



GARISSA UNIVERSITY

UNIVERSITY EXAMINATION **2017/2018** ACADEMIC YEAR **TWO**
FIRST SEMESTER EXAMINATION

SCHOOL OF EDUCATION, ARTS AND SOCIAL SCIENCES

FOR THE DEGREE OF BACHELOR OF EDUCATION (ARTS)

COURSE CODE: ZOO 200

COURSE TITLE: GENERAL GENETICS AND EVOLUTION

EXAMINATION DURATION: 3 HOURS

DATE: 06/12/17

TIME: 2.00-5.00 PM

INSTRUCTION TO CANDIDATES

- The examination has SIX (6) questions
- Question ONE (1) is COMPULSORY
- Choose any other THREE (3) questions from the remaining FIVE (5) questions
- Use sketch diagrams to illustrate your answer whenever necessary
- Do not carry mobile phones or any other written materials in examination room
- Do not write on this paper

This paper consists of TWO (2) printed pages

please turn over



QUESTION ONE (COMPULSORY)

- (a) Trace the origin of life on planet Earth [2 marks]
- (b) Characterize the general composition of a eukaryotic chromosome [2 marks]
- (c) Define the term 'coevolution' and state how it is applied in the field of genetics [3 marks]
- (d) Provide the possible number of genotypes that may result from alleles 'B' and 'b' [2 marks]
- (e) Briefly describe epistasis and give one real example of epistatic condition [5 marks]
- (f) List three (3) methods of measuring variation in breeding populations [3 marks]
- (g) State the four main principles governing the theory of Natural Selection [4 marks]
- (h) Briefly describe the significance of 'backcrossing' [4 marks]

QUESTION TWO

Discuss the intellectual background to Darwin's Discovery and how this has been used to explain adaptive radiation [15 marks]

QUESTION THREE

Write short notes on monohybrid and dihybrid phenomena showing their functional significance [15 marks]

QUESTION FOUR

Write a short essay on the 'Evolutionary Behaviour' [15 marks]

QUESTION FIVE

- (a) State the main characteristics of 'Genetic Drift' [3 marks]
- (b) State the principle characteristics of DNA [3 marks]
- (c) State the perceived medical implication of 'pleiotropic mutation' [3 marks]
- (d) Explain why gene loci on the same chromosomes are generally considered to be in the same linkage group [3 marks]
- (e) Show how recombination can easily alter existing variation in a cross between two diploid individuals 'ABcd/abCD and AbCd/aBcD' [3 marks]

QUESTION SIX

Most organisms show 'good fit' to their environment. Discuss this statement with respect to adaptation. [15 marks]

