Living World and Classification of Microbes

EXERCISE [PAGE 5]

Exercise | Q 1 | Page 5

Use Whittakar method to classify bacteria, protozoa, fungi, algae, prokaryotic and eukaryaotic microbes.
Solution: The characteristic features of each of the five kingdoms classified by Whittaker are:

Kingdom Monera

- Absence of a well-defined nucleus or membrane-bound organelles
- Absence of multicellular body designs; all are unicellular
- Presence or absence of a cell wall
- Autotrophic or heterotrophic mode of nutrition

Kingdom Protista

- They are unicellular, eukaryotic organisms.
- They can be autotrophic or heterotrophic.
- Some members have cilia or flagella, which helps in locomotion.

Kingdom Fungi

- They may be unicellular or multicellular, eukaryotic organisms.
- Their body consists of mycelium, which is made up of multicellular filamentous hyphae.
- Their cell walls are made up of tough, complex sugar called chitin.
- They are saprophytes, which feed on dead organic material.

Kingdom Plantae

- They are multicellular, eukaryotic organisms.
- Cell wall is made up of cellulose and not chitin unlike that of fungi.
- Most plant cells contain chlorophyll pigments. Hence, they are autotrophic.
- They are non-motile.

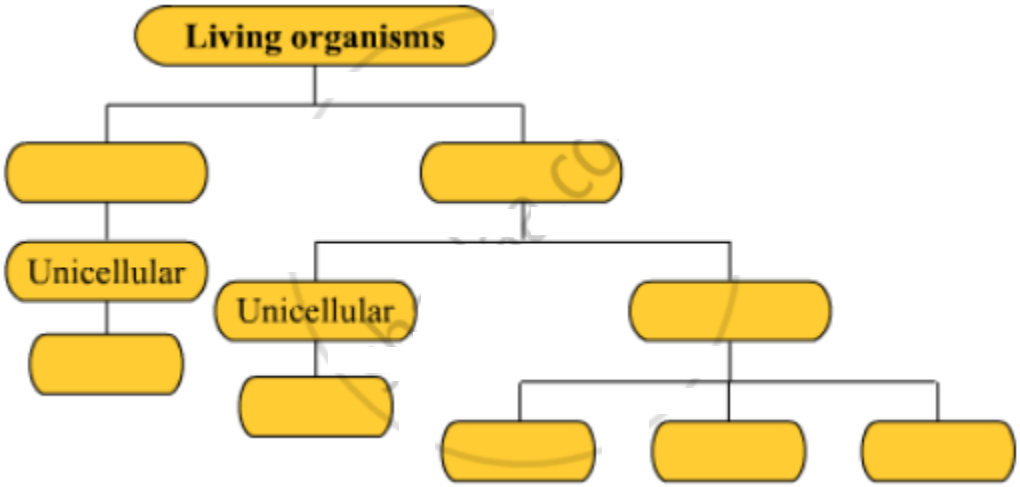
Kingdom Animalia

- They are multicellular eukaryotes.
- Cell wall is absent in them.

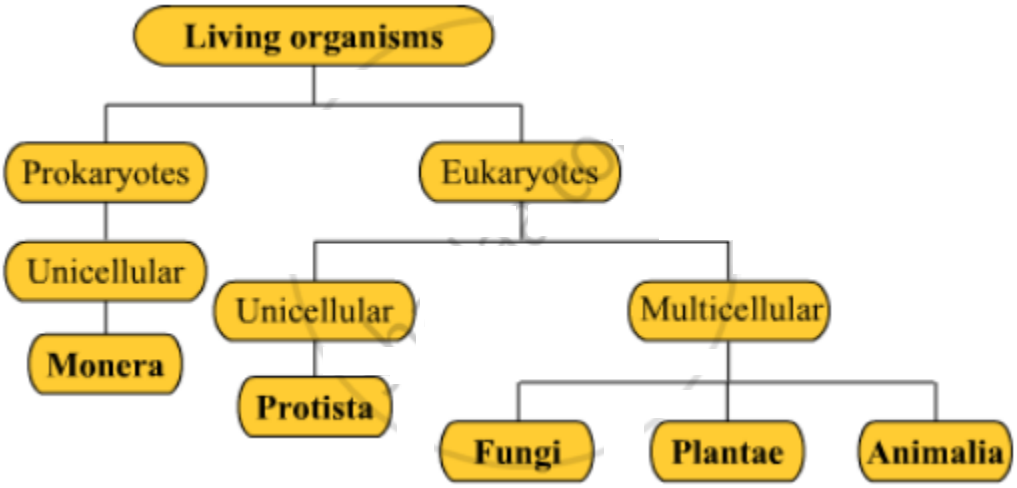
- Chloroplast is absent in animal cells. Hence, they have a heterotrophic mode of nutrition.

