

8.DIVERSITY OF PLANT LIFE

Teaching Task (Page 53 – 55)

1) The smallest taxon is:

C) Species

Explanation: In biological classification, the smallest taxon is the species, which represents a group of organisms capable of interbreeding to produce fertile offspring.

2) An organism that can live and grow in presence of oxygen is called:

C) Aerobe

Explanation: Aerobes are organisms that require oxygen for growth and metabolism, unlike anaerobes, which thrive in oxygen-free environments.

3) Which of the following is unicellular green alga?

D) Chlamydomonas

Explanation: Chlamydomonas is a unicellular green alga, while Spirogyra is filamentous, and Fern and Cycas are not algae.

4) Which one of the following represents the non-flowering seeded plants?

B) Gymnosperms

Explanation: Gymnosperms produce seeds but lack flowers, unlike angiosperms (flowering plants). Pteridophytes and bryophytes are non-seeded.

5) Non-Chlorophyllous heterotrophic plants are:

B) Fungi

Explanation: Fungi lack chlorophyll and are heterotrophic, obtaining nutrients from organic matter, unlike algae, bryophytes, and pteridophytes, which are photosynthetic.

6) Which one of the following is pteridophyte?

D) Fern

Explanation: Ferns are pteridophytes, characterized by feathery fronds and vascular tissues. Ulothrix is an alga, Rhizopus is a fungus, and Marchantia is a bryophyte.

7) Xylem lacks vessels and phloem lacks companion cells in:

C) Gymnosperms

Explanation: Gymnosperms have tracheids in xylem (no vessels) and lack companion cells in phloem, unlike angiosperms, which have both.

8) Which type of food is stored in Fungi?

D) Glycogen

Explanation: Fungi store food as glycogen, unlike plants, which store starch.

9) Gymnosperms and angiosperms are included in:

A) Phanerogams

Explanation: Phanerogams are seed-producing plants, including gymnosperms and angiosperms. Cryptogams lack seeds, and thallophytes are simpler plants like algae.

10) Maize is a:

B) Monocot angiospermic plant

Explanation: Maize is a monocotyledonous angiosperm, characterized by a single cotyledon in its seed.

11) A branch of biology which deals with the identification, nomenclature and classification of organisms is called:

C) Taxonomy

Explanation: Taxonomy involves identifying, naming, and classifying organisms.

12) Who is known as father of taxonomy?

B) Linnaeus

Explanation: Carolus Linnaeus is credited with developing the binomial nomenclature system, earning him the title "father of taxonomy."

13) Binomial nomenclature was introduced by:

D) Carolus Linnaeus

Explanation: Linnaeus introduced binomial nomenclature, using two Latin names (genus and species) for organisms.

14) Association between Algae and fungi is known as:

B) Lichen

Explanation: Lichens are symbiotic associations between algae (photosynthetic) and fungi (providing structure and nutrients).

15) A group of freely interbreeding organism constitutes a:

A) Species

Explanation: A species is defined as a group of organisms that can interbreed to produce fertile offspring.

16) According to binomial nomenclature, the scientific name of an organism must consist of two words. These are:

B) Genus and species

Explanation: Binomial nomenclature uses the genus name (capitalized) and species name (lowercase).

17) Which taxonomic term may be substituted for any rank in the classification?

D) Taxon

Explanation: A taxon is a general term for any rank in the classification hierarchy (e.g., species, genus, family).

18) Algae belong to:

A) Thallophytes

Explanation: Algae are thallophytes, characterized by a simple, undifferentiated plant body.

19) Algae are characterized by:

D) all of the above

Explanation: Algae have pyrenoids (starch storage structures), are aquatic, and have unicellular sex organs.

20) In Whittaker's classification, unicellular organisms are grouped under:

A) Protista

Explanation: Whittaker's five-kingdom classification places unicellular organisms, including algae and protozoa, in the kingdom Protista.

