	INDIAN SCHOOL AL WADI AL KABIR	
Class: XII	**Department: SCIENCE 2023 – 24** **SUBJECT: BIOLOGY**	**Date of submission: 24/8/23**
Worksheet No: 3 **WITH ANSWERS**	**CHAPTER – PLANT KINGDOM**	**Note:** **A4 FILE FORMAT**
NAME OF THE STUDENT	**CLASS & SEC:**	**ROLL NO.**

Multiple choice

1. Meaning of gymnosperm is:
a. Full seed.
b. Naked seed.
c. Hidden seed.
d. Round seed.

2. Gymnosperms among these are
a. Conifer.
b. Pinus.
c. Cedar.
d. All.

3. Plant group that has mostly ornamental plants are:
a. Pteridophytes.
b. Gymnosperms.
c. Angiosperms.
d. None.

4. Flowering plants belong to:
a. Pteridophytes.
b. Gymnosperms.
c. Angiosperms.
d. None.

Short Answer Type Question

Q5. What is meant by thallus?

Q6. Draw a well labelled diagram of a unicellular and a multicellular green alga.

Q7. In which plant will you look for mycorrhiza and coralloid roots? Also explain what these terms mean.

Q.8.What is an artificial system of classification?

Q.9.What is Chemotaxonomy?

Long Answer Type Questions

Q.10. What are parasitic algae?

Q11. You are given several different plants. How would you identify a particular plant as an alga, a moss, a fern ?

Case Study

Q12. The earliest systems of classification used only gross superficial morphological characters such as habit, colour, number and shape of leaves, etc. They were based mainly on vegetative characters or on the androecium structure (system given by Linnaeus). Such systems were artificial; they separated the closely related species since they were based on a few characteristics. Also, the artificial systems gave equal weightage to vegetative and sexual characteristics; this is not acceptable since we know that often the vegetative characters are more easily affected by environment. As against this, natural classification systems developed, which were based on natural affinities among the organisms and consider, not only the external features, but also internal features, like ultra-structure, anatomy, embryology and phytochemistry. Such a classification for flowering plants was given by George Bentham and Joseph Dalton Hooker.At present phylogenetic classification systems based on evolutionary relationships between the various organisms are acceptable. This assumes that organisms belonging to the same taxa have a common ancestor. We now use information from many other sources too to help resolve difficulties in classification. These become more important when there is no supporting fossil evidence. Numerical Taxonomy which is now easily carried out using computers is based on all

observable characteristics. Number and codes are assigned to all the characters and the data are then processed. In this way each character is given equal importance and at the same time hundreds of characters can be considered. Cytotaxonomy that is based on cytological information like chromosome number, structure, behaviour and chemotaxonomy that uses the chemical constituents of the plant to resolve confusions, are also used by taxonomists these days.

Q12. 1) In phylogenetic system of classification, it is believed that organisms belongs to the same taxa have _____

a) Common character

b) Common ancestor

c) Different character

d) All of the above

2.) Linnaeus, gave theearliest artificial system of classification systems which was based on

(a) structure of leaves

(b) Androecium structure

(c) Colour of leaves

(d) All of the above

3) Why natural classification systems was developed, what was the need of it?

4) Define numerical taxonomy.

5) What are the basis of the phylogenetic classification system?

ANSWERS

1. b. Naked seed.

