

Question Bank

Five Kingdom Classification

1. Who proposed Five Kingdom Classification? Give the bases of classification.

Ans. Whittaker in 1969 proposed five kingdom classification based on :-

- (i) Cell structure i.e., prokaryotic or eukaryotic.
- (ii) Mode of nutrition i.e., autotrophic or heterotrophic.
- (iii) Body organisation unicellular or multicellular.

2. List the five kingdoms with characteristic features.

Ans. The five-kingdoms are as follows :

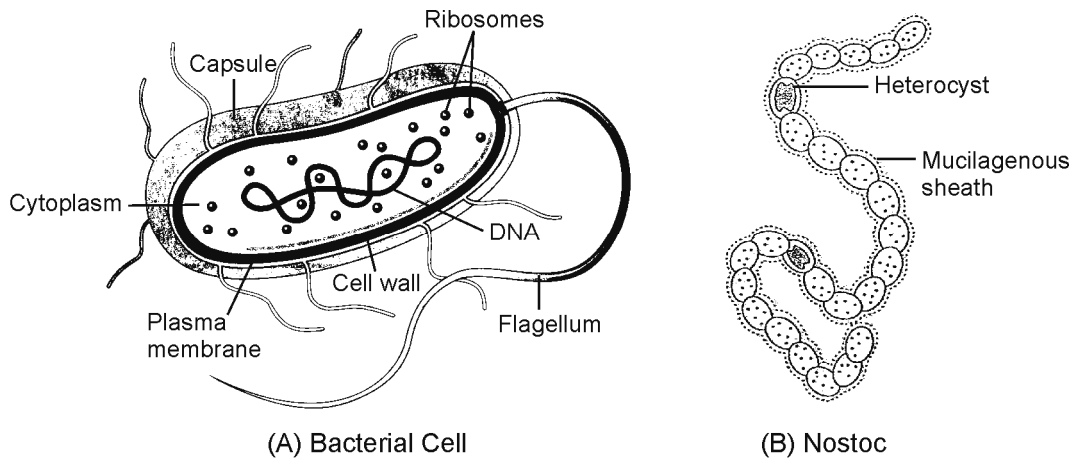
- (i) The **Monera**, the single-celled prokaryotic organisms like the bacteria; most primitive organisms;
- (ii) The **Protista**, the single-celled eukaryotes which include diverse organisms like the algae, protozoa and diatoms.
- (iii) The **Fungi**, the **multicellular** non-green heterotrophs (a few are unicellular) lacking chlorophyll, such as mushrooms and moulds;
- (iv) The **Plantae**, the multicellular green autotrophs such as the higher algae, mosses, ferns and flowering plants; and
- (v) The **Animalia**, the multicellular heterotrophs which lack cellulose and usually exhibit movement like the insects, earthworm, birds, reptiles and mammals.

3. Give two features of prokaryotes.

Ans. (i) The prokaryotes lack a true nucleus. Some basic proteins are also absent in nucleoplasm.
(ii) The cell wall is rigid and tough. It is covered by a gelatinous sheath called slime layer.

4. Draw a well-labelled diagram of : (a) Bacterial cell, (b) Nostoc

Ans.



5. Give reasons, why fungi should not be included in Plant Kingdom?

Ans. Fungi should not be included in Plant Kingdom because :

- (a) Fungi differ from plants in their mode of nutrition, reserve food material and composition of cell walls.
- (b) They are heterotrophic organisms which derive their nutrients mainly by absorption from the surrounding medium due to lack of chlorophyll.
- (c) They are essentially the decomposers and mineralisers of the biosphere.
- (d) The reserve food material is glycogen and fat.
- (e) The cell wall is generally composed of chitin. Therefore, fungi should not be included in plant kingdom.

6. Which substance forms the cell wall in fungi?

Ans. Chitin.

7. Which type of food reserve is formed in fungi?

Ans. Glycogen and oil globules.

8. Name an asexual reproductive method by which yeast reproduces.

Ans. Budding.

9. Give two distinct features of fungal body.

Ans. (i) The body of fungus is typically thalloid i.e. not differentiated into root, stem and leaves.

(ii) The fungal body consists of long, slender, thread-like structures called hyphae.

10. Give a short note on nutrition in fungi.

Ans. (i) Most of the fungi are heterotrophic and absorb soluble organic matter from the dead organisms and hence are called saprophytes.

(ii) Some other fungi depend on living plants and animals for food, are called parasites and a few live as symbionts.

11. Mention the characteristics of Kingdom Protista with suitable examples.

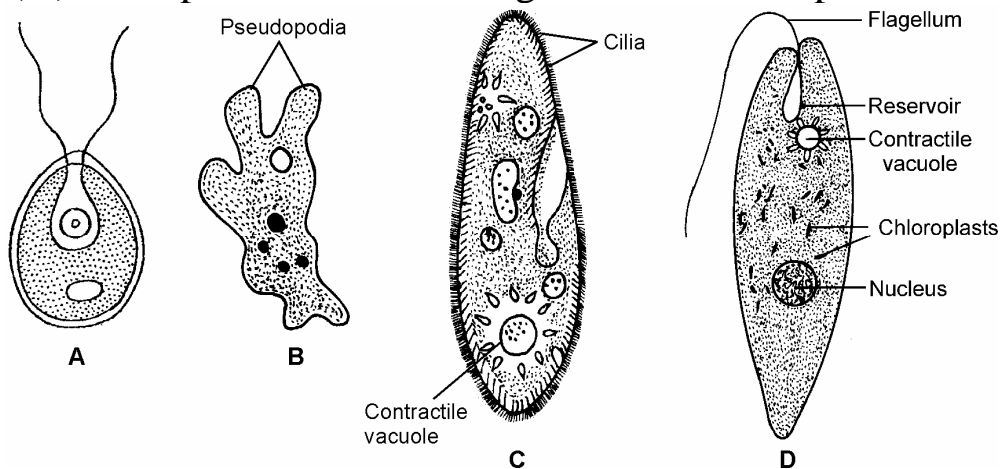
Ans. Characteristics of Kingdom Protista

(i) The organisms are unicellular and eukaryotic.

