

EXAMINATIONS COUNCIL OF ZAMBIA

Examination for General Certificate of Education Ordinary Level

Biology

5090/6

Paper 6 Alternative to Practical

Wednesday

12 JULY 2017

Additional Materials:

Answer paper

Diagram Booklet

Print Version of Braille Paper

Time 1 Hour 15 Minutes

Instructions to Candidates

Write your **name**, **centre number** and **candidate number** on the answer paper.

There are **three (3)** questions in this paper.

Answer **all** questions.

Write your answers on the answer paper.

Information for Candidates

The number of marks is given in brackets [] at the end of each question or part question.

Cell phones are not allowed in the examination room.

1 A farmer kept one black male pig and one white female pig on the farm. After mating them, the female gave birth to ten (10) white piglets of which five (5) were male and five (5) were female. Use capital letter **W** to represent the allele for white and small letter **w** to represent the allele for black. Explain using a genetic description to show how it was possible for the female piglet to produce all white piglets.

- (a) (i)** State the genetic make up of the:
Male parent pig: [1]
Female parent pig:..... [1]
- (ii)** State the phenotype of the:
Male parent pig: [1]
Female parent pig:..... [1]
- (iii)** Write the possible genotypes of the piglets in the first filia (F1) generation.
.....;;;..... [4]
- (iv)** Which one between the female and male parent pigs has recessive genes in relation to the coat colour?
..... [1]
- (v)** What is the ratio of male to female piglets?
..... [1]
- (b)** What type of variation is shown by:
- (i)** the sex of piglets
..... [1]
- (ii)** the height of piglets
..... [1]
- (iii)** the coat colour of piglets
..... [1]
- (c)** What does the term variation mean?
..... [1]

[Total: 14 marks]

2 A nutritionist wanted to establish the food nutrient in a new soft drink on the market. To do this he carried out some food tests on the soft drink as follows:

- (i) Heated the soft drink in Benedict solution and the drink turned orange.
- (ii) Soft drink was tested with Biuret reagent and it remained blue.
- (iii) Iodine solution was added to the soft drink and it turned blue-black.

(a) (i) Based on the results, state the nutrient(s) present in the soft drink.

..... [1]

..... [1]

(ii) State one important function of the food nutrients you have mentioned in (a) (i) above.

..... [1]

(iii) From the results above, what food nutrient is absent in the soft drink.

..... [1] ...

(iv) State the type of energy found in food eaten by human beings.

..... [1]
.....

(v) What is the SI unit for energy?

..... [1]

(b) It is necessary that human diet contains all major food nutrients. However, vitamins are required in small quantities in the human body and yet their role is very important.

(i) What are vitamins?

..... [2]

(ii) Name two water soluble vitamins.

..... [2]

(c) Calcium is one of the minerals required in small quantities by the human body.

(i) What is the function of calcium in the human body?

..... [1]

- (ii)** What would be the implication of absence of calcium in the diet of a human being?

.....
.....
.....
.....

[3]

- (d)** Table salt (sodium chloride) is constantly lost from the human body in urine and faeces.

What is the effect of rapid loss of salt from the human body?

.....
.....

[2]

[Total: 16 marks]

- 3 (a)** Name the class for each of the animals whose characteristics are described below.
- (i)** Has fur on its body [1]
 - (ii)** Has feathers [1]
 - (iii)** Has exoskeleton with three body parts [1]
 - (iv)** Has gills and scales [1]
- (b)** A man crossed a zebra and a horse on his ranch. He inter bred them because they belonged to the same genus. However, there were no offspring produced.
- (i)** Give a reason [1]
.....
 - (ii)** Classify the zebra based on the levels of classification below.
 - Kingdom** [1]
 - Phylum** [1]
 - Class** [1]
- (c)** State any **two** kingdoms in living organisms.
..... [2]

[Total: 10 marks]