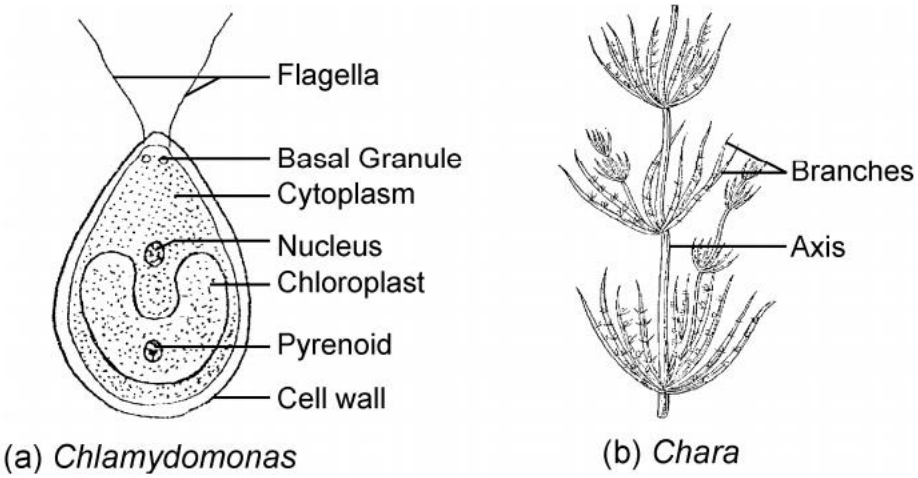
2. d. All

3. c. Angiosperms.

4. c. Angiosperms.

5. The plant body which is not differentiated into root, stem and leaves is known as thallus.

6.



(a) *Chlamydomonas* (b) *Chara*

7. A. Mycorrhiza is the symbiotic association between fungus and roots of vascular plants. The mycorrhizal association is present in conifers such as Pinus, Cedrus, etc. Coralloid roots are present in Cycas. Coralloid roots are present in clusters at the base of the stem and protrude over the ground. It is greenish in colour and dichotomously branched

8. Artificial system of classification which is mainly based on the morphological characters, non-evolutionary features (e.g. classification of plants according to the number and situation of their stamens, style and stigmas) of the organisms and not expressing the true natural relation species.

9. A. Chemotaxonomy is defined as the method of biological classification based on similarities in the chemical constituents of the plants.

10. A. Parasitic algae are also called as the common plant pathogen. These species of algae are most commonly seen in warm, humid climates and are usually found in the leathery leaf plants such as litchi, hollies, magnolias, and viburnums. Parasitic algae are the major causes of foliar disease and red rust of tea leaf. Cephaleuros is an example of parasitic green algae.

11. A. Based on important characteristics, we can identify the given particular plants.

a) Algae

1. Algae are green thallophytes that contain chlorophyll. In some algae, other colors may mask the green color but chlorophyll is present in all of them.

2. Algae are autotrophic plants; they can manufacture their own food with the help of chlorophyll.

3.They are aquatic in nature i.e., they are found in water and moist places.

4.Cell wall in mainly of cellulose.

5. Reserve food material is usually starch.

6.Structurally, algae may be single-celled, multicellular, colonial, multicellular filamentous or thalloid.

b) Moss

1. The plant body is either thallus-like (thalloid) or leaf like(foliose).

2. True roots are lacking; the plants are anchored to the soil by means of filamentous rhizoids.

3. The vascular tissues are absent, plants therefore, remain in short stature.

4. The plant body is green and autotrophic.

5. Sex organs are multicellular.

6. After fertilization, embryo formation takes place.

7. Water is required for fertilization. Plants are restricted to moist and shady places.

c) Fern

1. These are green autotrophic plants.

2. The dominant plant body is differentiated into root, stem and leaves.

3. Vascular tissues are present.

4. Sex organs are multicellular.

5. Embryo is formed after fertilization.

12. 1) b

2) b

3) The earliest systems of classification was totally based upon superficial external vegetative and sexual characteristics, such as habit, colour, number and shape of leaves, etc. this is not acceptable since we know that often the vegetative characters are get easily affected by environment. As against this, natural classification systems was developed.

4) Natural classification systems were based on natural affinities among the organisms and consider, not only the external features, but also internal features, like ultra-structure, anatomy, embryology and phytochemistry. Such a classification for flowering plants was given by George Bentham and Joseph Dalton Hooker.

Numerical taxonomyis the branch of taxonomy in which mathematical methods are used to evaluate observable difference and similarities between taxonomic groups of plant.

5) Phylogenetic classification system indicates evolutionary as well as the genetic relationship among organism, it is based on the fossil record, biochemical, anatomical, morphological, embryological, physiological, genetics, Karyotype, and other studies.

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