Exercise | Q 2 | Page 5

Complete the five kingdom method of classification using living organism prokaryotes, eukaryotes, multicellular, unicellular, protista, animals, plants, fungi.



Solution:



Exercise | Q 3 | Page 5

Find out my partner

A	B
Fungi	Chlorella
Protozoa	Bacteriophage
Virus	Candida

Algae	Amoeba
Bacteria	Prokaryotic

Solution:

A	Answer
Fungi	Candida
Protozoa	Amoeba
Virus	Bacteriophage
Algae	Chlorella
Bacteria	Prokaryotic

Exercise | Q 4.1 | Page 5

State whether the following statement is true or false. Explain your statement.

Lactobacilli are harmful bacteria.

1. True
2. **False**

Solution: False

Lactobacilli are not harmful bacteria, infact they are found in gastrointestinal tracts of animals and humans. They are also an important part of dairy products such as milk, yogurt etc.

Exercise | Q 4.2 | Page 5

State whether the following statement is true or false. Explain your statement.

Cell wall of fungi is made up of chitin.

1. **True**
2. False

Solution: True**.**

Exercise | Q 4.3 | Page 5

State whether the following statement is true or false. Explain your statement.

Organ of locomotion in amoeba is pseudopodia.

1. **True**
2. False

Solution: True.

Exercise | Q 4.4 | Page 5

State whether the following statement is true or false. Explain your statement.

Tomato wilt is viral disease.

1. **True**
2. False

Solution: True.

Exercise | Q 5.1 | Page 5

Give answer.

State the merits of whitetaker's method of classification.

Solution: The merits of Whitakker's method of classification are:

1. Unicellular and multicellular organisms are kept under separate categories.

2. Autotrophs and heterotrophs are placed in separate groups.

3. A separate kingdom was assigned to fungi because of its mode of nutrition.

4. It is more natural than two kingdom classification.

5. Prokaryotes are placed under a separate category of monera.

Exercise | Q 5.2 | Page 5

Give answer.

Write the characteristics of viruses.

Solution: The various characteristics of viruses are:

1. They are smaller and simpler than bacteria.

2. They are ultra microscopic and visible only under electron microscope.

3. They are considered to be on the boundary line of living and non-living things.

4. They are obligate parasites and cannot live on their own.

5. They cannot multiply on their own. They require living machinery to multiply.

6. Viruses consist of genetic materials (DNA or RNA) surrounded by a protective coat of protein (capsid).

7. Viruses are responsible for causing many dreadful diseases in plants, animals, and humans.

Exercise | Q 5.3 | Page 5

Give answer.

Explain the nutrition in fungi.

Solution: The mode of nutrition in fungi is saprotropic and they are called saprophytes. It is a mode of nutrition in which an organism obtains its nutrients from the decaying organic matter.

Exercise | Q 5.4 | Page 5

Give answer.

Which living organisms are included in the kingdom monera ?

Solution: Organisms with following characteristics are inlcuded under the kingdom monera:

1. Absence of nucleus and membrane-bound organelles

2. Presence or absence of cell wall

3. Can be either autotrophic or heterotrophic

4. Are all unicellular and include mainly bacteria and blue green algae

Examples include bacteria and blue green algae.

Exercise | Q 6.1 | Page 5

Who am I ?

I don't have true nucleus, cell organelles or plasma membrance.

Solution: Monera

Exercise | Q 6.2 | Page 5

Who am I ?

I have nucleus and membrane bound cell orgenelles.

Solution: Protozoa

Exercise | Q 6.3 | Page 5

Who am I ?

I live on decaying organic matter.

Solution: Fungi

Exercise | Q 6.4 | Page 5

Who am I ?

I reproduce mainly by cell division.

Solution: Bacteria

Exercise | Q 6.5 | Page 5

Who am I ?

I Can produce my replica.

Solution: Viruses

Exercise | Q 6.6 | Page 5

Who am I ?

I am green, but don't have organs.

