CHAPTER 2

BIOLOGICAL CLASSIFICATION

MULTIPLE CHOICE QUESTIONS

1. All eukaryotic unicellular organisms belong to
   a. Monera
   b. Protista
   c. Fungi
   d. Bacteria

2. The five kingdom classification was proposed by
   a. R.H. Whittaker
   b. C.Linnaeus
   c. A. Roxberg
   d. Virchow

3. Organisms living in salty areas are called as
   a. Methanogens
   b. Halophiles
   c. Heliophytes
   d. Thermoacidophiles

4. Naked cytoplasm, multinucleated and saprophytic are the characteristics of
   a. Monera
   b. Protista
   c. Fungi
   d. Slime molds

5. An association between roots of higher plants and fungi is called
   a. Lichen
   b. Fern

c. Mycorrhiza
d. BGA

6. A dikaryon is formed when
   a. Meiosis is arrested
   b. The two haploid cells do not fuse immediately
   c. Cytoplasm does not fuse
   d. None of the above

7. *Contagium vivum fluidum* was proposed by
   a. D.J. Ivanowsky
   b. M.W. Beijerinek
   c. Stanley
   d. Robert Hook

8. Associations between Mycobiont and Phycobiont are found in
   a. Mycorrhiza
   b. Root
   c. Lichens
   d. BGA

9. Difference between Virus and Viroid is
   a. Absence of protein coat in viroid but present in virus
   b. Presence of low molecular weight RNA in virus but absent in viroid
   c. Both a and b
   d. None of the above

10. With respect to fungal sexual cycle, choose the correct sequence of events
   a. Karyogamy, Plasmogamy and Meiosis
   b. Meiosis, Plasmogamy and Karyogamy
   c. Plasmogamy, Karyogamy and Meiosis
   d. Meiosis, Karyogamy and Plasmogamy

11. Viruses are non-cellular organisms but replicate themselves once they infect the host cell. To which of the following kingdom do viruses belong to?
   a. Monera
   b. Protista
   c. Fungi
   d. None of the above

12. Members of phycomycetes are found in
    i. Aquatic habitats
    ii. On decaying wood
    iii. Moist and damp places
    iv. As obligate parasites on plants

    Choose from the following options
    a. None of the above
    b. i and iv
    c. ii and iii
    d. All of the above

VERY SHORT ANSWER TYPE QUESTIONS

1. What is the principle underlying the use of cyanobacteria in agricultural fields for crop improvement?
2. Suppose you accidentally find an old preserved permanent slide without a label. In your effort to identify it, you place the slide under microscope and observe the following features :-
    a. Unicellular
    b. Well defined nucleus
    c. Biflagellate–one flagellum lying longitudinally and the other transversely.

    What would you identify it as? Can you name the kingdom it belongs to?
3. How is the five–kingdom classification advantageous over the two-kingdom classification?
4. Polluted water bodies have usually very high abundance of plants like *Nostoc* and *Oscillitoria*. Give reasons.
5. Are chemosynthetic bacteria-autotrophic or heterotrophic?
6. The common name of pea is simpler than its botanical (scientific) name *Pisum sativum*. Why then is the simpler common name not used instead of the complex scientific/ botanical name in biology?
7. A virus is considered as a living organism and an obligate parasite when inside a host cell. But virus is not classified along with bacteria or fungi. What are the characters of virus that are similar to non-living objects?
8. In the five kingdom system of Whittaker, how many kingdoms are eukaryotes?

SHORT ANSWER TYPE QUESTIONS

1. Diatoms are also called as 'pearls of ocean', why? What is diatomaceous earth?
2. There is a myth that immediately after heavy rains in forest, mushrooms appear in large number and make a very large ring or circle, which may be several metres in diameter. These are called as 'Fairy rings'. Can you explain this myth of fairy rings in biological terms?
3. *Neurospora* - an ascomycetes fungus has been used as a biological tool to understand the mechanism of plant genetics much in the same way as *Drosophila* has been used to study animal genetics. What makes *Neurospora* so important as a genetic tool?
4. Cyanobacteria and heterotrophic bacteria have been clubbed together in Eubacteria of kingdom Monera as per the "Five Kingdom Classification" even though the two are vastly different from each other. Is this grouping of the two types of taxa in the same kingdom justified? If so, why?
5. At a stage of their cycle, ascomycetes fungi produce the fruiting bodies like apothecium, perithecium or cleistothecium. How are these three types of fruiting bodies different from each other?
6. What observable features in *Trypanosoma* would make you classify it under kingdom Protista?
7. Fungi are cosmopolitan. Write the role of fungi in your daily life.

LONG ANSWER TYPE QUESTIONS

1. Algae are known to reproduce asexually by variety of spores under different environmental conditions. Name these spores and the conditions under which they are produced.
2. Apart from chlorophyll, algae have several other pigments in their chloroplast. What pigments are found in blue-green, red and brown algae that are responsible for their characteristic colours?
3. Make a list of algae and fungi that have commercial value as source of food, chemicals, medicines and fodder.
4. 'Peat' is an important source of domestic fuel in several countries. How is 'peat' formed in nature?
5. Biological classification is a dynamic and ever evolving phenomenon which keeps changing with our understanding of life forms. Justify the statement taking any two examples.