ASSIGNMENT NO. 4

SUBJECT: BIOLOGY **CLASS-IX** **Nov '2026**

Chapter 12: Patterns in Life – Diversity and Classification

Short Answer Questions
Section A – Two-mark questions

1. What is biodiversity? Why is it important for maintaining ecological balance?
2. Define endemic species. Give two examples of endemic species found in India.
3. Write any two differences between prokaryotic and eukaryotic organisms.
4. Why are fungi placed in a separate kingdom instead of being included in Plantae?
5. What is binomial nomenclature? Write the scientific names of a tiger and a mango.

Activity-Based Questions

7. A student collects five different plants: Spirogyra, moss, fern, pine and rose.

Answer the following:

- Which plant belongs to Thallophyta?
- Which plant has vascular tissues but does not produce seeds?
- Which plant produces flowers and fruits?

8. A student observes three microorganisms:

I. Organism A has no true nucleus.

II. Organism B is unicellular and has a well-defined nucleus.

III. Organism C is unicellular and has cilia for movement.

Answer the following:

a) Which kingdom does Organism A belong to?

b) Which kingdom does Organism B belong to?

c) Give one example of a protist.

9. A student observes a fern and a moss under a microscope.

a. Which plant has true roots, stems and leaves?

b. Name the two vascular tissues found in fern.

c. Why are bryophytes called the amphibians of the plant kingdom?

10. Observe the following animals: sponge, Hydra, earthworm, butterfly and starfish.

a. Which animal belongs to Porifera?

b. Which animal has jointed appendages and an external skeleton?

c. Which animal has a segmented body?

11. A student is given the following scientific names:

- Panthera tigris
- Mangifera indica
- Pisum sativum

Answer the following:

a. What is the first part of a scientific name called?

b. What is the second part called?

c. Write any two rules for writing scientific names.

Case-Based Questions

12.

Pakke Tiger Reserve in Arunachal Pradesh is home to nearly 300 bird species. It supports four species of hornbills: Rufous-necked Hornbill, Oriental Pied Hornbill, Great Hornbill and Wreathed Hornbill.

These birds depend on large, old trees for nesting and specific fruits for food. Deforestation and habitat destruction can threaten their survival. Scientists classify these species to study their distribution, similarities and differences.

Answer the following questions:

a) What is biodiversity?

b) Why do scientists classify different hornbill species?

c) What type of trees do hornbills require for nesting?

d) How can deforestation affect hornbill populations?

e) Suggest one measure to conserve biodiversity in Pakke Tiger Reserve.

13. A science teacher shows students five different organisms under a microscope and through photographs. The organisms are bacteria, Amoeba, mushroom, grass and human beings.

The teacher explains that organisms are classified based on cell type, cell structure, level of organisation and mode of nutrition. Based on these characteristics, scientists proposed the five-kingdom classification system.

Answer the following questions:

1. Name the five kingdoms of classification.
2. Which kingdom includes bacteria?
3. Which kingdom includes Amoeba?
4. Why are mushrooms classified under Fungi and not Plantae?
5. Which kingdom includes grass and human beings, respectively?

Long Answer Questions

14 Explain the five-kingdom classification system proposed by R.H. Whittaker. Write the important characteristics of each kingdom with one example.

15. Explain the five major groups of Kingdom Plantae:

- Thallophyta
- Bryophyta
- Pteridophyta
- Gymnosperms
- Angiosperms

Give one example of each group.

16. Differentiate between vertebrates and invertebrates. Explain the major groups of vertebrates with their characteristic features and examples.