**MWALIMU EDUCATION CENTRE**

**ADVANCED EXAMINATION SERIES 7**

**BIOLOGY 2**

**Time:3HRS February 2019;**

**Instructions**:

1. This paper consists of **eight (8)** questions in section A, B, C and D.
2. Answer **five (5)** questions by choosing at least one question from each section.

**SECTION A**

**COMPARATIVE STUDY OF NATURAL GROUPS OF ORGANISMS**

Answer at least **one** question from this section.

1. (a) Write two structural differences between each of the following organisms;
2. Mushroom and Mucor.
3. Moss plant and Pines
4. Maize plant and Bean plant

(b)Describe any five distinctive features of phylum chordate.

1. (a) Draw a large and well labeled diagram of Earthworm.

(b) Explain the significance of an Earthworm which contributes to soil formation and

improvements.

**SECTION B**

**REGULATION AND GROWTH AND DEVELOPMENT**

Answer at least **one** question from this section.

1. (a) Describe six ways in which mammals are adapted to an arid condition to prevent water loss in their body.

(b) Explain hormonal control of osmoregulation in mammals.

1. (a) (i) A certain viable seeds failed to germinate even though were provided with all of the

necessary conditions for germination. Give reasons to justify this phenomenon.

(ii) Describe any five significances of the phenomenon in 4 (a) (i) above.

(b) Explain the similarities of mitosis in plants and animals.

**SECTION C**

**GENETICS**

Answer at least **one** question from this section

1. (a) By giving example in each case, briefly explain the following concepts;
2. Co-dominance
3. Discontinuous variation
4. Sex- limited genes

(b) In some chickens, the trait for feather colour is controlled by the white gene and and black gene. The heterozygous condition of this trait is known as erminette. If these genes were all incomplete dominance genes;

1. Write the genotype for black, white and erminette chickens.
2. If erminette chickens were crossed with black chicken. What is the probability that they would have black chickens white chickens and erminette children.
3. (a) Describe the evidences for the location of the genetic materials in the cells.

(b) Step by step describe the mechanism of transcription process.

**SECTION D**

**EVOLUTION AND ECOLOGY**

Answer at least **one** question from this section

7. (a) Identify and explain the two types of speciation.

(b) Explain four mechanisms that bring about speciation.

(c) Describe the main three ideas of Lamarckism.

8. (a) Explain the factors that limit population growth and distribution.

(b) Describe the types of ecological pyramids and show how they are constructed and state

advantages and disadvantages of each of the pyramid.

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