. nitrogen fixation

B. ammonification

C. denitrification

D. assimilation

**Answer: A**



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## Hots Higher Order Thinking Skills

1. Why do some people consider viruses as non-living things?



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2. What happens when yeast is added to any dough?



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3. John was not feeling well for last two days after eating out. His stomach was upset, so he went to physician and mentioned his symptoms such as headache, nausea, loss of appetite, and constipation. After checking his

fever doctor conducted Widal test. In his test, John was tested positive for Typhoid Typhoid is a bacterial infection that can lead to a high fever, diarrhea, and vomiting. The bacterium lives in the intestines and bloodstream of humans. It spreads between individuals by direct contact with the feces of an infected person. No animals carry this disease, so transmission is always human to human. Doctor advised him to take clean and hygienic food and prescribed him few medicines.



Read the paragraph and try to answer the questions.

Name the pathogen which is responsible for typhoid.



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person. No animals carry this disease, so transmission is always human to human. Doctor advised him to take clean and hygienic food and prescribed him few medicines.



Read the paragraph and try to answer the questions.

Name the mode of transmission through which pathogen is transferred to human body.



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Read the paragraph and try to answer the questions.

Mention few preventive measures advised during typhoid fever.



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Read the paragraph and try to answer the questions.

Which organ of human body is mainly affected during typhoid fever?



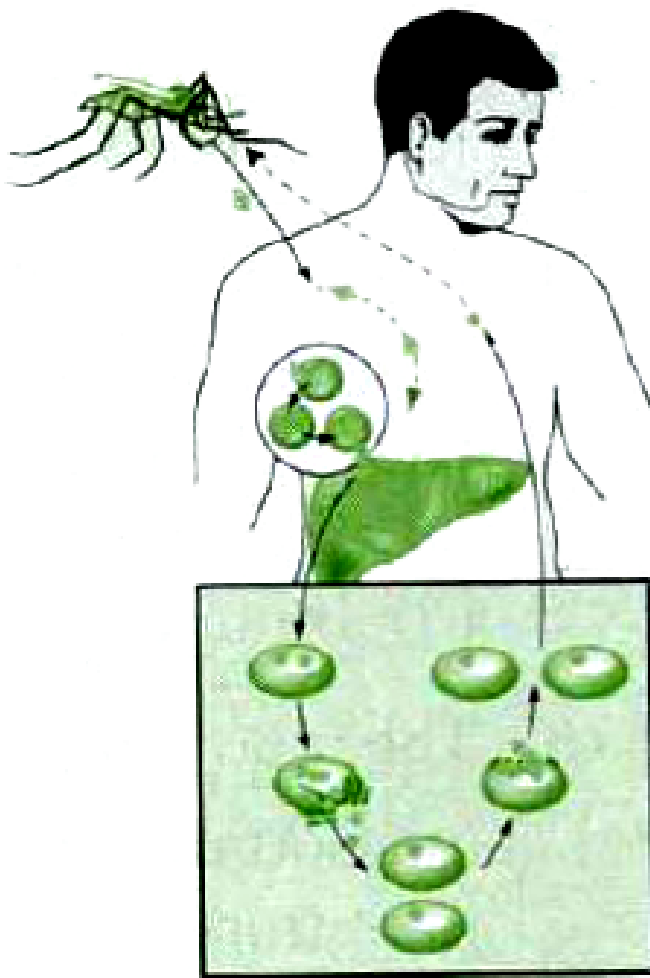
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7. Ishaan, a 11-year-old boy who presented with sustained fever for 10 days. The physical examination revealed a flushed face, stomach upset, and higher fever, muscle pain and fatigue. He informed his doctor that he is



feeling very sick and weak. Physician conducted few tests and confirmed that he is suffering from malarial infection and his liver is infected with the pathogen. The malaria parasites enter that person's bloodstream and travel to the liver. When the parasites mature, they leave the liver and infect red blood cells. Malaria is a disease caused by a parasite. The parasite is transmitted to humans through the bites of infected mosquitoes. People who have malaria usually feel very sick, with a high fever and shaking chills. Doctor advised him to take rest and prescribed few drugs for

affective relief. Also, physician asked John to avoid excess intake of tea, coffee, cocoa and other caffeinated beverage, junk and oily food. It takes about two weeks of treatment to be cured of malaria.



Read the complete passage and try to answer the questions.

Mention few symptoms occurred during malarial fever.