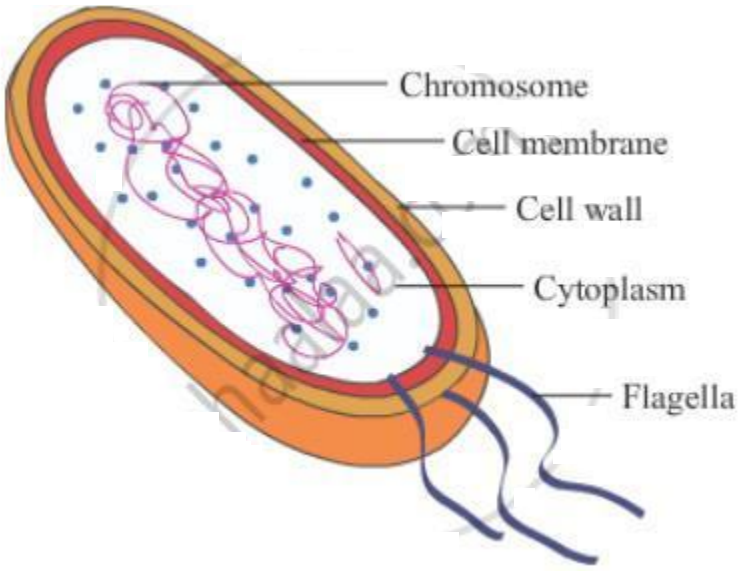
Solution: Algae

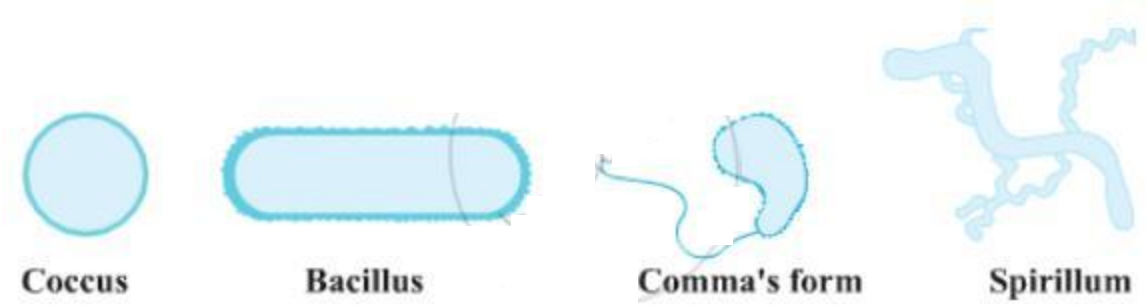
Exercise | Q 7.1 | Page 5

Draw neat and labelled diagram.

Different types of bacteria.

Solution:



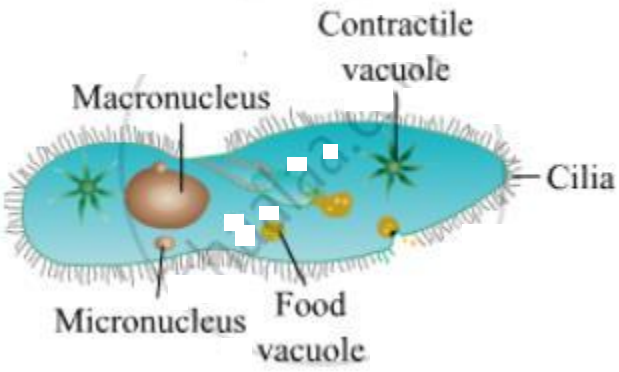


Exercise | Q 7.2 | Page 5

Draw neat and labelled diagram.

Paramoecium

Solution:

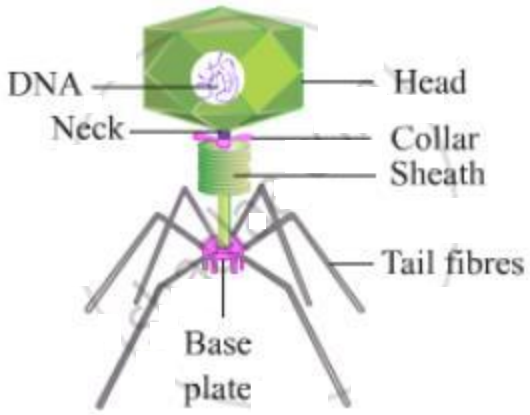


Exercise | Q 7.3 | Page 5

Draw neat and labelled diagram.

Bacteriophage.

Solution:



Exercise | Q 8 | Page 5

Arrange the following in ascending order of size Bacteria, Fungi, Viruses, Algae.

Solution: Viruses → Bacteria → Fungi → Algae