MAASAI MARA UNIVERSITY

REGULAR UNIVERSITY EXAMINATIONS
2019/2020 ACADEMIC YEAR
FOURTH YEAR SECOND SEMESTER

SCHOOL OF SCIENCE
BACHELOR OF SCIENCE

COURSE CODE: BOT 4121

COURSE TITLE: BIOSYSTEMATICS

DATE: 3RD DECEMBER, 2019   **TIME: 1100 – 1300HRS**

INSTRUCTIONS TO CANDIDATES

(a) Answer **ALL** the Questions in Section A
(b) Answer **ANY TWO** Questions in Section B

This paper consists of 2 printed pages. Please turn over.

SECTION A: ANSWER ALL QUESTIONS (30 MARKS)

1. Compare and contrast the four modes of speciation (4marks)
2. Differentiate between Continuous horizontally stepped clines and obliquely stepped clines. (2 marks)
3. What are the uses of Palynofacies? (2 marks)

4. Describe the three phases of taxonomy (3 marks)

5. Briefly describe Bootstrap Technique (3 marks)

6. Outline the contents of Darwin's theory of Natural selection (3 marks)

7. Distinguish between paraphyletic and polyphyletic taxa (1 mark)

8. Explain the Ecological species concept (ESC) (3 marks)

9. Differentiate between Synapomorphy and symplesiomorphy (2 marks)

10. Briefly describe the Five Stages of Molecular Phylogenetic Analysis (5 marks)

11. What is meant by the neutral theory of molecular evolution (2 marks)

SECTION B: Answer Any TWO questions (40 marks)

12. a) Discuss the mechanisms of self-incompatibility (10 marks)

    b) Describe Plant Mechanisms that Promote Cross-Pollination or Outcrossing. (10 marks)

13. a) Describe the phenetic system of classification (10 marks)

    b) Cladograms give information about branching order, but not about the amount of evolutionary change or stratigraphic range, or even superficial similarity. Describe the types of cladograms based on different types of methodology used (10 marks)

14. a) Describe types of apomixis in flowering plants (10 marks)

    b) Natural Selection can be classified in several different ways. Elaborate (10 marks)

15. a) Differentiate between abiotic and biotic pollination (4 marks)

    b) Describe Types of Pollination According to Agent of Pollination (16 marks)

16. Discuss the Basic Tenets of the Codes of biological nomenclature (20 marks)

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