

## Class 08 Chapter 02 Microorganisms Friends and Foe Answer(Science Mission)

### Exercises Answer

#### A. Multiple choice questions.

1. The most common carrier of communicable diseases is (a) Cockroach (b) Mosquito (c) Housefly (d) Spider
2. An organism considered to be between living and non-living is (a) Bacterium (b) Plasmodium (c) Virus (d) Yeast
3. Yeast is a unicellular (a) Alga (b) Fungus (c) Bacteria (d) Protozoan
4. Conversion of sugar into alcohol by yeast is (a) Pasteurisation (b) Sterilization (c) Fermentation (d) Curding
5. Pathogen responsible for causing malaria is (a) Bacteriophage (b) Mould (c) Bacterium (d) Plasmodium
6. Pasteurisation of milk destroys (a) Vitamins (b) Germs (c) Oxygen (d) Proteins
7. Carrier of malaria causing protozoan is (a) Male Anopheles mosquito (b) Female Anopheles mosquito  
(c) Male Aedes mosquito (d) Female Aedes mosquito
8. Yeast helps in the production of (a) Sugar (b) Starch (c) Fats (d) Alcohol
9. Iodine is obtained from (a) Viruses (b) Bacteria (c) Fungi (d) Brown algae
10. The microorganism which has the ability to fix atmospheric nitrogen is  
(a) Euglena (b) Rhizobium (c) Chlorella (d) Yeast

Ans: 1. c 2. C 3. b 4. c 5. d 6. b 7. b 8. d 9. d 10. b

#### B. Match the following:

Column 'A'	Answer	Column 'B'
1. Leeuwenhoek	1. b	a. Phagocytes
2. Elie Metchnikoff	2. a	b. Microscope
3. Louis Pasteur	3. e	c. Penicillin
4. Alexander Fleming	4. c	d. Vaccine
5. Edward Jenner	5. d	e. Pasteurisation
6. Joseph Lister	6. f	f. Antiseptic

#### C. Give one word answer.

1. Organisms which can be seen only under a microscope.
2. Study of microorganisms.
3. Process of conversion of sugar into alcohol by yeast.
4. Process of making an object free from germs.
5. Substance produced by an organism which is poison for other organism.
6. Process of converting atmospheric nitrogen into nitrogenous compounds.

7. Disease causing microbes.

8. The smallest known microbe.

9. A medicine which has germs for a disease and is injected in a patient for cultivating antibodies.

10. A virus that feeds on bacteria.

Ans: 1. Microorganisms

2. Microbiology

3. Fermentation

4. Sterilization

5. Antibiotic

6. Nitrification

7. Germs

8. Virus

9. Vaccine

10. Bacteriophage

## A. Short answer type questions.

### 1. Why

(a) Milk gets spoiled quickly in summer?

Ans: Milk turns sour quickly in summer because bacteria grows faster in warm conditions than in winter. Milk contains lactose (Milk Sugar) which is easily fermented into lactic acid with the helpful bacteria and becomes sour.

(b) Curdling of milk takes place when a little curd is added to it?

Ans: Bacterium called lactobacillus, is present in the curd. When that bacterial curd is added to the milk, it multiplies and converts normal milk into curd.

(c) Ripened fruits do not rot in deep freezer?

Ans: Bacteria or moulds are unable to grow, multiply or even survive at low temperature (freezing or below freezing temperature) and thus fruit does not get spoiled in a deep freezer.

(d) Milk takes long time to form curd during winter?

Ans: Milk takes slightly longer time to form curd during winter. This is because fermenting bacteria (Lactobacillus) grow faster under warm conditions and takes more time to multiply during cold winter.

(e) Pasteurisation prevents spoilage of milk?

Ans: Milk is heated to a temperature of nearly 70°C for some time and is then cooled quickly to almost freezing temperature. Cooling the milk fast kills germs and prevents spoilage of milk.

(f) Dead animal body starts emitting foul smell after sometime?

Ans: Dead animal body starts emitting foul smell after sometime because fungus, bacteria and other body decaying germs grow on the dead body of an animal and decompose its body.

(g) Fresh food should be kept covered?

Ans: Fresh food should be kept covered to save it from germs or sitting of houseflies which carry germs from garbage and excreta. When they sit on our food leaves the germs on food and spread disease-causing germs.

(h) Vaccination is given to a healthy person ?

Ans: Vaccine dead and weak microbes. Application of vaccine is known as vaccination. It is given to healthy people

who on vaccination develop antibodies to fight the disease which is caused by the germs present in the vaccine.

Vaccine provides immunization from future infection so that they do not get diseased.

(i) Dough rises when yeast is added to it?

Ans: Yeast cells multiply rapidly by budding giving out carbon dioxide in the process of respiration. Carbon dioxide remains in the dough, makes the dough to rise and increase in volume.

(j). Bacteria do not grow around the mycelium of *Penicillium notatum*?

Ans: Mycelium of *Penicillium notatum* (mould) produces a chemical which comes out and surrounds it. This chemical is poisonous and kill the bacteria. The chemical oozing out from *Penicillium notatum* has been extracted and termed as antibiotic.

