



MACHAKOS UNIVERSITY

University Examinations 2016/2017

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

THIRD YEAR APRIL SESSION EXAMINATION FOR BACHELOR OF EDUCATION

SBT 301: TAXONOMY OF HIGHER PLANTS

DATE: SCHOOL BASED

TIME:

INSTRUCTIONS

Answer Question One and Any Other Two Questions

QUESTION ONE

- a) Explain what an herbarium is. (3 marks)
- b) State three areas which are studied in cytotaxonomy. (3 marks)
- c) Explain the term 'phenotypic plasticity' and its importance to taxonomists (3 marks)
- d) State three reasons why there are more plants 'around the equator compared to the temperate cold zones. (3 marks)
- e) State the scope of the current and former international body which is providing the rules and recommendations for plant nomenclature. (3 marks)
- f) Using examples, distinguish the terms homonym and tautonym as used in nomenclature. (3 marks)
- g) Describe briefly the major contributions of Carolus Linnaeus in taxonomy. (3 marks)
- h) Explain the taxonomic meaning of a variety. (3 marks)
- i) Outline the role of cladistics in taxonomy (3 marks)
- j) Narrate why a classification scheme is described as monophyletic, polyphyletic or paraphyletic. (3 marks)

QUESTION TWO

- a) Discuss five principles of plant nomenclature. (10 marks)
- b) Discuss citing examples why using common names is disadvantageous for the scientific community. (10 marks)

QUESTION THREE

- a) Discuss how plant life cycle, growth habit, growth form and foliage retention are used to identify and classify plants. (10 marks)
- b) Using suitable illustrations, discuss how physical properties of leaves have been used in plant taxonomy. (10 marks)

QUESTION FOUR

- a) Discuss factors that regulate plant genetic recombination per generation. (10 marks)
- b) Discuss the various nomenclatural types used by taxonomists. (10 marks)

QUESTION FIVE

- a) Discuss the major contributions of Theophrastus (c 370-285 BC) in plant classification. (10 marks)
- b) Discuss the major sources and fields which are used by scientists in obtaining higher plant taxonomic information. (10 marks)