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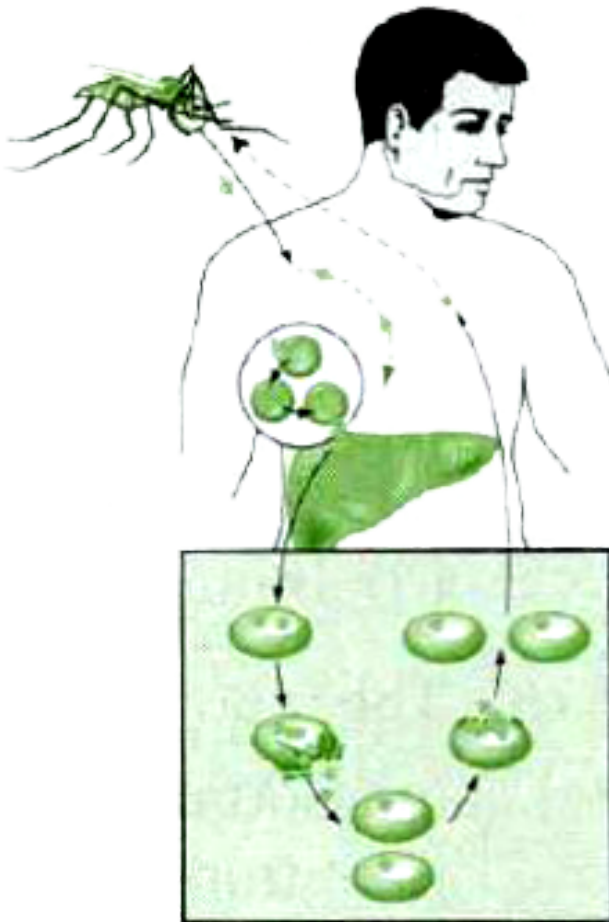
**8.** Ishaan, a 11-year-old boy who presented with sustained fever for 10 days. The physical examination revealed a flushed face, stomach upset, and higher fever, muscle pain and fatigue. He informed his doctor that he is feeling very sick and weak. Physician conducted few tests and confirmed that he is suffering

from malarial infection and his liver is infected with the pathogen. The malaria parasites enter that person's bloodstream and travel to the liver. When the parasites mature, they leave the liver and infect red blood cells.

Malaria is a disease caused by a parasite. The parasite is transmitted to humans through the bites of infected mosquitoes. People who have malaria usually feel very sick, with a high fever and shaking chills. Doctor advised him to take rest and prescribed few drugs for affective relief. Also, physician asked John to avoid excess intake of tea, coffee, cocoa and

other caffeinated beverage, junk and oily food.

It takes about two weeks of treatment to be cured of malaria.



Read the complete passage and try to answer

the questions.

How long does it take to recover from malaria?



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**9.** Ishaan, a 11-year-old boy who presented with sustained fever for 10 days. The physical examination revealed a flushed face, stomach upset, and higher fever, muscle pain and fatigue. He informed his doctor that he is feeling very sick and weak. Physician conducted few tests and confirmed that he is suffering

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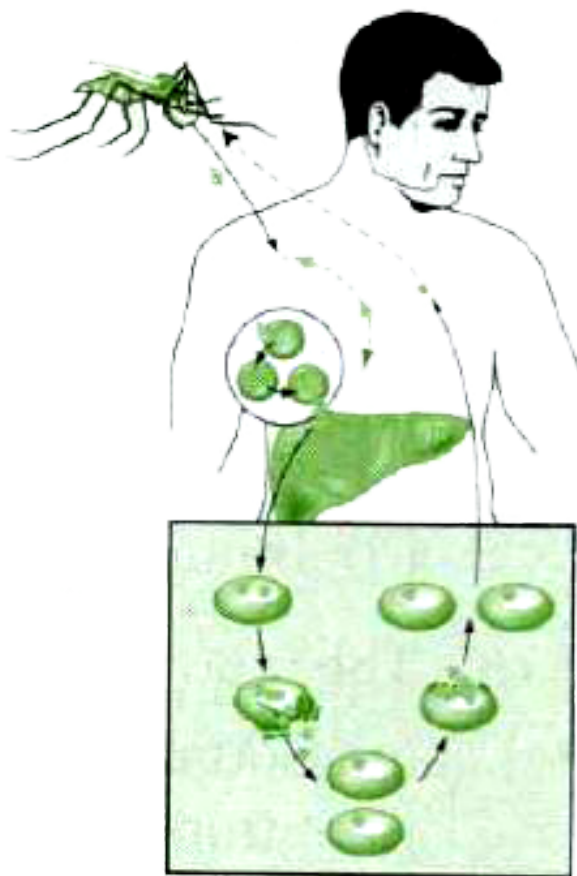
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other caffeinated beverage, junk and oily food.