2. What are microorganisms?

Ans: Microorganisms are tiny living thing not visible to our naked eye. They are seen only under a magnifying glass or under a microscope

3. What are antibiotics?

Ans: Antibiotics are medicines made from different bacteria and fungi. Antibiotic is the product from one living organism which is poisonous for another living organism. It is used to cure diseases by killing or stopping the growth of disease-causing germs.

4. Name five major groups of micro-organisms.

Ans: Microorganisms are grouped into five major groups. These groups are bacteria, protozoa, some algae and fungi.

In addition, there are most tiny viruses.

### Theoretical Questions

#### B. Long answer type questions.

1. Who was the first scientist to have discovered microorganisms and how?

Anton van Leeuwenhoek was the first person known to have observed bacteria under a magnifying glass. He developed simple microscope that help to identify thousands of species (kinds) of bacteria.

Bacteria are one-celled microbes with a cell wall but they do not have normal organised nucleus and other cellular structures. Bacterial cells are much larger than virus but are not visible to the naked eye unless they are in a group.

2. What are decomposers and in what way they serve us?

Ans: Decomposers are microbes (Bacteria, Fungi and worms) which live and feed on the body of other organisms (generally dead plants and animals) resulting in the decay and decomposition of the body on which they grow.

Decomposers clean the environment and provide nutrients to plants. They converting the organic matter into simpler

substances which may be used as manure for the plants or otherwise this decomposed matter gets mixed with the soil.

3. How do we save milk from spoilage?

Ans: Storing milk at a freezing temperature is the most common and healthy method practiced for storing milk for long. During summer milk is boiled at least once after 5 to 6 hours of keeping it at a room temperature.

4. How does modern process of pasteurisation differ from the one given by Pasteur?

Ans: Warming milk activates germs present in it which get easily killed on deep cooling. Pasteurisation involved heating of milk to a temperature of nearly 70°C for some time and then cooling it quickly to a very low temperature. Modern method of preserving milk involves heating milk to 70°C for a minute or two and then exposing it to ultraviolet (UV) rays before cooling and packing it in oxygen free bottles or nitrogen-filled polypacks.

Pasteurization was a slightly longer process than modern method of killing germs in milk by exposing it to ultraviolet rays before cooling.

5. What are Bacteriophages? How do they help in keeping water clean?'

bacteriophage is a special kind of virus that attacks and lives on bacteria. It multiplies within the bacterial cell. In the process, bacterium (host) is killed and destroyed.

Bacteriophage eats all the bacteria in water keeping water bacteria free and clean.

6. Why do we heat a needle on a flame before using it to take out a spine (thorn) from our body?

Ans: Needle when exposed to flame to red hot stage makes it germ- free and hence can be used to take a thorn out of our body without causing infection.

7. What do you understand by (a) Septic formation (b) Sterilization (c) Antiseptic?

Ans: (a) Wound getting infected with germs resulting in putrefaction or pus formation is called septic formation.

(b) Sterilization is the process of making an object free from germs.

(c) Antiseptic is a chemical (ointment) which kills germs and saves the wound from getting septic.

8. In what ways protozoans are : a. Useful, b. Harmful?

a. Useful microbes:

(i) Yeast is highly useful in fermentation of dough for making bread and alcohol from sugar.

(ii) Algae are nutritious in nature and used as food by water animals which are food for man.

(iii) E. Colli bacteria grow in intestine help digestion of food.

(iv) Ruminants digest cellulose with the help of bacteria in their first and second stomach.

(v) Penicillin and some other fungi (moulds) and different kinds of bacteria are useful in developing antibiotics and vaccines.

b. Harmful microbes:

They cause: (i) diseases in human beings, animals and plants. Disease causing microbes are called pathogens.

(ii) food poisoning and (iii) rotting of food.

9. What are communicable diseases? List some of the carriers of microbes.

Ans: Microbial diseases transmitted from an infected person to a healthy person either through air, water and food or by direct contact with him or through animals (including insects) are called communicable diseases.

Insects, animals, water and air which transmit disease-causing microbes act as 'carriers' of pathogens. Most common insect carriers of germs and causing multiple diseases are housefly and mosquitoes.

10. What causes food poisoning?

Ans: Microbes like Fungi, bacteria and worm) start growing on cooked food or even on juicy fruits kept for long at a warm and humid place. Food gets stale and start smelling bad. Most common is the growth of moulds, bacteria and other germs on the food, thus making it poisonous.

Contaminated food (infected with germs) is considered poisonous due to production of toxic substances.

Consumption of stale food may upset the stomach and cause vomiting, diarrhea and even death.

11. What is fermentation? How does it serve the industry?

Ans: Fermentation is the chemical breakdown of a substance by anaerobic bacteria, yeasts, or other microorganisms.

Fermentation helps in

- (a) Curing and flavoring of tea and tobacco, (b) Treatment of hide (raw) to fine leather,
- (c) Retting of Flax (jute plant) to obtain its fibre, (d) Raising of dough, (e) Preparing alcohol.

12. List the various methods of food preservation.

Ans: Food may be preserved in different ways.

- i. Dehydration of Food: Removing moisture from food
- ii. Heating or Boiling then cooling milk called Pasteurization,
- iii. Storing food at a low temperature called Refrigeration
- iv. Storing pickles or Jams in bottle with salt or Sugar syrup