

Ch.2- Kingdom Classification-1:

Dear students,

Please refer to the chapter text of the reader book which has been sent before for writing down the questions in your notebook. Direct answers are given here which you should write down (if not written by you) in your notebook following the questions accordingly.

Answers:

Page-39

A. Very short answer questions:

1. The levels of the biological classification of organisms are
Kingdom → Phylum (animals) / Division (plants) → Class → Order → Family → Genus → Species
2. Classification is a system of grouping organisms based on their similar and dissimilar characteristics.
3. The five kingdoms proposed by RH Whittaker are
1) Monera 2) Protista 3) Fungi 4) Plantae 5) Animalia
4. Pseudopodia helps in locomotion in Amoeba.
5. The Kingdom that includes unicellular prokaryotic organisms is Monera.

B. Short answer questions:

1. A species is a group of similar organisms that can reproduce among themselves.
2. A prokaryote is a unicellular organism that lacks a membrane-bound nucleus (nuclear material lies scattered in the cytoplasm), mitochondria, endoplasmic reticulum or any other membrane-bound organelle.
3. The saprophytic mode of nutrition is the type of nutrition where the organism feeds on dead and decaying matter. Eg. Yeast, Rhizopus, etc.
- 4.

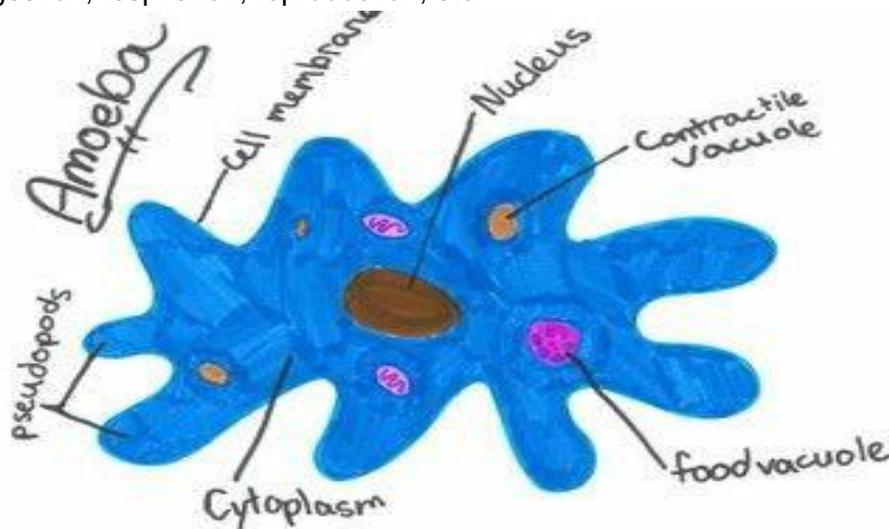
Based on shape, there are four common types of bacteria.

- ◆ **Bacillus (Plural: bacilli):** These bacteria are rod shaped.
- ◆ **Coccus (Plural: cocci):** These bacteria are spherical or ovoid.
- ◆ **Spirillum (Plural: spirilla):** These bacteria are spiral shaped.
- ◆ **Vibrio:** These bacteria are comma shaped.

5. An antibiotic is a substance produced by a microorganism that either kills or inhibits the growth of bacteria. Antibiotic medications are widely used in the treatment and prevention of bacterial infections.
 - Penicillin is an example of a fungal antibiotic.

C. Long answer questions:

1. Significance of classification:
 - i) It makes the study of living organisms simpler and easier.
 - ii) It also makes the identification of an organism easier.
 - iii) The relationship between different organisms can be established.
2. When the structure of amoeba is observed under a microscope, it appears as:
The cytoplasm is fluid-like, containing a nucleus and membrane bound organelles such as vacuoles, golgi apparatus, mitochondria, etc. A single cell performs all the functions like digestion, respiration, reproduction, etc.



3.

- ◆ The five-kingdom classification was based on the following characteristics.
 - Whether they are made of prokaryotic or eukaryotic cells
 - Whether the cells are living singly or organised into multicellular and, thus, complex organisms
 - Whether the cells have a cell wall and whether they prepare their own food.

4. Bacteria with their uses:

- i) **Lactobacillus** bacteria is used for curdling milk.
- ii) **Acetobacter** converts fruit juices into vinegar (acetic acid)
- iii) **Streptomyces** is used in the preparation of antibiotics.
- iv) **Rhizobium** bacteria found in the soil supplies ammonia to the plants, which is crucial for the growth of the plants.
- v) **Bifidobacteria** is commonly used in foods and supplements.

5. Useful roles of fungi:

- i) Yeast is used in bakeries.
- ii) Mushrooms and morels are edible and are cooked.
- iii) Penicillin, an antibiotic, is prepared from a fungus called Penicillium.
- iv) Mucor and Penicillium are used in the preparation of cheese.

Harmful roles of fungi:

- i) Fungi like Rhizopus, Mucor and Penicillium cause the spoilage of food, paper, clothes, jute products and leather.
- ii) Polyporus (fungus) causes wood rot in many trees.
- iii) Fungi cause diseases in plants such as mildew.
- iv) Fungi cause diseases in human beings such as ringworm.

D. Explain the following terms:

1. **Eukaryotic:** The unicellular organisms which have a well defined nucleus where in nuclear material is enclosed by a nuclear membrane. Such organisms are called eukaryotic.
2. **Retting:** It is the process of separating fibres from plant tissues with the help of bacteria.
3. **Contractile vacuole:** It is an organelle that excretes excess water and waste; the waste is brought to the cell membrane and is then eliminated from the amoeba.
4. **Pseudopodia:** These are temporary finger-like, cytoplasm-filled projections used for locomotion, nutrition and excretion by amoeba.
5. **Symbiosis:** The association between bacteria and leguminous plants mutually benefits each other. The plant provides shelter and food to the bacteria. The bacteria provide nitrogen which is used by the plant to synthesise proteins. This type of association is called symbiosis.
6. **Binary fission:** It is a method of asexual reproduction, in which there is a separation of the parent cell into two new daughter cells, like in amoeba.