

Centre Number	Candidate Number										

Candidate Name _____

EXAMINATIONS COUNCIL OF ZAMBIA

Joint Examination for the School Certificate
and General Certificate of Education Ordinary Level

BIOLOGY

5090/3

PAPER 3 Practical Test

Friday

16 OCTOBER 2009

1 hour 15 minutes

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.

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	

This question paper consists of 6 printed pages.

Answer **all** the questions.

- 1 You are provided with sample solution **A** which is a juice extracted from specimen **W31**. Carry out a food test to determine the presence of reducing sugar in sample solution **A**.

(a) (i) State the test method, observation and conclusion in the table below.

Table

TEST METHOD	OBSERVATION	CONCLUSION

[5]

(ii) State the nutritional value to the human body of the reducing sugar.

.....

.....

[1]

(b) State **one** way in which the propagation of specimen **W31** can be carried out.

.....

[1]

(c) Further practical tests on solution **A** revealed that the food contained Vitamin A.

(i) What is the importance of this Vitamin to the human body?

.....

[1]

(ii) What is the chemical name of Vitamin A?

.....

[1]

(iii) What **four** health problems could a person suffer if the Vitamin A was lacking in the diet of the human being?

1

2

3

4 [4]

(d) Specimen **W32** was soaked in distilled water and left to stand for 3 days.

Specimen **W33** was soaked in one molar salt solution and left to stand for 3 days.

- (i) Carefully observe Specimens **W32** and **W33**. Describe the appearance of the specimens **W32** and **W33**.

W32

..... [1]

W33

..... [1]

- (ii) Explain why the specimens **W32** and **W33** appeared in the state mentioned above.

W32

..... [1]

W33

..... [1]

- (iii) Relate the appearance of specimen **W32** to the germination of seeds in nature.

.....

.....

.....

..... [3]

[Total 20]

- 2 (a) You are provided with two leaves of the same species, specimens **W34** and **W35**, which after picking have been prepared in different ways. These are submerged in water in two Petri dishes.

- (i) Describe how specimen **W34** differs in appearance from specimen **W35**.

.....

.....

.....[1]

- (ii) Drain the water from specimen **W34** and add iodine solution until the specimen is just covered.

Observe carefully how the specimen changes colour over the next 2 to 3 minutes.

- 1 Record the colour changes you observed.

.....

.....

..... [2]

- 2 Describe the appearance of specimen **W34** when it was picked from the plant.

.....

.....

..... [2]

- (iii) What conclusion can you draw from these results?

.....

.....

..... [3]

- (iv) Describe how specimen **W34** and **W35** were prepared after being picked from the plant and,

Give the reasons for each stage of the preparation of specimens **W34** and **W35**.

.....

.....

.....

..... [4]

- (b) (i)** Make a large labelled drawing of the lower surface of specimen **W35**.

- [4]
- (ii)** Measure accurately the longest distance of specimen **W35**.

Longest distance: [1]

- (iii)** Use your measurement to calculate the magnification of your drawing.
(Show your working)

Calculation [2]

[2]

Magnification: [1]

[Total 20]

1 Was any difficulty experienced in providing the necessary materials? If so, give brief particulars.

2 Did the candidates experience any difficulty during the course of the examination?
If so, give brief particulars. Reference should be made to

(a) difficulties arising from faulty apparatus, substitute specimens etc;

(b) accidents due to apparatus or materials;

(c) any information that is likely to assist the Examiner, especially if this cannot be discovered from the scripts.

INFORMATION THAT APPLIES TO ALL CANDIDATES NEED ONLY BE GIVEN ONCE.

Signed:

Name (in block capitals)