The Open University of Sri Lanka
Faculty of Natural Sciences
B.Sc. Degree Programme
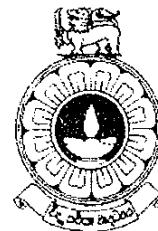
Department	: Botany
Level	: Level 04
Name of the Examination	: Final Examination
Course Title and - Code	: BOU2102/BYU4302/BYE4302
	Systematics of Higher Plants and Animals
Academic Year	: 2024/2025
Date	: 29th April 2025
Time	: 9.30 am to 11.30 am

General Instructions

1. Read all instructions carefully before answering the questions.

2. This question paper consists of **six (06)** questions in **three (03)** pages.

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

4. Answer for each question should commence from a new page.

5. Draw fully labelled diagrams where necessary.

6. Involvement in any activity that is considered as an exam offense will lead to punishment.

7. Use blue or black ink to answer the questions.

8. Clearly state your index number in your answer script.

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. The majority of micro-molecules used in plant systematics are compounds produced as secondary metabolites in plants.

i. What are secondary metabolites in plants? (15 marks)

ii. Write **four (04)** major categories of secondary metabolites with **two (02)** examples each. (24 marks)

iii. List **four (04)** practical applications of secondary metabolites in plant taxonomy. (16 marks)

iv. Discuss the advantages and disadvantages of using secondary metabolites in plant taxonomy. (45 marks)

02. Write short notes on **any three (03)** of the following. (33 marks each)

i. Distinct phases of development of modern systematics

ii. Ethics in writing taxonomic papers

iii. Use of plant proteins in plant taxonomy

iv. Prezygotic mechanisms of plant reproductive isolation

03. Classification systems are the end product of plant phylogenetic work.

i. What is meant by plant classification systems? (10 marks)

ii. Discuss the artificial and natural plant classification systems, highlighting their major differences. (20 marks)

iii. Modern, more advanced classification systems of flowering plants are based on DNA sequence data. Discuss this statement, highlighting the properties of DNA as a more powerful tool in plant taxonomic work. (70 marks)

04. "Botanical gardens in a country play a significant role in plant taxonomy."

i. What is a Botanic Garden? (10 marks)

ii. Discuss the services offered by the botanical gardens. (45 marks)

iii. Write an account on the value and functions offered by herbaria in the field of plant taxonomy. (45 marks)

PART B

05.

i. Briefly explain the requirements of International Code for Zoological Nomenclature giving examples. (20 marks)

ii. Describe why classification systems are changed in time to time. (20 marks)

iii. Describe the use of phylogenic characters in classification of animals. (20 marks)

iv. Compare, valid publication with effective publication. (20 marks)

v. Describe the following scientific names as much as possible. (20 marks)

   a) *Rattus rattus*

   b) *Rana limnocharis* Wiegmann, 1835.

   c) *Tribolium caster* (1992)

   d) Puntius Hamiston, 1822

06.

i. How do you define Biological classification? (10 marks)

ii. Describe the two principals of Biological classification. (50 marks)

iii. Briefly describe the importance of Biological classification. (40 marks)

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