

UNIT I: DIVERSITY IN THE LIVING WORLD

1. BIOLOGICAL CLASSIFICATION

1 OMQ + 1 VSAQ [1 M + 2M = 3 M]

ROOT POINTS

- Botany** (Plant Science) deals with the study of various aspects of different kinds of Plants. **Biological classification** is the classification of various organisms into groups and arranging them in an order.
- Main contents of this chapter: i) Kingdom Monera ii) Kingdom Protista iii) Kingdom Fungi iv) Kingdom Plantae v) Kingdom Animalia vi) Viruses, viroids, prions & lichens.
- Taxons of Organisms:** Species, Genus, Family, Order, Class, Phylum, Kingdom.
- Linnaeus two kingdom classification :** i) Plantae (plants) ii) Animalia (animals).
- Five key characteristics of the five kingdom classification:**
 - Cell type :** i) **Prokaryotic** - No real nucleus ii) **Eukaryotic** - contains nucleic membrane.
 - Cell wall :** i) Non-cellulosic ii) Cellulose (provides shape, strength, metabolism)
 - Body Organisation:** i) Cellular (Unicellular, Multicellular) ii) Tissue iii) Organ iv) Organ system
 - Mode of nutrition:** i) **Autotrophic** produces own food **Ex:** plants
ii) **Heterotrophic** (consumes other organism) **Ex:** animals
 - Reproduction :** i) **Asexual:** Involves one parent and produces genetically identical offspring.
ii) **Sexual:** Involves two parents - fusion of gametes (Egg & Sperm).
- Whittaker's five kingdom classification:** Monera, Protista, Fungi, Plantae and Animalia.
- Kingdom Monera:** • Monera means single (like monarch). • Monera are the most abundant.
 - Monera are the first microbes on the earth. • Monera are most primitive group of organisms.
 - **Ex:** Bacteria, Cyanobacteria, Archaea
- Kingdom Protista:** **Protista** means **first** eukaryotic forms. They link plants, animals and fungi. **Ex:** Chrysophytes, Dinoflagellates, Euglenoids, Slime Moulds, Protozoans.
- Kingdom Fungi:** Multicellular (loose tissue); Heterotrophic. **Chitin** in cell wall. **Ex:** Mucor, Aspergillus, Agaricus.

Five kingdom Classification

10. Two kingdom classification was given by **Linnaeus**. [MCQ]
11. Among five kingdom classification, **eukaryotes** are placed in **Four** kingdoms. [OWQ]
12. **Bacteria** are reproduced mainly by **Binary fission**. [FIB]
13. **Archaeobacteria** live mostly in **harsh habitats**. [MCQ]
14. **Methanogens** present in gut of cows and buffaloes make **Methane (biogas)**. [FIB]
15. **Nostoc** is a nitrogen fixing Cyanobacterium. [MCQ]
16. The colonies of cyanobacteria are generally surrounded by **Gelatinous** sheath. [FIB]
17. **Heterotrophic bacteria** is useful in making curd from milk. [VSAQ]
18. **Mycoplasma** are the **smallest living cells** which can survive **without oxygen**. [OWQ]
19. **Diatoms** are the chief **Producers** in the oceans. [FIB]
20. The walls of a diatoms are almost **indestructible** as they are made up of **silica**. [VSAQ]
21. **Pellicle** is found in **Euglenoid** organisms. [FIB]
22. **Euglenoids** show both **autotrophic** and **heterotrophic** nutrition. [OWQ]
23. **Red tides** due to gonulax signify the rapid multiplication of red dinoflagellates in red sea. [VSAQ]
24. **Trypanosoma** is the causative organism for **Sleeping sickness disease**. [OWQ]
25. **Chitin** is the **cell wall** composition of **fungi**. [OWQ]
26. **Agaricus** belongs to **Basidiomycetes** class of fungi [OWQ]
27. Neurospora fungus is extensively used in biochemical and genetic work. [MCQ]
28. **Deuteromycetes** Fungi is known as Imperfect fungi. [FIB]
29. The **viruses** which **infect bacteria** are known as **Bacteriophages**. [MCQ]
30. **Beijerinck** proposed the name "Contagium vivum fluidum". [OWQ]
31. **Viroids** are infectious agents to **plants where as Viruses** are to **all organisms**. [VSAQ]
32. Viroids were discovered by **T.O.Diener** [FIB]
33. **Prions** cause **mad cow disease**. [OWQ]
34. For lichen, **algal** component is **Phycobiont** and **fungal** component is **Mycobiont**. [VSAQ]
35. **Lichens** is a good **Pollution Indicators**. [MCQ]
36. Viscum is a partial stem parasite and Cuscutta is a complete stem parasite. [VSAQ]
37. The motile bacteria are able to move by **flagella**. [NEET-2014]
38. **Mesosomes** structures perform the function of mitochondria in bacteria. [NEET-2014]
39. Cell wall is absent in **Mycoplasma**. [NEET-2015]
40. True nucleus is absent in **Anabaena**. [NEET-2015]
41. Methanoges belong to **Archaeobacteria**. [NEET-2016]
42. One of the major componets of cell wall of most fungi is **Chitin**. [NEET-2016]
43. Viroids differ from viruses in having **RNA molecules without protein coat**. [NEET-2017]
44. DNA replication in bacteria occurs **prior to fission**. [NEET-2017]
45. **Glycocalyx** components provide sticky character to the bacterial cell. [NEET-2017]
46. **Archaeobacteria** are found in extreme saline conditions. [NEET-2017]
47. **Viroids** have free RNA without protein coat. [NEET-2020]
48. **Cyanobacteria** are autotrophic, classified under kingdom **Monera**. [NEET-2022]
49. **Mode of Nutrition** is not a criterion for classification of **Fungi**. [NEET-2025]