Chapter 6 Micro Organisms

I. Multiple choice Questions

Question 1.

Micro organisms are measured in

(a) cm

(b) mm

(c) micron

(d) meter.

Answer:

(c) micron

Question 2.

Shows both living and non-living characteristics

(a) Protozoa

(b) Virus

(c) Bacteria

(d) Fungi

Answer:

(b) Virus

Question 3.

..... is a prokaryotic micro organisms.

(a) Virus

(b) Algae

(c) Fungi

(d) Bacteria

Answer:

(d) Bacteria

Question 4.

Based on shape, the bacteria are classified into types.

(a) 2

(b) 3

(c) 4

(d) 5

Answer:

(c) 4

Question 5.

The plant body of algae is called as

(a) Stem
(b) Thallus
(c) Leaf
(d) Root
Answer:
(b) Thallus

II. Fill in the blanks

- 1. is prepared from a mould called Penicillium.
- 2. are the infectious protein particles.
- 3. The infect virus particle found outside the host cell is
- 4. Micro organism can be seen with the help of a
- 5. Bacteria, which have a flagellum at one end is classified as

Answer:

- 1. Penicillin
- 2. Prions
- 3. Virion
- 4. Microscope
- 5. Monotrichous

III. Match the following

Question 1.

1.	Nitrogen fixing bacteria	(a)	Vaccine
2.	Tuberculosis	(b)	Prion
3.	Kuru	(c)	Lactobacillus acidophilus
4.	Probiotics	(d)	Bacteria
5.	Edward Jenner	(e)	Rhizobium

Answer:

- 1. e
- 2. d
- 3. b
- 4. c
- 5. a

III. True or False

Question 1.

Diseases causing micro organisms are called pathogens. Answer: True.

Question 2.

Female Anopheles mosquito is a carrier of dengue virus. **Answer:** False. Correct statement: Female Anopheles mosquito is a carrier of malaria.

Question 3.

Chicken pox is a communicable disease. Answer: True.

Question 4. Citrus canker is transmitted by insects. Answer: True. Correct statement: Citrus canker is transmitted by air and water

Question 5. Yeast is used in the large scale production of alcohol. **Answer:** True.

V. Assertion & Reason

Direction:

In each of the following questions, a statement of Assertion is given and a corresponding statement of Reason is given just below it. Of the four statements, given below, mark one as the correct answer.

(a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

(b) If both Assertion and Reason are true and 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.

Question 1.

Assertion : Malaria is caused by Protozoa. Reason : The disease is transmitted by mosquito. Answer: (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion

Question 2. Assertion : Algae are heterotrophic. Reason : They don't have chlorophyll. **Answer:** (d) Both Assertion and Reason are false

VI. Very short answer type

Question 1. Write the name of any nitrogen fixing bacteria. **Answer:** Rhizobium.

Question 2. Name the bacteria used in the production of vinegar. **Answer:** Acetobacter aceti.

Question 3. Write the names of any three protozoans. **Answer:**

- 1. Amoeba
- 2. Plasmodium
- 3. Paramecium.

Question 4. Who discovered penicillin? **Answer:** Alexander Flemming.

Question 5. Which diseases can be prevented by vaccination? **Answer:** Small pox, polio, measles, mumps, rubella, tuberculosis.

VII. Short answer type

Question 1. Write the four types of bacteria, based on their shape. Answer: Bacteria are described according to the shape of their cells. They are:

- 1. Bacilli Rod shaped bacteria.
- 2. Spirilla Spiral shaped bacteria.
- 3. Cocci Spherical or ball shaped bacteria.
- 4. Vibrio Comma shaped bacteria.

Question 2.

What are antibiotics?

Answer:

Antibiotic is a substance produced by living organisms which is toxic for other organisms. Example: Penicillin.

Question 3.

What are pathogens?

Answer:

Disease causing organisms are called pathogens. Example: The bacterium Mycobacterium tuberculosis causes tuberculosis in human beings.

Question 4.

How diseases causing micro organisms enter into human beings?

Answer:

The disease causing microbes are called pathogens. They enter into the body through -

- 1. Cuts and wounds in the skin, mouth or nose.
- Some pathogens are found in air and enter into a healthy person by breathing. When a patient sneezes, droplets containing microbes spread in air. Example: Tuberculosis, Flu.
- 3. Some pathogens enter into our body through food and water contaminated with the pathogen. Example: Cholera.
- 4. Pathogens also enter through blood transfusion from a infected to healthy person. Example: Aids

Question 5.

Why micro organisms are essential for agriculture?

