

Candidate Name _____

Centre Number			Candidate Number				

EXAMINATIONS COUNCIL OF ZAMBIA

Examination for School Certificate Ordinary Level

Biology

5090/3

Paper 3 Practical Test

Additional Information:

As listed in Instructions to Supervisors

Time 1 hour 15 minutes

Instructions to Candidates

Write your name, centre number and candidate number in the spaces provided at the top of this page.

There are **two** questions in this paper.

Answer **both** questions.

Write your answers in the spaces provided on the question paper.

Use sharp **HB** pencils for your drawings. Coloured pencils and crayons should not be used.

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.

FOR EXAMINER'S USE

1	
2	
Total	

Answer both questions

1 **E16** is an arrangement representing an ecosystem consisting of biotic and abiotic factors.

(a) Name any **two** biotic components in **E16** and state their roles.

(i) **1.** Name: [1]

2. Role: [1]

(ii) **1.** Name: [1]

2. Role: [1]

(iii) State any **two** abiotic components you can see in **E16**.

1. [1]

2. [1]

(b) (i) Describe the importance of having a variety of living things in **E16**.

.....

..... [1]

(ii) What would happen if the biotic components were removed from **E16**?

.....

..... [2]

(c) (i) Using organisms in **E16**, construct a food chain to illustrate feeding relationships that exist within an ecosystem.

[3]

- (ii) Classify each organism in the food chain in
(c) (i) above according to their trophic levels.

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

[3]

- (iii) Name any **two** physical factors in **E16** which are not directly observable but influence the activities of the setup in **E16**.

.....
.....

[2]

- (iv) State any **three** economic reasons for maintaining biodiversity in the ecosystem.

1.
2.
3.

[3]

Total 20 marks

- 2 You are provided with specimens **W70** and **W71**. Specimen **W70** is homozygous tall and **W71** is homozygous short. Tallness is controlled by a dominant gene (**T**) while shortness is controlled by a recessive gene (**t**).

(a) A monohybrid cross was carried out between **W70** and **W71**.

(i) State the phenotype of

1. **W70** [1]

2. **W71** [1]

(ii) Determine the genotype of the F_1 generation.

..... [1]

(iii) Determine the phenotype of the F_1 generation.

..... [1]

(b) The F_1 offspring were allowed to inbreed.

(i) Determine the phenotype of the F_2 generation.

..... [2]

(ii) Determine the genotype of the F_2 generation.

..... [3]

(iii) Determine the phenotypic ratio of the F_2 generation.

..... [1]

(c) You are provided with two dwarf plants labeled as specimens **C** and **D**. Dwarfness is controlled by a recessive gene, **t**.

(i) State the genotype of the parent plant **C**.

..... [1]

(ii) Determine the phenotype of the F_1 generation formed from a cross between **C** and **D**.

..... [1]

- (iii) Illustrate using a genetic diagram how the F_1 offspring in (c)(ii) above are formed.

[7]

- (iv) State **one** disadvantage of the type of breeding shown by C and D.

[1]

Total 20 marks

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