

# **BRAIN INTERNATIONAL SCHOOL**

**Biology- Assignment**

**CLASS: XI**

**DECEMBER -2024**

**SUBJECT- BIOLOGY**

## **Chapter-2 BIPOLOGICAL CLASSIFICATION**

### **MULIPLE QUESTION ANSWERS**

1. Unicellular prokaryotes find his place in five kingdom classification as:  
a. Monera. b. Protists. c. Fungi. d. None.
2. The oldest prokaryote is/are:  
a. Archaeobacteria. b. Cyanobacteria. c. Blue-green alga. d. None.
3. Study of archaeobacteria is important because:  
a. They are available in harsh conditions.  
b. They differ from other bacteria in cell wall composition.  
c. Both.  
d. None.
4. Single-celled eukaryotes find his place as \_ \_ \_ \_ in five kingdom classification.  
a. Monera. b. Protista. c. Fungi. d. None.

### **Short Answer Type Questions**

1. What advantages does the five-kingdom classification have over the twokingdom classification?
2. Who proposed the five-kingdom classification?
3. What is the basis of Whittaker's system of classification?  
What are the demerits of five kingdom classification?
4. Cyanobacteria and heterotrophic bacteria are very different from each other but fall under eubacteria of kingdom Monera. Is this type of grouping justified?
5. Why is natural system of classification better then artificial system of classification?

### **Long Answer Type Questions**

1. Draw diagrams to explain the structure of a bacteriophage and a TMV virus.
2. What are Lichens and what is their importance?
3. Classify the fungi based on their mode of nutrition and Reproduction
4. Explain phylogenetic system of classification?
5. Give a brief account of the various system of classification. Which system of classification you consider more authentic?

### **Case Based Questions:**

The fungi constitute a unique kingdom of heterotrophic organisms. They show a great diversity in morphology and habitat. Some unicellular fungi, e.g., yeast are used to make bread and beer. Other fungi cause diseases in plants and animals; wheat rust-causing Puccinia is an important example. Some are the source of antibiotics, e.g., Penicillium. Fungi are cosmopolitan and occur in air, water, soil and on animals and plants. With the exception of yeasts which are unicellular, fungi are filamentous. Their bodies consist of long, slender thread-like structures called hyphae. The network of hyphae is known as mycelium. Some hyphae are continuous tubes filled with multinucleated cytoplasm – these are called coenocytic hyphae. Others have septae or cross walls in their hyphae. The cell walls of fungi are composed of chitin and polysaccharides. Most fungi are heterotrophic and absorb soluble organic matter from dead substrates and hence are called saprophytes. Those that depend on living plants and animals are called parasites. They can also live as symbionts – in association with algae as lichens and with roots of higher plants as mycorrhiza. Reproduction in fungi can take place by vegetative means – fragmentation, fission and budding. Asexual reproduction is by spores called conidia or sporangiospores or zoospores, and sexual reproduction is by oospores, ascospores and basidiospores. The various spores are produced in distinct structures called fruiting bodies. The sexual cycle involves the following three steps:

(1) \_\_\_\_\_ Hyphae are without septa and filled with multinucleated cytoplasm.

- (a) Septate
- b) Nucleated
- (c) Coenocytic
- (d) Both a and c

(2) \_\_\_\_\_ is the only single celled fungi organism.

- (a) Penicillium
- (b) Yeast
- (c) Mycorrhiza
- (d) Both a and b

(3) What is saprophytic fungi?

- (4) Give reason – why fungi are referred as cosmopolitan organism?
- (5) Name the fungi which is responsible for rusting disease in wheat plant.

### **Chapter-3 PLANT KINGDOM**

#### **MULIPLE QUESTION ANSWERS**

1. Who is regarded as the "Father of Indian Phycology"
- A. Prof. M.O.P. Iyenger C. Prof. R.R. Mishra  
B. Prof. R.N. Singh D. Prof. J.N. Mishra
2. Phycology is the study of
- A. Algae B. Fungi C. Bacteria D. All the above
3. "Artificial classification" by Linnaeus was not accurate because:
- A. It gave equal weightage to vegetative as well as the sexual mode of reproduction.  
B. It was primarily based upon superficial morphological character like color, shape, and number of leaves.  
C. It did not consider internal structure like anatomy, embryology, phytochemistry.  
D. All.
4. Why vegetative mode of reproduction does not weigh equally to the sexual mode of reproduction.
- A. Vegetative propagation is common in the plant kingdom.  
B. Vegetative reproduction is not so complicated, like sexual reproduction.  
C. Environmental factors easily alter vegetative characters.  
D. None.
5. The cytological classification relies on cytological information like:
- A. Chromosome number. C. Chromosome structure.  
B. Chromosome behaviour. D. All.
6. Algae reproduce :
- A. By fragmentation.  
B. Asexually by zoospore formation.  
C. Sexually.  
D. None.