Answer:

Role of microbes in agriculture:

1. Natural fertilizer:

Microbes like bacteria, fungi act as decomposers and break down the dead and degradable waste of plants and animals. During this process nutrients are released into the soil and the soil becomes fertile. This compost is called natural fertilizer.

2. Nitrogen fixation:

Microbes can fix atmospheric gaseous nitrogen as nitrate salts in the soil. Example: Rhizobium (root nodule bacteria in leguminous plants). Free living bacteria, cyanobacteria (Nostoc).

3. Biocontrol agents:

Microbes act as natural biocontrol agents and protect crops from pests. Example: Baculoviruses attack insects which harm the plants.

VIII. Long answer type

Question 1.

Write a short note on bacteria and its structure.

Answer:

1. Bacteria are single – celled prokaryotes (cells without nuclei).

2. Bacteria are grouped under the kingdom Monera. The study of Bacteria is called Bacteriology.

- 3. Bacteria are of two types based on respiration
 - Aerobic bacteria (requires oxygen).
 - Anaerobjc bacteria (Does not requires oxygen).

4. A bacterium has an outer covering known as the cell wall. Nuclear material is represented by a nucleoid without nuclear membrane.

5. An extra chromosomal DNA called plasmid is present in the cytoplasm.

6. Protein synthesis is carried out by 70S ribosomes. Other cell organelles (mitochondria, Golgi body endoplasmic reticulum etc.,) are absent. Flagella aids in locomotion.

7. Bacteria are described according to the shape of their cells. They are:

- Bacilli Rod shape bacteria
- Spirilla Spiral shaped bacteria
- Cocci Spherical or ball shaped bacteria
- Vibrio Comma shaped bacteria

Bacteria are also classified according to number and arrangement of flagella as follows:

- Monotrichous Single flagella at one end. Example: Vibrio cholera
- Lophotrichous Tuft of flagella at one end. Example: Pseudomonas.
- Amphitrichous Tuft of flagella at both ends. Example: Rhodospirillum rubrum.
- Peritrichous Flagella all around. Example: E.coli.
- Atrichous Without any flagella. Example: Corynebacterium diptherae.

Question 2.

How micro organisms are useful in the field of medicine? Answer: Role of microbes in medicine:

We obtain antibiotics and vaccines from microbes.

1. Antibiotics:

It is a substance produced by living organisms which is toxic to other organisms. The antibiotic penicillin got from the fungus Penicillium chrysogenum is used to treat diseases like tetanus, diphtheria. Streptomycin got from streptomyces bacteria is used to cure bacterial infections like plague.

2. Vaccines:

They are prepared from dead or weakened microbes. When a vaccine is injected into the body of a patient, it produces antibodies to fight the germs. These antibodies protect the body from infections in future. Example: MMR vaccine for measles.

Question 3. Answer:

SI. No	Human Diseases	Causative microorganisms	Mode of transmission	Symptoms	Preventive measures / Treatment
1.	Tuber culosis	Mycobacterium tuberculosis (Bacteria)	Through air and sputum of infected person	Persistent cough, blood mucus, loss of weight, breathlessness	BCG Vaccine
2.	Cholera	Vibrio cholera (Bacteria)	By flies and by contaminated food and water	Watery diarrhoea, vomiting, rapid dehydration.	Anticholera vaccine, maintaining personal hygiene.
3.	Common cold	Influenza (virus)	Through air	Running nose, sneezing	Isolation of patient
4.	Rabies	<i>Rhabdo viridae</i> (virus)	Animal bite	Fever, hallucination, paralysis inability to swallow	Anti-rabies vaccine.

5.	Amoebic dysentery	Entamoeba histolytica (Protozoa)	Food water and flies	Severe diarrhea and blood in stool	Proper sanitation to be followed and metronidazole antibiotic to be administered
----	----------------------	--	-------------------------	--	---

Question 4.

How can we improve the beneficial bacterial count in human beings?

Answer:

We can improve the beneficial bacterial count in human beings by adopting the following methods:

- 1. Intake of fibre rich foods.
- 2. Intake of seasonal fruits and vegetables.
- 3. Intake of plenty of fermented foods with live microbes. Eat more of prebiotic foods.
- 4. Intake of whole grains.
- 5. Prefer plant based diet.
- 6. Avoid artificial sweeteners.

Question 5.

Write a short note on Probiotics.

Answer:

Probiotics:

Probiotics are live food supplements used in yoghurt and other fermented milk products. Example: Lactobacillus acidophilus and Bifidobacterium bifidum. These bacteria improve the microbial spectrum in the gut and thus contribute to the following effects:

- 1. Decrease the risk of colon cancer
- 2. Decrease cholesterol absorption
- 3. Prevent diarrheal diseases by increasing the immunity power.