It takes about two weeks of treatment to be

cured of malaria.



Read the complete passage and try to answer

the questions.

What foods physician asked John to avoid during malarial fever?



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**10.** If you are suffering from common cold, you must always cover our mouth and nose while coughing or sneezing. Think why?



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# Classroom Corner A Very Short Answer Type Questions

1. The process of conversion of sugar into alcohol is called \_\_\_\_\_.

A. nitrogen fixation

B. moulding

C. fermentation

D. infection

**Answer: C**





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2. The bread or idli dough rises because of \_\_\_\_\_.

A. heat

B. grinding

C. growth of yeast cells.

D. kneading

**Answer: C**



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3. The most common carrier of communicable diseases is \_\_\_\_\_.

A. ant

B. housefly

C. dragonfly

D. spider

**Answer: B**



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4. Carrier of malaria-causing protozoan is \_\_\_\_\_.

A. female Anopheles mosquito

B. cockroach

C. housefly

D. butterfly

**Answer: A**



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5. The following is an antibiotic \_\_\_\_\_.

A. sodium bicarbonate

B. streptomycin

C. alcohol

D. yeast

**Answer: B**



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6. Yeast is used in the production of \_\_\_\_\_.

A. sugar

B. alcohol

C. hydrochloric acid

D. oxygen

**Answer: B**



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7. Cholera is caused by \_\_\_\_\_.

A. Bacteria



B. Fungi

C. Virus

D. Protozoan

**Answer: A**



**Watch Video Solution**

**8.** Alcohol is produced with the help of \_\_\_\_\_.

A. Yeast

B. Sugar

C. Lactobacillus

D. Rhizobium

**Answer: A**



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**9. Fill in the blanks:**

Blue green algae fix \_\_\_\_\_ directly from air to enhance fertility of soil.

A. Atmospheric nitrogen

B. Biological nitrogen

C. Ammonia

D. Nitrates

**Answer: A**



**Watch Video Solution**

**10. Roots of which plants bear nodules?**

A. Bean

B. Ladies' fingers

C. Potato

D. Carrot

**Answer: A**



**Watch Video Solution**

**11.** Which microorganism do you not need a microscope to look at?

A. Chlamydomonas

B. Rhizobium

C. Agaricus

D. Volvox

**Answer: C**



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**12. Bacillus anthracis causes**

A. Anthrax disease

B. Cholera

C. Malaria

D. Typhoid

**Answer: A**



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**13.** Louis Pasteur discovered \_\_\_\_\_ in 1857.

A. Fermentation

B. Pasteurization

C. Streptomycin

## D. Tetracyclins

**Answer: A**



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**14.** Edward Jenner discovered the vaccine for \_\_\_\_\_ in 1798.

A. Small pox

B. Polio

C. Typhoid

D. Malaria

**Answer: A**



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**15.** Alexander Fleming found the spores of a little green mould in labs. The presence of mould prevented the growth of bacteria. From this mould, \_\_\_\_\_ was prepared.

A. Streptomycin



B. Tetracyclins

C. Penicillin

D. None of above

**Answer: A**



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**16.** Trypanosoma is a microbe that belongs to the group of \_\_\_\_\_.

A. Algae

B. Protozoa

C. Fungi

D. Virus

**Answer: B**



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17. Anthrax is a diseases that affects cattle, while fin rot affects \_\_\_\_\_.

A. Human

B. Fish

C. Rats

D. Pigs

**Answer: B**



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**18.** Ramya baked a loaf of bread a few days ago and kept it on the kitchen counter. When she looked at the bread today, it looked like the one shown in the picture.



Name the microorganism that helped Ramya bake a fluffy and airy loaf of bread. How did this microorganism help with the process?



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**19.** Ramya baked a loaf of bread a few days ago and kept it on the kitchen counter. When she looked at the bread today, it looked like the one shown in the picture.



Name the microorganism that has grown on

the bread now. What will this microorganism eventually do to the bread?



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**20.** Ramya baked a loaf of bread a few days ago and kept it on the kitchen counter. When she looked at the bread today, it looked like the one shown in the picture.



Is this loaf of bread safe for consumption?

Why or why not?



