6. As systematists, which aspect of biogeography do you find most challenging for conservation strategies? Justify your answer with examples. (15)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 4059 **H**

Unique Paper Code : 2182012401

Name of the Paper : Systematics and Biogeography

Name of the Course : **B.Sc. (H) Environmental Sciences – Core (DSCC-10)**

Semester : IV

Duration : 2 Hours Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Answer any **four** questions out of the **six** provided.
3. **All** Questions carry equal marks.

1. (a) How can taxonomic keys help achieve accurate species identification? Explain using recent examples. (8)

   (b) Explain the biological and ecological significance of using DNA barcoding for conservation efforts. (7)

2. Write explanatory short notes on the following : (3.75×4=15)

   (i) International Code of Zoological Nomenclature

   (ii) The APG IV system of classification

   (iii) The concept of monophyly

   (iv) Bergmann's Rule

3. Differentiate the following **(any three)** : (5×3=15)

   (i) Phylogenetic trees and cladograms

   (ii) Genetic drift and gene flow

   (iii) Homology and analogy

   (iv) Endemic and exotic species

4. (a) Define, explain, and discuss the relevance of herbarium and botanical gardens in systematics. (8)

   (b) Discuss the key characteristic features of clades and their roles in understanding evolutionary relationships. (7)

5. (a) Critically evaluate the emerging significance of phenograms in ecological studies. (8)

   (b) Elaborate upon genetic drift and its impact on species diversity. (7)