

## 5. DIVERSITY IN PLANT LIFE

### TEACHING TASK

#### SINGLE ANSWER QUESTIONS:

**1. The smallest taxon is:**

(A) Class (B) Order (C) Species (D) Genus

**Answer:** (C) Species

**Explanation:** Species is the most specific and smallest taxonomic rank in biological classification.

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

(A) heterotroph (B) Autotroph (C) Aerobe (D) Anaerobe

**Answer:** (C) Aerobe

**Explanation:** Aerobes are organisms that require oxygen for growth and survival.

**3. Which of the following is unicellular green alga?**

(A) Spirogyra (B) Fern (C) Cycas (D) Chlamydomonas

**Answer:** (D) Chlamydomonas

**Explanation:** Chlamydomonas is a unicellular green alga, while others are multicellular.

**4. Which represents the non-flowering seeded plants?**

(A) Pteridophytes (B) Gymnosperms (C) Angiosperms (D) Bryophytes

**Answer:** (B) Gymnosperms

**Explanation:** Gymnosperms produce seeds but not flowers (e.g., conifers).

**5. Non-Chlorophyllous heterotrophic plants are:**

(A) Algae (B) Fungi (C) Bryophytes (D) Pteridophytes

**Answer:** (B) Fungi

**Explanation:** Fungi lack chlorophyll and obtain nutrients through heterotrophic nutrition.

**6. Which one is pteridophyte?**

(A) Ulothrix (B) Rhizopus (C) Marchantia (D) Fern

**Answer:** (D) Fern

**Explanation:** Ferns are vascular cryptogams belonging to pteridophytes.

**7. Xylem lacks vessels and phloem lacks companion cells in:**

(A) Algae (B) Fungi (C) Gymnosperms (D) Angiosperms

**Answer:** (C) Gymnosperms

**Explanation:** Gymnosperms have tracheids in xylem and sieve cells in phloem without companion cells.

**8. Which food is stored in Fungi?**

(A) Starch (B) Protein (C) Maltose (D) Glycogen

**Answer:** (D) Glycogen

**Explanation:** Fungi store carbohydrates as glycogen, similar to animals.

**9. Gymnosperms and angiosperms are included in:**

(A) Phanerogams (B) Cryptogams (C) Thallophytes (D) Prokaryotes

**Answer:** (A) Phanerogams

**Explanation:** Phanerogams are seed-producing plants (gymnosperms and angiosperms).

**10. Maize is a:**

(A) Dicot angiospermic plant (B) Monocot angiospermic plant  
(C) Pteridophyte (D) Gymnosperm

**Answer:** (B) Monocot angiospermic plant

**Explanation:** Maize has parallel venation and fibrous roots characteristic of monocots.

**11. The branch of biology dealing with identification, nomenclature and classification is:**

(A) Morphology (B) Ecology (C) Taxonomy (D) Phytogeography

**Answer:** (C) Taxonomy

**Explanation:** Taxonomy is the science of classification and naming organisms.

**12. Who is known as father of taxonomy?**

(A) Mendel (B) Linnaeus (C) Darwin (D) Crick

**Answer:** (B) Linnaeus

**Explanation:** Carl Linnaeus established the binomial nomenclature system.

**13. Binomial nomenclature was introduced by:**

(A) John Ray (B) A.P. de Candolle (C) A.L. de Jussien (D) Carolus Linnaeus

**Answer:** (D) Carolus Linnaeus

**Explanation:** Linnaeus formalized the two-name naming system in 1753.

**14. Association between Algae and fungi is known as:**

(A) Bryophyta (B) Lichen (C) Pteridophyta (D) None

**Answer:** (B) Lichen

**Explanation:** Lichens represent a symbiotic relationship between fungi and algae.

**15. A group of freely interbreeding organisms constitutes a:**

(A) Species (B) Genera (C) Family (D) Class

**Answer:** (A) Species

**Explanation:** Species is defined by the biological species concept of interbreeding.

**16. Scientific name consists of:**

(A) Species and family (B) Genus and species  
(C) Order and family (D) Genus and family

**Answer:** (B) Genus and species

**Explanation:** Binomial nomenclature uses genus + specific epithet (e.g., Homo sapiens).

**17. Which term may substitute for any rank in classification?**

(A) Class (B) Genus (C) Species (D) Taxon

**Answer:** (D) Taxon

**Explanation:** Taxon is a general term for any classification category.

**18. Algae belong to:**

(A) Thallophytes (B) Bryophytes (C) Pteridophytes (D) All of the above

**Answer:** (A) Thallophytes

**Explanation:** Algae are simple, undifferentiated thalloid plants.

**19. Algae are characterized by:**

(A) Pyrenoids (B) Aquatic habit (C) Unicellular sex organ (D) all of the above

**Answer:** (D) all of the above

**Explanation:** All are characteristic features of algae.

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

(A) Protista (B) Porifera (C) Fungi (D) Protozoa

**Answer:** (A) Protista

**Explanation:** Whittaker's five-kingdom system placed unicellular eukaryotes in Protista.

## LEARNERS TASK

### Single Answer Questions

**1. Most common nitrogen-fixing cyanobacterium of paddy fields is:**

- (A) *Cylindrospermum* (B) *Aulosira* (C) *Oscillatoria* (D) *Nostoc*

**Answer:** (B) *Aulosira*

**Explanation:** *Aulosira fertilissima* is particularly abundant in paddy fields and efficiently fixes atmospheric nitrogen.

