CHAPTER : 2 BIOLOGICAL CLASSIFICATION

Page No. : **10-21**

Total Pages : **12**

Questions Asked : **47**

3-4 QUESTION PER PAGE AT AN AVERAGE

- **Which page has the maximum**

Page No. 19 = 30.9%

Page No. 20,24,26 = 43.9%

Just four Pages = 74.8%

2010-2024		Page No.
	0 →	10,12,15,19
18,21,24 ←	2 →	17,17,18
14,15 ←	2 →	11
12,14,16,17(2),18 19(2) ←	4 →	16,21
10(2),12,14(3),15(6) 16(2),17,18,19,22 ←	6 →	14,18,20
10(2),11,12(3),13,14 15,16,17(2),20,21,22 ←	13 →	13

BIOLOGICAL CLASSIFICATION

1. Biological classification of plants and animals was first proposed by **Aristotle** on the basis of simple morphological character.
2. Aristotle classify plants into trees, shrubs and herbs. He also divided animals into two groups on the basis of presence / **absence of RBCs.**
3. **Linnaeus** gives two kingdom system of classification included Plantae and Animalia on the basis of cell wall.
4. R.H.Whittaker proposed five kingdom classification in **1969.**

[NEET-2012] [NCERT-11]

- Three kingdom of classification – Haeckel (added new kingdom protista)
- Four kingdom classification – Copeland (added monera).

Main criteria for classification

1. Cell structure
2. Body organisation
3. Mode of nutrition
4. Reproduction
5. Phylogenetic relationship

5. Unicellular Prokaryotes-**Monera**

   Unicellular Eukaryotes-**Protista**

[NEET-2020] [NCERT-12]

   Heterotrophic Eukaryotes (Saprophytic or Parasitic)-**Fungi**

   Autotrophic Eukaryotes-**Plantae**

   Heterotrophic Eukaryotes (Holozoic or Saprozoic) -**Animalia**

6. Bacteria are the sole members of kingdom monera. Bacteria are grouped under four categories on their shape. They are most abundant micro organisms and are cosmopolitan

Spherical - **Coccus**

Rod shaped - **Bacillus**

Comma shaped - **Vibrium**

Spiral - **Spirillum**

7. Bacteria as a group show the most extensive metabolic diversity.

[NEET-2012] [NCERT-13]

Fungi show extensive habitat diversity.

8. Archaebacteria differ from other bacteria on the basis of different cell wall structure and this features is responsible for survival in extreme conditions.

[NEET-2014, 2022] [NCERT-13]

9. Some cyanobacteria can fix atmospheric nitrogen in specialised cell called heterocysts. e.g., Nostoc and Anabaena.

[NEET-2012, 2010] [NCERT-13]

10. Bacteria are photosynthetic autotrophs, chemosynthetic autotrophs and heterotrophs.

- Heterotrophic bacteria are most abundant in nature.

[NEET-2022] [NCERT-13]

11. Mycoplasma : - Prokaryotes

- Completely lack cell wall
- Smallest living cells

[NEET-2022] [NCERT-14]

- Can survive without oxygen

[NEET-2015, 2017] [NCERT-14]

- Mycoplasma can pass through 1 micron.

[NEET-2022] [NCERT-14]

- Size of mycoplasma is 0.3 μm.
- Pathogenic to plants and animals

12. Boundaries of kingdom protista are not well defined they show connection to three kingdom - **Plantae, Animalia and Fungi.**

    - All protista are single celled i.e., **unicellular.**

[NEET-2020] [NCERT-14]

13. **Diatoms (Chrysophytes)** cell walls form two thin overlapping shells, which fit together as in a soap box. The walls are embedded with silica and walls are indestructible.

[NEET-2015] [NCERT-14]

14. Chrysophytes are microscopic and float passively in water currents.

[NEET-2016] [NCERT-14]

15. **Diatoms are** chief producers in the oceans.

[NEET-2018] [NCERT-15]

16. **Dinoflagellates (Fire algae)**

    - Mostly marine and photosynthetic. **[RE-NEET-2024]**

    Red dinoflagellates (Gonyaulax) undergo rapid multiplication that they make the sea appear red (Red tides). Release toxin that may kill other marine animals such as fishes.

    Red sea is caused by Trichodesmium erythrium

17. In Euglenoids instead of a cell wall, they have a protein rich layer called pellicle which makes their body flexible. Nutrition- Mixotrophic (Photosynthetic + Heterotrophic). **[RE-NEET-2024]**
18. Euglena are connecting link between plants and animals.
19. Under favourable condition slime moulds (Saprophytic protists) form their aggregation called plasmodium and during unfavourable condition plasmodium differentiate and form fruiting bodies bearing spores at their tips. Spores posses true walls and dispersed by air current. **[RE-NEET-2024]**
20. Primitive relatives of animals are protozoans. All protozoans are heterotrophs protozoa classify into four groups on the basis of locomotary structure. **[RE-NEET-2024]**

Amoeboid	:	Amoeba and Entamoeba
Flagellated	:	Trypanosoma
Cilliated	:	Paramoecium

[NEET-2018] [NCERT-16]

Sporozoans	:	Plasmodium

21. Cell wall of fungi is composed of chitin and polysaccharides fungi are **saprophytes, parasites and symbiotics.**

[NEET2016] [NCERT-16]

Chitin is homopolymer.