Learners Task (Page 55 - 56)

1) Most common nitrogen fixing cyanobacterium of paddy fields is:

D) Nostoc

Explanation: Nostoc is a common nitrogen-fixing cyanobacterium found in paddy fields, contributing to soil fertility.

2) Kingdom protista includes:

D) Both B and C

Explanation: Protists exhibit diverse life cycles, including zygotic meiosis (e.g., in algae) and gametic meiosis (e.g., in protozoa).

3) The term protista was coined by:

A) Haeckel

Explanation: Ernst Haeckel coined the term "Protista" to describe unicellular organisms.

4) The wall of Rhizopus hypha is composed of:

B) Chitin

Explanation: The cell wall of Rhizopus (a fungus) is made of chitin, unlike plant cell walls (cellulose).

5) Yeast and Penicillium/penicillin producing fungus are included under:

C) Ascomycetes

Explanation: Yeast (Saccharomyces) and Penicillium belong to the fungal class Ascomycetes, known for producing ascospores.

6) The fungus that may cause disease in human beings is:

B) Aspergillus

Explanation: Aspergillus can cause aspergillosis in humans, unlike Puccinia (plant pathogen), Cystopus (plant pathogen), or Rhizopus (generally non-pathogenic).

7) Bryophytes are amphibians because:

A) They require a layer of water for carrying out sexual reproduction

Explanation: Bryophytes need water for sperm to swim to the egg during sexual reproduction, hence called amphibians of the plant kingdom.

8) Pteridophytes differ from bryophytes in possessing:

B) Independent gametophyte and sporophyte

Explanation: Pteridophytes have independent gametophyte and sporophyte generations, unlike bryophytes, where the gametophyte is dominant.

9) Azolla/Marsilea is a:

D) Water fern

Explanation: Azolla and Marsilea are aquatic pteridophytes, commonly called water ferns.

10) Gymnosperms do not have:

A) Antheridium

Explanation: Gymnosperms lack antheridia (male reproductive structures found in lower plants), but they have ovules, archegonia, and eggs.

11) What is true in a scientific name?

C) Generic name starts with capital alphabet while specific name starts with small letter

Explanation: In binomial nomenclature, the genus name is capitalized, and the species name is lowercase (e.g., *Homo sapiens*).

12) Naked seeds are present in:

A) Pinus

Explanation: Pinus (a gymnosperm) has naked seeds not enclosed in a fruit, unlike angiosperms like mango, mustard, and lemon.

13) Which of the following is a monocot?

B) Wheat

Explanation: Wheat is a monocotyledonous angiosperm, while carrot, mango, and mustard are dicots.

14) Which among the following has specialised tissue for conduction of water?

C) (iii) and (iv)

Explanation: Pteridophytes and gymnosperms have vascular tissues (xylem and phloem) for water conduction, unlike thallophytes and bryophytes.

15) Organisms without nucleus and cell organelles belong to:

B) (iii) and (iv)

Explanation: Cyanobacteria and Archaeobacteria are prokaryotes, lacking a nucleus and membrane-bound organelles, unlike fungi and protists.

16) Karl Von Linne was involved with which branch of science?

B) Taxonomy

Explanation: Karl Von Linne (Carolus Linnaeus) is known for his contributions to taxonomy, particularly binomial nomenclature.

17) The 'Origin of Species' is written by:

B) Darwin

Explanation: Charles Darwin wrote *On the Origin of Species*, outlining the theory of evolution by natural selection.

18) Stem of fern is generally:

B) Rhizome

Explanation: Ferns typically have an underground stem called a rhizome.

19) In Pinus, leaves are:

C) Needle-like

Explanation: Pinus (a gymnosperm) has needle-like leaves, adapted for reducing water loss.

20) In angiosperms, megasporophyll is specialised to form:

C) Carpel

Explanation: In angiosperms, the megasporophyll is modified into the carpel, which forms the female reproductive structure (pistil).