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THE OPEN UNIVERSITY OF SRI LANKA

B. Sc. / B. Ed. DEGREE PROGRAMME –LEVEL 04

BOU2102/BYU4302/BYE4302 - SYSTEMATICS OF HIGHER PLANTS AND ANIMALS

FINAL EXAMINATION- 2023/2024

DURATION: TWO (02) HOURS

Date: 06th October 2023

Time: 9.30am-11.30am

This paper consists of two parts; Part A (four questions) Part B (two questions).

You have to answer **only four (04)** questions, selecting **three (03)** questions from **Part A** and only **one (01)** question from **Part B**.

Part A and B should be answered in separate answer books and attached together.

PART A

01. Different types of characters are used as taxonomic evidences in plant taxonomic studies.

- i) List 5 morphological characters that can be used in plant taxonomy?
- ii) Use of morphological characters as a source of taxonomic evidences has both advantages and disadvantages. Discuss on this statement.
- iii) Giving reasons briefly explain which type of morphological characters are important in plant taxonomy work.
- iv) Citing specific examples briefly discuss the utility of palynological characters in plant systematics.

02. Write short notes on any **three (03)** of the following.

- i) Services offered by Botanical gardens as research centers
- ii) Ethics in using herbarium specimens
- iii) Use of Flavonoid compounds in plant taxonomy
- iv) Methods of plant identification

03. Speciation is the process by which one or more new species arise from previously existing species.
- i) Define the term “variations” exist among organisms.
 - ii) Briefly discuss the factors responsible for the genetic variability occur in organisms.
 - iii) Briefly discuss **two (02)** mechanisms of intraspecific speciation.
 - iv) Discuss on the postzygotic mechanisms operated in plants which prevent the formation of successful hybrids.
04. Different types metabolites present in plants play a vital role in inferring plant phylogenetic relationships.
- i) Write **two (02)** different types of micro molecules with two examples each.
 - ii) State **two (02)** properties of proteins to be utilized in practical work.
 - iii) Write **three (03)** gene regions used in plant taxonomy.
 - iv) If you have been given a plant material to carry out a taxonomic investigation, list the steps you would follow to address the question using DNA data.
 - v) Explain why DNA is accepted as the most powerful tool in resolving plant taxonomic problems.

PART B

05. i) What is nomenclature?
- ii) Briefly explain the advantages of using the scientific names over the usage of vernacular names and provide **two (02)** examples for each.
 - iii) Discuss on the International Code of Zoological Nomenclature.
- 06) i) What is meant by Biological Classification.
- ii) Discuss the principles of classification.

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