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**21.** Ramya baked a loaf of bread a few days ago and kept it on the kitchen counter. When she

looked at the bread today, it looked like the one shown in the picture.



Suggest any one food preservation technique that Ramya can employ to keep her bread fresh for a long time in the future.

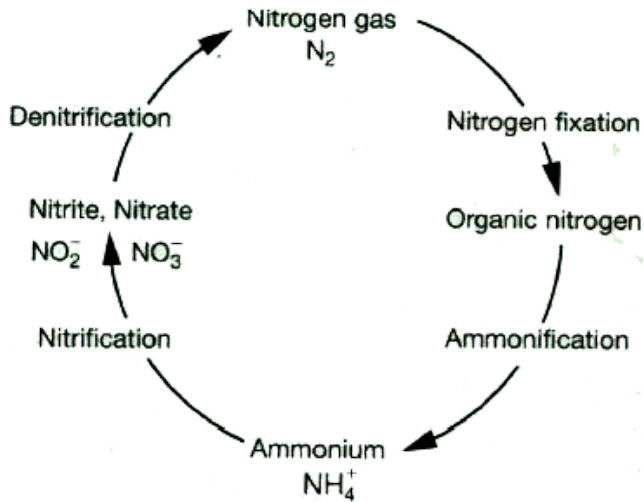


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**22.** Some bacteria and blue green algae present in the soil fix nitrogen from the atmosphere and convert into compounds of nitrogen. Once nitrogen is converted into these usable compounds, it can be utilized by plants from the soil through their root system. On the other hand when plants and animals die, bacteria and fungi present in the soil convert the nitrogenous wastes into nitrogenous compounds to be used by plants again. Thus, due to this nitrogen cycle, the percentage of nitrogen in the atmosphere

remains more or less constant.



Read the complete passage and try to answer the questions

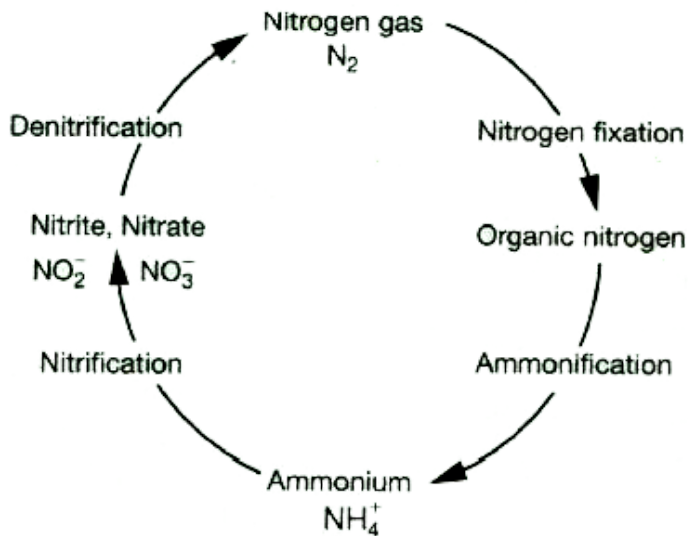
Check the figure and mention basic steps in nitrogen cycle.



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**23.** Some bacteria and blue green algae present in the soil fix nitrogen from the atmosphere and convert into compounds of nitrogen. Once nitrogen is converted into these usable compounds, it can be utilized by plants from the soil through their root system. On the other hand when plants and animals die, bacteria and fungi present in the soil convert the nitrogenous wastes into nitrogenous compounds to be used by plants again. Thus, due to this nitrogen cycle, the percentage of nitrogen in the atmosphere

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Read the complete passage and try to answer the questions

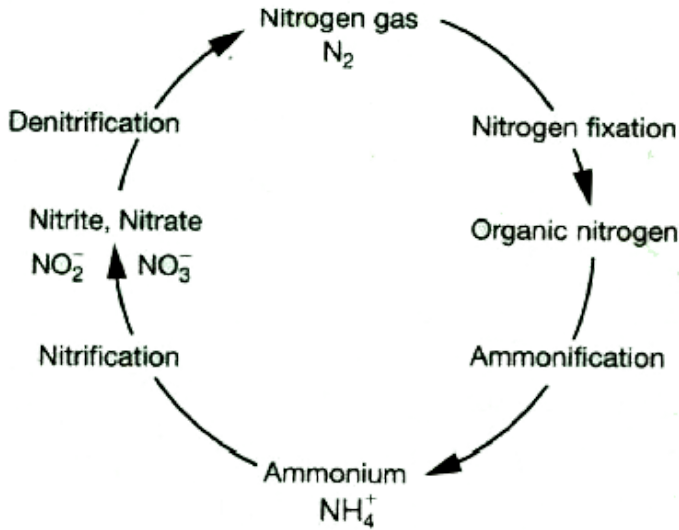
Name some bacteria that help to convert atmospheric nitrogen into ammonium.



