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Class-7 (Biology)
Classification of Plants

Multiple choice questions

- 1) The two main categories of plants recognized on the basis of whether they produce fruits or not are:
- b) Angiosperms and Gymnosperms.
- ii) Unicellular organisms with a proper nucleus are known as
- a) Protista
- iii) Amoeba belongs to
- b) Protista

Short answer questions

1. Name the categories of the following:-
- i) Plants which do not have roots, stems and leaves → Thallophyta
- ii) Plants with no roots but have stems and leaves → Bryophytes or mosses
- iii) Plants with roots, stems and leaves and which bear spore producing bodies.
→ Ferns or Pteridophytes
- iv) The amphibians of the plant kingdom → Bryophytes

2. Give two characteristics and one example of each of the following.

i) Algae

Characteristics - 1) They have chlorophyll.

2) They are mostly aquatic, found in fresh as well as marine water.

example - Spirogyra.

ii) Fungi

Characteristics -

1) They lack chlorophyll. So, they are not capable of producing their own food.

2) They live on dead and decaying organic matter.

example - Penicillium

iii) Monocot

Characteristics -

1) Their seeds contain one cotyledon.

2) Leaves have parallel venation
example - Rice, grass.

iv) Dicot

Characteristics - 1) Their seeds contain two cotyledons.

2) Leaves have reticulate venation.

example - Gram

v) Bryophyta -

Characteristics - 1) Their plants have leaves and stems but roots are absent.

2) They have thread like structures called rhizoids which stick to the surface and absorb water. e.g. mosses

- ③
- iv) Pteridophyta -
Characteristics - 1) They bear well-formed leaves, stems and roots but do not produce flowers and seeds.
2) They reproduce through spores.
example - Ferns.

- vii) Thallophytes - 1) They are non-flowering plants
2) They do not have stems, leaves and roots.
example - Fungi.

③ Differentiate between:-

i) Algae and Fungi

Algae

- 1) Chlorophyll present
- 2) They are autotrophs i.e. they can make their own food

example: - Spirogyra

Fungi

- 1) Chlorophyll absent.
- 2) They are mostly saprophytic i.e. they usually live on dead and decaying organic matter.

example - Bread mould

ii) Monocot and Dicot plants

Monocot

- 1) Their seeds contain only one cotyledon.
- 2) Leaves have parallel venation

example - Rice, grass

Dicot

- 1) Their seeds contain two cotyledons.
- 2) Leaves have reticulate venation.

example - Pea, rose.

iii) Autotrophs and Heterotrophs

Autotrophs

Heterotrophs

1) They can make their own food using solar energy

1) They cannot make their own food and depend on autotrophs or other heterotrophs for food.

2) They include green plants having chlorophyll.

2) They include ^{animals} and non-green plants

iv) Bacteria and Amoeba

Bacteria

Amoeba

1) The nuclear membrane is absent in bacteria. So, they are called prokaryotes.

1) Nucleus is bound by the nuclear membrane in amoeba. Hence they are called eukaryotes.

2) The outer covering of the bacterium cell is a cell-wall.

2) The outer covering of the amoeba's body is a cell membrane.

v) Mosses and Ferns

Mosses

Ferns

1) Mosses grow as green, velvety layers in moist places such as damp soil, on the bark of trees and on damp soil.

1) Ferns are grown in most of the gardens for their beautiful leaves.

2) They have stems and leaves but no roots.

2) They have well-formed leaves, stems and roots.

vi) Angiosperms

- 1) These plants bear seeds inside a fruit.
- 2) They can be herbs, shrubs and trees
example - Grass, sugarcane

Gymnosperms

- 1) These plants have naked seeds called cones.
- 2) They are mostly woody trees
example - Pine, cedar

④ Match

- i) Bread mould - d) Saprophyte
- ii) Spirogyra - a) Has chlorophyll
- iii) Moss - e) Has rhizoids
- iv) Fern - b) Leaves with spores
- v) Gymnosperm - c) Naked seeds.