7. Which among these is an alga?

A. Volvox. B. Ulothrix. C. Spirogyra. D. All.

8. Hydrocolloid forming alga is:

A. Algin (Brown alga). B. Carrageen (red alga). C. Sargassum. D. Both a and b.

9. Chemical laboratories obtain agar from which alga:

A. Algin (Brown alga). B. Carrageen (red alga).

C. Sargassum. D. Gelidium.

10. We classify alga based on :

A. Colour. B. Type of spore formation. C. Morphology. D. All the above

### **Short Answer Type Questions**

Q.1. Give an example of plants with

a. Haplontic life cycle

b. Diplontic life cycle

c. Haplo- diplontic life cycle

Q2. Each plant or group of plants has some phylogenetic significance in relation to evolution:

I. Cycas, one of the few living members of gymnosperms is called as the 'relic of past'.

II. Can you establish a phylogenetic relationship of Cycas with any other group of plants that justifies the above statement?

Q3. How are the male and female gametophytes of pteridophytes and gymnosperms different from each other?

Q4. In which plant will you look for mycorrhiza and coralloid roots? Also explain what these terms mean.

Q5. Explain why sexual reproduction in angiosperms is said to take place through double fertilization and triple fusion. Also draw a labelled diagram of embryo sac to explain the phenomena.

Q6. Draw labelled diagram of "Alternation of generation in Angiosperm".

### **Long Answer Type Questions**

1. Describe the phylogenetic classification systems

2. Why is the endosperm of angiosperms triploid?
3. Write any four characteristics features of pteridophyte.
4. Bring out the major differences between monocotyledons and dicotyledons.
5. Mention economic importance of algae
6. Give a comparative account of
  - (a) The nature of cell wall and
  - (b) The characteristics of flagella among the three classes of algae.
7. In which plant will you look for mycorrhiza and coralloid roots? Also explain what these terms mean.
8. What is meant by?
  - (a) Cytotaxonomy
  - (b) Chemotaxonomy
  - (c) Numerical taxonomy and
  - (d) Heterosporous ferns
9. Draw a diagram of
  - (a) Haplontic life cycle
  - (b) Diplontic life cycle and
  - (c) Haplo-diplontic life cycle.

### **Case Based Questions:**

The gymnosperms are plants in which the ovules are not enclosed by any ovary wall and remain exposed, both before and after fertilisation. The seeds that develop post-fertilisation, are not covered, i.e., are naked. Gymnosperms include medium-sized trees or tall trees and shrubs. One of the gymnosperms, the giant redwood tree Sequoia is one of the tallest tree species. The roots are generally tap roots. Roots in some genera have fungal association in the form of mycorrhiza (Pinus), while in some others (Cycas) small specialised roots called coralloid roots are associated with N<sub>2</sub> – fixing cyanobacteria. The leaves may be simple or compound. In Cycas the pinnate leaves persist for a few years. The leaves in gymnosperms are well-adapted to withstand extremes of temperature, humidity and wind. In conifers, the needle-like leaves reduce the surface area. Their thick cuticle and sunken stomata also help to reduce water loss.

- 1.) In gymnosperms, seeds that develop after fertilisation are \_\_\_\_\_
  - a) Covered in ovary walls
  - b) Not covered in ovary walls
  - c) Covered in ovary sheath
  - d) None of the above
- 2.) Identify the correct characteristics of cycas
 

Characteristic 1 –Leaves pinnate for a few years

Characteristic 2 – Small specialised coralloid roots present

Characteristic 3 – Roots are associated with nitrogen fixing bacteria

Characteristic 4 – Male and female cone are present on different plant

a) Both 2 and 3

b) Only 2

c) 1, 2 and 3

d) All of the above

3) Name the special type of root found in cactus tree.

4) Why gymnosperms are referred as heterosporous group of plants.

5) What is the reason behind needle-like leaves adaptation in gymnosperms?