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**24.** Some bacteria and blue green algae present in the soil fix nitrogen from the atmosphere and convert into compounds of nitrogen. Once nitrogen is converted into these usable compounds, it can be utilized by plants from the soil through their root system. On the other hand when plants and animals die, bacteria and fungi present in the soil convert the nitrogenous wastes into nitrogenous compounds to be used by plants again. Thus, due to this nitrogen cycle, the percentage of nitrogen in the atmosphere

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Read the complete passage and try to answer the questions

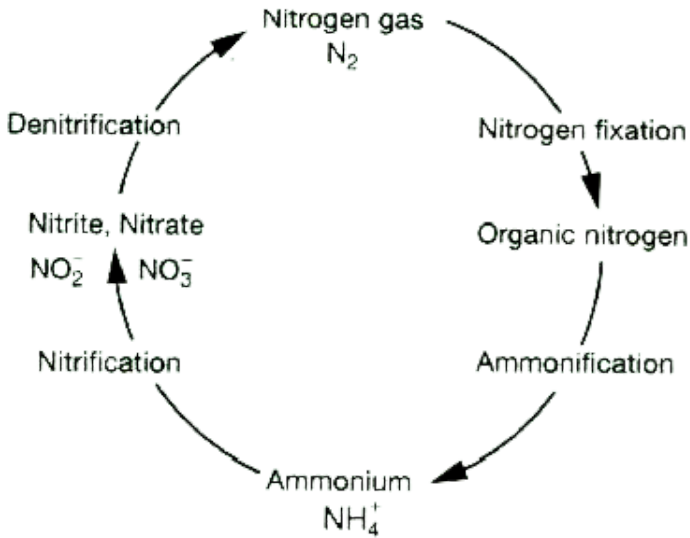
What does microbes do during ammonification?



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**25.** Some bacteria and blue green algae present in the soil fix nitrogen from the atmosphere and convert into compounds of nitrogen. Once nitrogen is converted into these usable compounds, it can be utilized by plants from the soil through their root system. On the other hand when plants and animals die, bacteria and fungi present in the soil convert the nitrogenous wastes into nitrogenous compounds to be used by plants again. Thus, due to this nitrogen cycle, the percentage of nitrogen in the atmosphere

remains more or less constant.



Read the complete passage and try to answer the questions

Why is nitrification important for plants?



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



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**27.** What are the major groups of microorganisms?



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



**Watch Video Solution**

**29.** Explain why viruses cannot be seen using a microscope?



**Watch Video Solution**

**30.** Explain why Protozoa are categorized as heterotrophs?



**Watch Video Solution**

**31.** How the lactic acid produced in milk by Lactobacillus bacteria changes the milk into curd? Justify your answer.



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**32.** Give reasons why meat and fish are usually preserved by adding salt? Comment.



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**33.** Explain how vacuum packing increases the shelf life of food items? Justify your answer.



**Watch Video Solution**

**34.** What are antibiotics? Explain with the help of examples.



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**35.** Name one virus that affects plants and bacteria.



**Watch Video Solution**

**36.** Assertion: Cooling stops microbes from growing.

Reason: A refrigerator keeps food at about  $50^{\circ}C$ .

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

**Answer: b**



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**37.** Assertion : Bacteria are useful in leather industry and jute industry.

Reason : Bacteria separate jute fibres and perform leather tanning.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

**Answer: c**



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**38.** Assertion : Bacteria and fungi are used to make medicines.

Reason : These medicines are used to cure viral diseases.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of

assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

**Answer: a**



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**Classroom Corner B Short Answer Type  
Questions**

1. List any three characteristics of microorganisms.



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2. Mention two characteristics of algae that are similar to plants. Also, give one example of a filamentous alga and explain why it is called so?



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3. What kind of food do saprohytic fungi consume? Explain how these fungi digest this food and obtain nutrition from it? Justify your answer.



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4. What is nitrogen cycle? List the five main process that it is composed of.



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5. What is pasteurization? Explain the process in detail.