**2. Kingdom protista includes:**

- (A) Life cycle showing sporic meiosis (B) Life cycle showing zygotic meiosis  
(C) Life cycle showing gametic meiosis (D) Both B and C

**Answer:** (D) Both B and C

**Explanation:** Protists exhibit diverse life cycles including both zygotic and gametic meiosis.

**3. The term protista was coined by:**

- (A) Haeckel (B) Linnaeus (C) Copeland (D) Whittaker

**Answer:** (A) Haeckel

**Explanation:** Ernst Haeckel first proposed the kingdom Protista in 1866.

**4. The wall of *Rhizopus* hypha is composed of:**

- (A) Cellulose (B) Chitin (C) Pectin (D) Hemicellulose

**Answer:** (B) Chitin

**Explanation:** Fungal cell walls typically contain chitin, a nitrogen-containing polysaccharide.

**5. Yeast and *Penicillium* are included under:**

- (A) Basidiomycetes (B) Zygomycetes (C) Ascomycetes (D) Phycomycetes

**Answer:** (C) Ascomycetes

**Explanation:** Both yeast and *Penicillium* are sac fungi that produce ascospores.

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

- (A) *Puccinia* (B) *Aspergillus* (C) *Cystopus* (D) *Rhizopus*

**Answer:** (B) *Aspergillus*

**Explanation:** *Aspergillus* species can cause aspergillosis in humans.

**7. Bryophytes are amphibians because:**

- (A) They require a layer of water for sexual reproduction  
(B) They occur in damp places  
(C) They are mostly aquatic  
(D) All the above

**Answer:** (A) They require a layer of water for sexual reproduction

**Explanation:** Their sperm require water to swim to the egg, though they live on land.

**8. Pteridophytes differ from bryophytes in possessing:**

- (A) Gametophyte dependent on sporophyte
- (B) Independent gametophyte and sporophyte
- (C) Sporophyte dependent on gametophyte
- (D) No sporophyte

**Answer:** (B) Independent gametophyte and sporophyte

**Explanation:** Both generations are independent in pteridophytes.

**9. Azolla/Marsilea is a:**

- (A) Liverwort (B) Moss (C) Tree fern (D) Water fern

**Answer:** (D) Water fern

**Explanation:** Both Azolla and Marsilea are aquatic ferns.

**10. Gymnosperms do not have:**

- (A) Antheridium (B) Ovule (C) Archegonium (D) Egg

**Answer:** (A) Antheridium

**Explanation:** Male gametophytes produce pollen grains, not antheridia.

**11. What is true in a scientific name?**

- (A) Specific name is written first
- (B) Generic name starts with small letter
- (C) Generic name starts with capital while specific name starts with small
- (D) It is written in English

**Answer:** (C) Generic name starts with capital while specific name starts with small

**Explanation:** Binomial nomenclature follows this format (e.g., Homo sapiens).

**12. Naked seeds are present in:**

- (A) Pinus (B) Mango (C) Mustard (D) Lemon

**Answer:** (A) Pinus

**Explanation:** Gymnosperms like Pinus have seeds not enclosed in fruit.

**13. Which is a monocot?**

- (A) Carrot (B) Wheat (C) Mango (D) Mustard

**Answer:** (B) Wheat

**Explanation:** Wheat is a grass with parallel-veined leaves (monocot characteristic).

**14. Which have specialized tissue for water conduction?**

**(i) Thallophyta (ii) Bryophyta (iii) Pteridophyta (iv) Gymnosperms**

(A) (i) and (ii) (B) (ii) and (iii) (C) (iii) and (iv) (D) (i) and (iv)

**Answer:** (C) (iii) and (iv)

**Explanation:** Pteridophytes and gymnosperms have vascular tissues.

**15. Organisms without nucleus and cell organelles belong to:**

**(i) Fungi (ii) Protista (iii) Cyanobacteria (iv) Archaeobacteria**

(A) (i) and (ii) (B) (iii) and (iv) (C) (i) and (iv) (D) (ii) and (iii)

**Answer:** (B) (iii) and (iv)

**Explanation:** Cyanobacteria and archaeobacteria are prokaryotes.

**16. Karl Von Linne was involved with:**

(A) Morphology (B) Taxonomy (C) Physiology (D) Medicine

**Answer:** (B) Taxonomy

**Explanation:** Carolus Linnaeus (Karl Von Linne) is the father of taxonomy.

**17. The 'Origin of Species' is written by:**

(A) Linnaeus (B) Darwin (C) Haeckel (D) Whittaker

**Answer:** (B) Darwin

**Explanation:** Charles Darwin published this foundational work in 1859.

**18. Stem of fern is generally:**

(A) Bulb (B) Rhizome (C) Runner (D) Corm

**Answer:** (B) Rhizome

**Explanation:** Ferns typically have underground horizontal stems (rhizomes).

**19. In Pinus, leaves are:**

(A) Flat rhomboidal (B) Flat cordate (C) Needle-like (D) Scale-like

**Answer:** (C) Needle-like

**Explanation:** Pine trees have needle-shaped leaves adapted to dry conditions.

**20. In angiosperms, megasporophyll is specialized to form:**

(A) Stamen (B) Petal (C) Carpel (D) Thalamus

**Answer:** (C) Carpel

**Explanation:** The carpel is a modified megasporophyll that encloses ovules.