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UNIVERSITY OF SWAZILAND

SUPPLEMENTARY EXAMINATION PAPER

PROGRAMME : **DIPLOMA IN AGRICULTURE YEAR I,
AGRICULTURAL EDUCATION YEAR I,
DIPLOMA IN HOME ECONOMICS YEAR I,
DIPLOMA IN HOME ECONOMICS
EDUCATION YEAR I, REMEDIAL YEAR IN
HOME ECONOMICS AND REMEDIAL YEAR
IN HOME ECONOMICS EDUCATION**

COURSE CODE: : **APH 100**

TITLE OF PAPER : **ZOOLOGY**

TIME ALLOWED : **TWO (2) HOURS**

INSTRUCTIONS : **ANSWER ANY FOUR QUESTIONS**

**DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN
GRANTED BY THE CHIEF INVIGILATOR**

QUESTION ONE

- a. Using the example of the 'Galapagos Finches', explain how divergent evolution leads to adaptive radiation among animals. (10 Marks)
- b. Explain how the theories of distribution studies and continental drift have been used as evidences of evolution. (15 Marks)

QUESTION TWO

- a. Draw and label the structure of an animal cell. (10 Marks)
- b. Describe the chemical structure of deoxyribonucleic acid (DNA) and indicate the structural differences between this and the ribonucleic acid (RNA). (15 Marks)

QUESTION THREE

- a. Define a gene. (2 Marks)
- b. Describe how the genetic information on the gene portion of a deoxyribonucleic acid (DNA) molecule is transcribed onto the messenger ribonucleic acid (mRNA) and explain the objective of this process in the function (s) of an animal cell. (13 Marks)
- c. Describe the process of protein synthesis as it occurs in an animal cell and explain the effect of the inadequate supply of essential amino acids in the diet of animals on the process of protein synthesis and on the animal itself. (10 Marks)

QUESTION FOUR

- a. Describe the process of mitosis in a bull with 60 diploid number of chromosomes and indicate the objective of this type of cell division. (15 Marks)
- b. Describe the process of spermatogenesis in a bull with 60 diploid number of chromosomes. (10 Marks)

QUESTION FIVE

- a. Describe the structure and functions of the skeletal muscle tissue in the body of farm animals. (10 Marks)
- b. Describe, with the aid of a labeled diagram, the structure of a typical compact organ. (15 Marks)

QUESTION SIX

- a. Describe the structure of cartilage and bone tissues. (15 Marks)
- b. Describe the composition and functions of blood tissue. (10 Marks)