

Candidate Name _____

Centre Number				Candidate Number			

EXAMINATIONS COUNCIL OF ZAMBIA

Examination for School Certificate Ordinary Level

Biology

5090/3

Paper 3 Practical Test

Thursday

17 NOVEMBER 2016

Additional materials:

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.

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 You are provided with specimens **A** and **B** which are soil samples.

(a) Using a hand lens, identify the differences between the two specimens **A** and **B**.

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

[2]

(b) Place 10g of sample **A** in a funnel labelled **A** fitted with a filter paper and placed in a conical flask. Place 10g of sample **B** in a funnel labelled **B** fitted with a filter paper and placed in a conical flask.

Pour 10cm³ of water into each soil sample in the funnel.

Measure and record the amount of water collected in 3 minutes in the table below and make a conclusion.

(i)

Specimen	Amount of water collected in cm ³ in 3 minutes	Conclusion
A		
B		

[3]

(ii) Name the types of soil in specimen **A** and **B**.

Specimen A

Specimen B

[2]

(iii) Name the physical property of soil being determined in the experiment.

.....

[1]

- (iv) State the disadvantages to the plants growing in each of the specimens of soil in relation to the property observed above.

Specimen **A**: Disadvantages

- 1**
-
- 2**
- [2]

Specimen **B**: Disadvantages

- 1**
- 2** [2]

- (v) Suggest ways in which specimen **A** and **B** can be improved and give reasons.

Specimen **A**

Ways of improving specimen **A**

-
- [1]

Reasons:

-
-
- [2]

Specimen **B**

Ways of improving specimen **B**

- 1**
-
- 2**
- [2]

Reasons:

- 1**
-
- 2**
-
- 3**
- [3]
- [2]

Total 20 marks

- 2 (a)** You are provided with solutions **A** and **B**. Test the pH of the solutions using litmus paper provided on a white tile. Using a dropper, add 3 drops of solution **A** onto one blue and one red litmus paper. Using another dropper, add 3 drops of solution **B** onto one blue and one red litmus paper. Record your observations and conclusions in the table below.

Table 1: Litmus Paper Test

Colour of Litmus paper used	Solution	Observation	Conclusion
Blue	A		
Red	A		
Blue	B		
Red	B		

[8]

- (b) (i)** State the digestive organ in the human body where a solution similar to solution **A** would be found. Give a reason for your answer.

Organ:

Reason:

..... [2]

- (ii)** State **two** organs in the human body where a solution similar to solution **B** would be found. Give a reason for your answer.

Organ 1

2

Reasons:

1

.....

2

.....[4]

(iii) In which of the solutions **A** or **B** would protein digestion occur?

Solution:

Reason:

.....

..... [2]

(c) Solution **A** and **B** provided have the same nutrient composition. Using the reagents provided, determine the nutrient composition of the solutions. Write the test method and record your observations and conclusions in the table below.

Table 2: Protein Test

Solution	Method	Observation	Conclusion
A			
B			

[4]

Total 20 marks