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6. Explain how the root nodules of leguminous plants contribute towards nitrogen fixation? Comment.



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7. Microorganisms are both a boon and a bane to the food industry. Do you agree with this statement? Why or why not?



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8. Write a short paragraph on the harms caused by microorganisms.



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**9.** Write few points on the usefulness of microorganisms in our lines.



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**10.** Explain how are microorganisms used in the food industry?



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**11.** What conditions allow microorganisms to multiply in food? Give reason for your answer.



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**12.** Discuss how can microorganisms be helpful to humans?



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**13.** Explain what are the role of microorganisms in soil fertility? Justify your answer.



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**14.** Explain why milk is heated at a temperature greater than  $135^{\circ}C$  for 1 to 2 seconds? Comment.



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**15.** Name three diseases caused in animals by the action of microbes and their mode of transmission.



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**16.** Explain how does vaccine work?



**Watch Video Solution**

**17.** State any four beneficial effects of bacteria.





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18. Name each microorganism shown below.  
Also state the group to which each microorganism belongs.

1.



Microbe:

---

Group:

---

2.



Microbe:

---

Group:

---

3.



Microbe:

---

Group:

---

4.



Microbe:

---

Group:

---



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1. Draw a neat and labelled diagram of the nitrogen cycle.



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2. Complete the table given below with information about various communicable diseases causes in humans, animals

and plants.

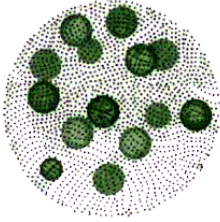
Name of the diseases	Pathogen responsible	Mode of transmission
Chickenpox (affects humans)	_____	_____
Malaria (affects humans)	_____	_____
_____	Fungus	Direct contact with infected person or pets
_____	Bacterium	Grazing
(affects cattle)	_____	_____
Fin rot (affects fish)	_____	_____
Citrus canker (affects _____)	_____	Air
Yellow vein mosaic (affects plants)	_____	_____



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3. Write any three points of difference between the two microorganisms shown

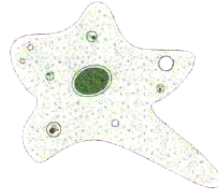
below.



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4. The process of fermentation can be both helpful as well as harmful. Justify the statement using an example.



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5. In terms of the effect it has on the microorganisms present in food items, how is food preservation by heating different from food preservation by cooling? Do you think the heating method is better than the cooling method? Give a reason for your answer.



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6. Between cropping seasons, farmers often plant some cover crops in their fields to

protect the soil from erosion. Out of grass and pea plant, which would be a better choice for a cover crop if there needs to be an improvement in soil fertility? Give a reason for your answer.



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7. Usually food items are preserved by cutting off their air supply using methods such as oiling, canning and vacuum packing. However, packets of chips are usually filled



with a lot of air. Find out what this air consists of and the reasons why chips packets are filled with it.



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**8.** What are antibiotics? What precautions must be taken while taking antibiotics?



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**9.** Discuss how carriers transmit disease from infected to healthy human? Explain in your own words.



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**10.** How do microorganisms spoil food?



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**Competition Corner**

1. What is the process of dehydrating the microbes by adding salt or sugar called?

A. Osmosis

B. Fermentation

C. Pasteurization

D. Ultra-heat treatment

**Answer: A**



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2. Which of these communicable disease is seen in aquatic organisms?

A. Fin rot

B. Anthrax

C. Yellow vein mosaic

D. Foot and mouth disease

**Answer: A**



**Watch Video Solution**

3. How does salt prevent the growth of microbes in food?

- A. By killing microbes
- B. By dehydrating food
- C. By freezing microbes
- D. By increasing food temperature

**Answer: B**



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4. \_\_\_\_\_ is used to preserve food items such as jams, jellies and squashes.

A. Oil

B. Salt

C. Sugar

D. Vinegar

**Answer: C**



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5. What does UHT stand for?

- A. UV-heat Treatment
- B. Ultra-heat Treatment
- C. Under-heat Treatment
- D. Universal-heat Treatment

**Answer: B**



**Watch Video Solution**

6. What is the mode of entry for pathogens causing malaria in human body?

- A. Through air
- B. Through food
- C. Through insects
- D. Through animals

**Answer: C**



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7. Which of these nitrogen cycle processes converts ammonia from dead plants into nitrogen forms?