Long answer questions

1. What name is given to bacteria found in the root nodules of pea plants?

Ans- Rhizobium bacteria are found in the root nodules of leguminous plants such as pulses and pea.

These bacteria convert nitrogen gas into soluble compounds called nitrates which are used by plants. Bacteria provide food to the host plant and the host plant in turn provides shelter to the bacteria.

This kind of relationship where in two organisms live in harmony each benefitting from such a relationship is called symbiosis. The organisms are called symbionts.

2) Briefly explain four types of bacteria on the basis of their shape.

Ans - There are four common forms of bacteria - Coccus, bacillus, spirillum and vibrio.

1. Coccus form - These bacteria are spherical or ovoid in shape.

2. Bacillus form - These are rod shaped. These may also occur singly or in groups of two or three, joined end to end in long chains.

3. Spirillum form - These are spiral shaped.

4. Vibrio form - These are comma-shaped.
e.g - *Vibrio cholerae* (responsible for causing cholera)

3) Give reasons :-

i) Bryophytes are called amphibians of the plant Kingdom.

Ans - Mosses have thread like structures called rhizoids which stick to the surface and absorb water. They are also called amphibians of the plant Kingdom as they need water to reproduce.

3) ii) Amoeba does not have any regular shape.

Ans- Amoeba is irregularly shaped. The outer covering of the body is the cell membrane. The organ of locomotion in an amoeba is the pseudopodia which are seen projecting out from the body of an amoeba at a time. As the pseudopodia keeps moving, the shape of amoeba keeps changing.

4. What is a contractile vacuole? State its function in amoeba.

Ans- Contractile vacuole is a vacuole in a unicellular organism that contracts regularly to discharge fluid and especially water from the cell.

Function of contractile vacuole in Amoeba -

Excess of water from the body of amoeba is collected in the contractile vacuole. Ammonia is soluble in water. Hence, sometimes ammonia is expelled out along with the water from the contractile vacuole.

5) List out five uses each of bacteria and fungi in our lives.

8

Ans - Uses of Bacteria

- 1) Certain bacteria like *Acetobacter* ferment fruit juices into vinegar.
- 2) *Lactobacillus* bacteria is used for curdling of milk.
- 3) Certain bacteria are used in curing of animal hides and skin.
- 4) Certain types of bacteria are used in the manufacture of antibiotics such as streptomycin to treat various human diseases.
- 5) Some bacteria live in the large intestines of human beings and produce vitamins such as vitamin B and K that are needed by the body.

Uses of Fungi -

- 1) Fungi is an important source of food. e.g. - mushrooms
- 2) Yeast also produces vitamin B.
- 3) Some species of *Mucor* and *Penicillium* are used in the ripening of cheese.
- 4) Fungi are good decomposers. They decompose dead organic matter and return the nutrients back into the soil.
- 5) Yeast is important in bakeries as it is used in making bread.

6) "Bacteria are harmful to human being".

Explain this statement.

Ans - ^{Some} Bacteria are harmful to human beings in the following ways:-

1. Spoilage of food - Food items such as milk, meat, fish and vegetables get spoiled quickly due to the presence of bacteria. Tinned and packaged foods should not be consumed after their expiry date as it can be infected by bacteria.
2. Diseases - Bacteria are responsible for a number of diseases, some of which are typhoid, leprosy, TB, pneumonia, cholera etc.

7) With reference to number of seeds, venation in the leaves and type of roots, differentiate between monocotyledonous and dicotyledonous plants.

Ans - Monocotyledonous

- 1) Seeds have a single cotyledon.
- 2) Leaves have parallel venation.
- 3) Adventitious root system is present

Dicotyledonous plants

- 1) Seeds contain two cotyledons.
- 2) Leaves have reticulate venation.
- 3) Tap root system is present.

8) Briefly describe the binary fission in Amoeba.

Ans. Amoeba reproduces by splitting into two. In a full-grown Amoeba, first the nucleus divides into two, and then the rest of the cell divides in a way that each half gets one daughter nucleus. This process is called binary fission. The two daughter amoebae live independently, grow to full size and divide again.