22. **Symbionts-** in association with algae as lichen and with roots of higher plants as **mycorrhiza.**
23. In fungi sexual cycle involve- **Plasmogamy, Karyogamy and Meiosis in zygote.**
24. Dikaryophase found in Ascomycetes and Basidiomycetes.
25. Yeast are used to make bread and beer

[NEET-2012] (NC-I-16)

Botanical name of yeast is saccharomyces cerevisiae.It is known as bakers yeast as well as brewers yeast.

- It is member of ascomycetes. It is the only unicellular and nonfilamentous fungi.
- Fungi are Filamentous with the exception of yeasts which are unicellular **[NEET-2015] (NC-I-16)**

26. The morphology of the mycelium, mode of spore formation and fruiting bodies form the basis for the division of the kingdom fungi into various classes. **[NEET-2024] [NC-I-17]**
27. Fungi bodies consist of long, slender thread like structure called hyphae. The network of hyphae is known as mycelium

[NEET-2019] (NC -I-16)

Note :- (I) Early blight of potato-Alternaria (Deuteromycetes)

(ii) Late blight potato - Phytophthora infestans (Phycomycetes)

28. Ascomycetes are mostly multicellular eg. Penicillium or rarely unicellular eg. yeast

[NEET-2015] (NC-I-17-18)

29. In ascomycetes asexual spores are conidia produced exogenously on the special mycelium called conidiophores.

[NEET-2019] (NC-I-17)

30. In all three classes of fungi mycelium is septate and branched but in **phycomycetes** it is aseptate and unbranched and **coenocytic.**

    - **Rhizopus (the bread mould) - Ex. of phycomycetes.**

[NEET-2024] [NCERT-17]

31. Edible fungi are **morels and truffles**, are the members of **ascomycetes.**

[NEET-2019] [NCERT-18]

32. Neurospora is used extensively in biochemical and genetic work.

[NEET-2015] [NCERT-18]

    - It is known as Drosophilla of plant kingdom. Neurospora is member of ascomycetes.

33. Some common members of basidiomycetes are Agaricus (mushroom) Ustilago (smut) and Puccinia (rust fungus).

[NEET-2015,2024] (NC-I-18)

34. Some members of deuteromycetes are saprophytes or parasites while large no. of them are decomposer of litter and help in mineral cycling.

[NEET-2015] (NC-I-18)

35. - Deuteromycetes - imperfect fungi
    - Deuteromycetes reproduce only by asexual spores known as conidia.
    - Example of Deuteromycetes are Alternaria, Trichoderma and Colletotrichum.

[NEET-2015] (NC-I-18)

36. Kingdom animalia lacks cell walls

[NEET-2014, 2015] (NC-I-20)

37. M.W. Beijerinek (1898) demonstrated that extract of the infected plant of tobacco cause infection in healthy plants and called the fluid as contagium vivum fluidium (infectious living fluid)

[NEET-2015] (NC-I-20)

38. Viruses are obligate parasites

[NEET-2015] (NC-I-20)

39. Capsomere are arranged in helical or polyhedral geometric forms

[NEET-2012] (NC-I-20)

40. In viruses protein coat called capsid whose smaller sub unit called capsomere

[NEET-2010, 2014] (NC-I-20)

41. Viruses cause disease in plants, the symptoms can be mosaic formation, leaf rolling and curling, yellowing and vein clearing, dwarfing and stunted growth

[NEET-2015] (NC-I-20)

42. In 1971 T.O. Diener discovered new infections agent called viroid

[NEET-2016] (NC-I-21)

43. Viroid lacked the protein coat

[NEET-2017] (NC-I-21)

44. Viroid are smaller than viruses and caused potato spindle tuber disease.

Free RNA of low molecular weight.

[NEET-2015] (NC-I-21)

45. Prions consisted of abnormally folded protein

[NEET-2020] (NC-I-21)

- Prions are similar in size with virus.

46. The most notable diseases caused by prions are BSE (Bovine spongiform encephalopathy) commonly called mad cow disease in cattle and its analogous variant Cr-Jacob disease (CJD) in humans.

[NEET-2019] (NC-I-21)

47. Lichens are symbiotic association i.e. mutually useful association b/w algae and fungi

[NEET-2012] (NC-I-21)

48. In lichen algal component is phycobiont and fungal component called mycobiont.

Lichens are pollution indicator.

[NEET-2019] (NC-I-21)