(ii) Mode of nutrition is either autotrophic or heterotrophic.

(iii) Some protists bear hair-like cilia or flagella for movement. But in Amoeba, movement takes place by pseudopodia (false feet).

(iv) Examples : Unicellular algae, diatoms and protozoans.



Chlamydomonas, B. Amoeba, C. Paramecium and D. Euglena

12. Why *Euglena* has been classified as a plant as well as an animal?

Ans. *Euglena* as a plant shows following features :

- (i) The body is surrounded by a cell wall.
- (ii) Chloroplast is present due to which in the presence of sunlight *Euglena* synthesizes its food.
- (iii) The pigments of *Euglena* are identical to those present in higher plants.

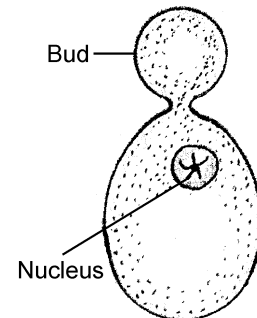
Euglena as an animal shows the following features :

- (i) A protein rich layer called pellicle is present which makes its body flexible.
- (ii) The locomotory organs, a short and a long flagella are present.
- (iii) In the absence of sunlight, it behaves like a heterotroph by predated on other smaller organisms.

13. What is sugar fungi? Explain its characters with the help of diagram.

Ans. Yeasts are single-celled organisms. Their name *Saccharomyces* means 'sugar fungi' and they are commonly found wherever sugar occurs.

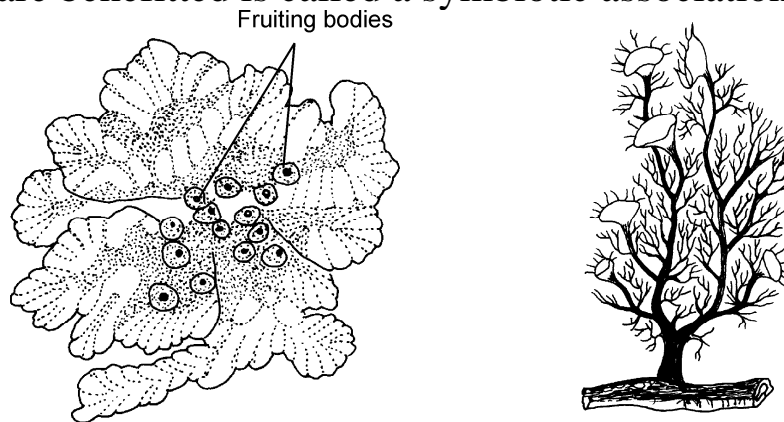
For thousands of years, yeast has been ferment the sugars in rice and barley to produce beer, and the sugar in grapes to make wine. Yeast added to dough ferments the sugar in the dough to produce carbon dioxide. This makes the dough rise.



Budding of Yest

14. Write a short note on lichen.

Ans. Lichen : A lichen is a close partnership between an alga and a fungus. The algal cells grow in the fungal mycelium. They make food by photosynthesis and some of it is passed to the fungus. The fungus provides shelter and protection to the alga. Thus, both the alga and the fungus benefit. This kind of an association between two different kinds of individuals where both are benefitted is called a symbiotic association.



Different types of Lichens

15. Give the important features of : (A) Plantae, (B) Animalia

Ans. (A) Plantae :

- (i) The organisms are multicellular, eukaryotic and green autotrophs.
- (ii) The plant body of most of the organisms is well differentiated into different parts like root, stem, leaf, etc. Some of the plants are thallophytes.
- (iii) The higher group of plants are differentiated on the basis of (a) whether seeds are present or not and (b) whether seeds are enclosed within fruits or not.
- (iv) Kingdom Plantae includes aquatic thallophytes, bryophytes, pteridophytes, gymnosperms and angiosperms.

(B) Animalia :

- (i) Animals are multicellular, eukaryotic organisms.

- (ii) Most animals have a high level of tissue differentiation and many have specialized body organs.
- (iii) Most animals have a nervous system which is used to coordinate their body action and responses.
- (iv) They lack cell wall.
- (v) They possess the power of locomotion.
- (vi) In sexual reproduction, animals produce male and female gametes (sperms and ova).

16. Match the following :

Column A	Column B
(i) Nostoc	(i) Lichen
(ii) Paramecium	(ii) Plantae
(iii) Rhizopus	(iii) Monera
(iv) Symbiotic association	(iv) Female gamete
(v) Bryophytes	(v) Animalia
(vi) Ovum	(vi) Fungi
(vii) Fish	(vii) Protista