A. Ammonification

B. Denitrification

C. Assimilation

D. Nitrification

**Answer: D**



**Watch Video Solution**

8. Why is common-cold called a communicable disease?

A. It spreads quickly in the body.

B. It damages vision and hearing.

C. It causes sneezing and coughing.

D. It spreads from one person to another.

**Answer: D**



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9. Which of these diseases spreads through physical contact with an infected person?

A. Cholera

B. Dengue

C. Malaria

D. Ringworm

**Answer: D**



**Watch Video Solution**

10. Which of these diseases spreads through the air?

A. Cholera

B. Malaria

C. Typhoid

D. Measles

**Answer: D**



**Watch Video Solution**

11. Which of these organisms helps in the formation of curd and cheese from milk?

A. Penicillium

B. Azotobacter

C. Lactobacillus

D. Streptococcus

**Answer: C**



**Watch Video Solution**

12. Which of these pathogens is responsible for yellow vein mosaic disease in plants?

A. Bacteria

B. Amoeba

C. Fungus

D. Virus

**Answer: D**



**Watch Video Solution**

13. Which of these holds true for the assimilation process in the nitrogen cycle?

A. Plants and animals consume nitrogen

B. Ammonia changes into nitrates and nitrites.

C. Nitrates in the soil change into nitrogen gas.

D. Nitrogen in living things returns to soil as ammonia.

**Answer: A**



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**14.** Which of these organisms is used for making antibiotics?

A. Lactobacillus

B. Nitrobacter

C. Penicillium

D. Rhizobium



**Answer: C**



**Watch Video Solution**

**15.** In which part of the leguminous plants does Rhizobium live?

A. Flowers

B. Leaves

C. Stems

D. Roots

**Answer: D**



**Watch Video Solution**

**16.** Which of these is the mode of transmission for poliovirus in human?

A. Contact

B. Water

C. Food

D. Pets

**Answer: B**



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**17.** What is the duration for heating milk at 72 degrees celsius in the pasteurization technique?

- A. Sixty seconds
- B. Ninety seconds
- C. Fifteen seconds
- D. Forty-two seconds

**Answer: C**



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**18.** What happens when the acidity of milk increases?

- A. It coagulates.
- B. It becomes watery.
- C. It becomes powdery.
- D. It releases white fumes.

**Answer: A**



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**19.** Which of these is the pathogen responsible for causing ringworm disease?

A. Protozoa

B. Bacteria

C. Fungus

D. Virus

**Answer: C**



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**20.** The diseases that can be transmitted through body fluids are

A. Chickenpox

B. Hepatitis B

C. Cholera

D. Polio

**Answer: B**



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**21.** A scientist observes a drop of pond water under an electron microscope. He sees a microorganism with no specific cell structure.

Which of these can it be?

A. Virus

B. Fungi

C. Algae

## D. Protozoa

**Answer: A**



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**22.** Which of these supports the idea that viruses are borderline between living and non-living things?

A. They are smaller than bacteria.

B. They do not show cell multiplication.



C. They can survive only outside the host body.

D. They do not show life processes outside the host body.

**Answer: D**



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**23.** Which of these combinations is used for heating milk in the UHT technique?

A.  $98^{\circ} C$  for 2 minutes

B.  $98^{\circ} C$  for 2 seconds

C.  $135^{\circ} C$  for 2 minutes

D.  $135^{\circ} C$  for 2 seconds

**Answer: D**



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**24. Which of these algae is multicellular?**

A. Chlamydomonas

B. Spirogyra

C. Chlorella

D. Volvox

**Answer: B**



**Watch Video Solution**

**25. Rod- shaped bacteria are called**

A. Bacilli

B. Cocci

C. Spirilli

D. Vibrios

**Answer: A**



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**26.** Which microorganism do you not need a microscope to look at?

A. Chlamydomonas

B. Rhizobium

C. Agaricus

D. Volvox

**Answer: C**



**Watch Video Solution**

**27.** Which of these diseases can spread through water?

A. Cholera

B. Malaria

C. Hepatitis B

D. Tuberculosis

**Answer: A**



**Watch Video Solution**

**28.** Bacteria which converts milk into curd is

A. Lactobacillus

B. Plasmodium

C. Penicillium

D. Yeast

**Answer: A**



**Watch Video Solution**

**29. Roots of which plants bear nodules?**

A. Bean

B. Carrot

C. Potato

D. Tomato

**Answer: A**



**Watch Video Solution**

**30.** Which of these food preservation methods kills microorganisms present in a food product, rather than slowing down the growth of microorganisms in it?

