

APPLIED BIOLOGY LEVEL 6

SBT 2151

TAXONOMY OF HIGHER PLANTS

MARCH/APRIL 2024

MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

WRITTEN ASSESSMENT

TIME: 3 HOURS

INSTRUCTIONS TO CANDIDATES

1. This paper has two sections **A** and **B**.
2. You are provided with separate answer booklet.
3. Marks for each question are indicated.
4. Do not write on the question paper.

SECTION A

Answer all the questions in this section

1. Outline the **four** distinct whorls of the flower parts. (4 marks)
2. Explain **three** different types of phyllotaxy. (6 marks)
3. Summarize the proper use of taxonomic keys. (5 marks)
4. Explain **two** types of fleshy fruits. (4 marks)
5. Outline the steps followed in preparation of plant herbarium. (6 marks)
6. Highlight any **three** types of leaf forms exhibited by plants. (3 marks)
7. Enumerate the economic importance of family fabaceae. (2 marks)
8. Explain any **two** specific terms used to describe the sexual expression in angiosperms. (4 marks)
9. Highlight the identifying characters of family poaceae (grass family). (4 marks)
10. Citing **one** example in each category, explain the difference between aggregate and multiple fruits. (4 marks)

SECTION B (60 MARKS)

Answer any **three** questions in this section

11. a) Explain the difference between determinate and indeterminate inflorescence. (2 marks)
b) Describe the various types of indeterminate inflorescence. (10 marks)
c) Cyadales in an order belonging to the gymnosperms. Discuss their distinguishing features. (8 marks)
12. a) Analyze the differentiating characters of monocots and dicots. (14 marks)
b) Explain the uses of plant herbarium. (6 marks)
13. a) You are provided with the following characters of plants A and plant B.
Plant A-Red flower carpels
-Ovate leaf form
-palmate leaf venation
-serrate leaf margin
-alternate leaf arrangement
-rounded leaf base
Plant B-acute leaf base
-leaf margin, entire
-linear leaf form

- opposite leaf arrangement
- pink flower carpels
- parallel leaf venation

Construct a dichotomous key that can be used to identify these plants. (14 marks)

b) Enumerate the limitations of a dichotomous key as a taxonomic key. (6 marks)

14. a) Summarize the general features of non-flowering plants. (10 marks)

b) Order Gnetales belongs to the group of non-flowering plants. Analyze their characteristics. (6 marks)

c) Highlight the points that should be noted during construction of taxonomic keys. (4 marks)