A. Canning

B. Freezing

C. Adding oil or vinegar



## D. Heating at high temperatures

**Answer: D**



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**31.** Which of the following characteristics is/are true for a virus?

I. It has a nucleus.

II. It reproduces only in living cells.

III. It contains either DNA or RNA.

A. I only

B. I and II

C. II and III

D. I, II and III

**Answer: C**



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**32.** Which of these methods would a person use as preservatives while making pickles?

I. Adding salt

II. Adding sugar

III. Adding oil

IV. Canning

V. Pasteurization

A. II and IV

B. I only

C. II and III

D. IV and V

**Answer: B**



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**33.** You have just bought pasteurised milk from the market. However, you do not need the milk right now. Which of these food preservation techniques would you use to keep the milk fresh for later use?

A. Refrigerating

B. Adding sugar

C. Vacuum packing

D. Adding chemical preservatives

**Answer: A**



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**34.** Rohit is suffering from the common cold.

Which of these precaution should he take to avoid spreading the cold to his classmates?

A. He should drink boiled water.

B. He should not let mosquitoes bite him.

C. He should keep his food and water covered.

D. He should cover his nose and mouth while sneezing.

**Answer: D**



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**35.** A needle is used only for one injection in hospitals and clinics, after which it is disposed off. Which of these disease does this practice safeguard against us?

A. Chickenpox

B. Hepatitis B

C. Dengue

D. Typhoid

**Answer: B**



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**36.** Which of these bacteria are comma-shaped?

A. Cocci

B. Bacilli

C. Spirilli

D. Vibrios

**Answer: D**



**Watch Video Solution**

**37.** Lately, dengue has been spreading at an alarming rate in a certain city. What is the most



important precaution people in the city should take?

A. Do not touch infected people.

B. Keep food and water covered.

C. Use mosquito nets and repellents.

D. Do not stand near infected people when they sneeze or cough.

**Answer: C**



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38. Which of these environmental factors cannot contribute to the process of nitrogen fixation?

A. Lightning

B. Forest fires

C. Earthquakes

D. Rhizobium bacteria

**Answer: C**



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**39.** A farmer found out that the soil nitrogen levels in his field are extremely low. Which natural method will help the farmer to replenish the nitrogen content?

- A. Growing grass
- B. Growing pea plants
- C. Growing potato plants
- D. Not growing any plants

**Answer: B**



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40. Which of these processes of the nitrogen cycle can be performed by anaerobic bacteria?

- A. Nitrification
- B. Denitrification
- C. Ammonification
- D. Nitrogen fixation

**Answer: B**



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41. Which of these bacteria is present in the roots of leguminous plants such as peas and helps in the process of nitrogen fixation?

A. Xanthomonas

B. Lactobacillus

C. Nitrobacter

D. Rhizobium

**Answer: D**



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42. Why does milk turn into curd when the lactose sugar present in it changes to lactic acid?

A. Due to the release of antibodies

B. Due to coagulation of the casein protein

C. Due to the formation of carbon dioxide gas

D. Due to dehydration through the process of osmosis

**Answer: B**



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**43.** Which of these people would NOT use yeast in the given scenarios?

- A. A man who makes beer
- B. A man who makes wine
- C. A man who runs a bakery
- D. A man who runs a biogas plant

**Answer: D**



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**44.** Sanjay is preparing batter to make dhoklas. Which of these microbes should he add to his batter to make it fluffy and airy?

A. Lactobacillus

B. Penicillium

C. Rhizobium

D. Yeast



**Answer: D**



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**45.** Which of these microorganisms does NOT play a role in increasing the fertility of soil?

A. Lactobacillus

B. Nitrobacter

C. Rhizobium

D. Nostoc

**Answer: A**



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**46. Which of the following are protozoans?**

A. Volvox

B. Amoeba

C. Penicillium

D. Chlamydomonas

**Answer: B**



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**47.** Viruses that infect the bacteria are termed as

A. bacilli

B. antigens

C. protozoa

D. bacteriophages

**Answer: D**



**48.** Which of these microorganisms is made up of only one cell?

A. Spirogyra

B. Rhizopus

C. Agaricus

D. Yeast

**Answer: D**



**49.** Which of these algae would you be able to see even without a microscope?

A. Spirogyra

B. Chlorella

C. Volvox

D. Fucus

**Answer: D**



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50. Which of these microorganisms can produce their own food?

A. Bacilli

B. Amoeba

C. Rhizopus

D. Chlamydomonas

**Answer: D**



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