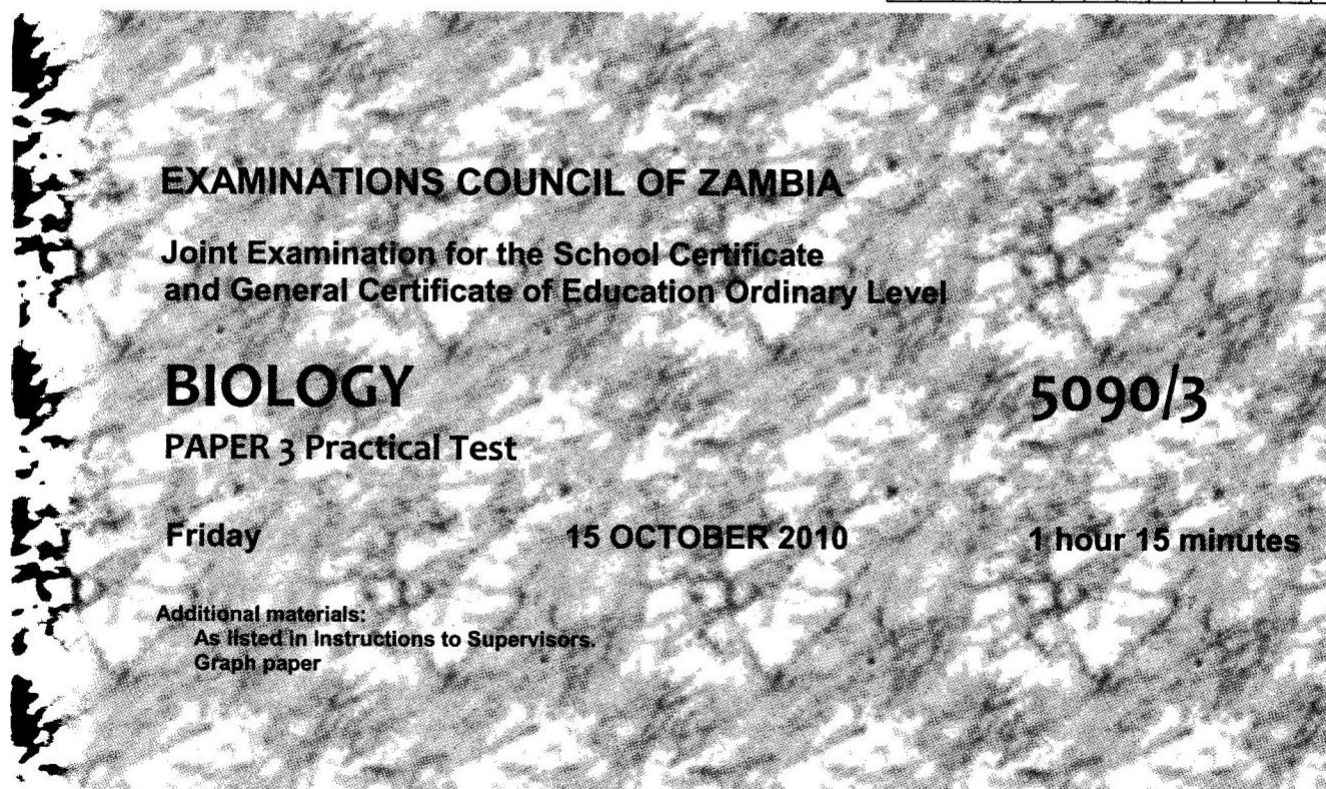


Centre Number	Candidate Number									

Candidate Name \_\_\_\_\_



# EXAMINATIONS COUNCIL OF ZAMBIA

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

## BIOLOGY

PAPER 3 Practical Test

5090/3

Friday

15 OCTOBER 2010

1 hour 15 minutes

Additional materials:  
As listed in Instructions to Supervisors.  
Graph paper

**TIME: 1 hour 15 minutes**

### INSTRUCTIONS TO CANDIDATES

Write your name, centre number and candidate number in the spaces 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.

**Cellphones are not allowed in the examination room.**

FOR EXAMINER'S USE	
1	
2	
Total	

This question paper consists of 7 printed pages.

Answer **all** the questions.

- 1 (a) You are provided with specimen **D30**, **D31**, **D32**, **D33** and **D34**. **D32** was boiled for a period of three minutes.

You are also provided with five test tubes (**T1 – T5**). For each of the treatments below allow three minutes for the reaction to take place and record your observations in the table below.

(i) Introduce **D30** into **T1** containing  $2\text{cm}^3$  of distilled water.

(ii) Introduce **D31** into **T2** containing  $2\text{cm}^3$  of bicarbonate of soda.

(iii) Introduce **D33** into **T3** containing  $2\text{cm}^3$  of vinegar.

(iv) Introduce **D34** into **T4** containing  $2\text{cm}^3$  of hydrogen peroxide.

(v) Introduce **D32** into **T5** containing  $2\text{cm}^3$  of hydrogen peroxide.

Complete the table of observations and conclusions given below.

TEST TUBE	OBSERVATION	CONCLUSION
<b>T1</b>		
<b>T2</b>		
<b>T3</b>		
<b>T4</b>		
<b>T5</b>		

[10]

(vi) State the reason for **T1** in the experiment.

..... [1]

(vii) Explain the difference in the chemical reaction between **T4** and **T5**.

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

(viii) Explain the purpose of **T2** and **T3** in the experiment.

**T2** .....

**T3** ..... [2]

(b) The specimens in (a) contain the enzyme catalase that breaks down hydrogen peroxide to water and oxygen.

(i) What would be the effect on the volume of oxygen evolved if ...

1. temperature is changed from 0 to 35°C.

..... [1]

2. the concentration of hydrogen peroxide is reduced.

..... [1]

(i) Why is it necessary for hydrogen peroxide to be broken down by the liver?

..... [1]

(c) State three functions of the liver.

(i) ..... [1]

(ii) ..... [1]

(iii) ..... [1]

[Total 20]

[Turn over]

2 (a) Examine **W31** and **W32**.

(i) State one similarity between **W31** and **W32**.

.....

..... [1]

(ii) Write two differences between the specimens?

W31	W32
1. .... .....	
2. .... .....	

[2]

(b) (i) Make a large, labelled drawing of **W32**.

[4]

- (ii) Measure accurately the length of **W32** and use this information to calculate the magnification of your drawing.

Length of **W32**: ..... [1]

Calculation:

magnification: ..... [2]

- (c) Carry out tests to investigate the presence of reducing sugar and starch in

- (i) the peel (outer covering) of **W31**.
- (ii) the inner juicy region of **W31**
- (iii) the edible part of **W32**

Where necessary cut the specimen to be tested into tiny pieces. Do this on the tile or slide provided before putting the pieces in a test tube.

Record the results of your tests, and state the conclusions you draw from them in the table below.

SPECIMEN	TEST	RESULTS	CONCLUSION
<b>W31</b> (Peel)	Reducing Sugar	----- -----	----- -----
	Starch	----- -----	----- -----
<b>W31</b> (Inner juicy region)	Reducing Sugar	----- -----	----- -----
	Starch	----- -----	----- -----
<b>W32</b> (Edible part)	Reducing Sugar	----- -----	----- -----
	Starch	----- -----	----- -----

[6]

[Turn over

(d) Describe in detail the way you carried out the test for ...

(i) reducing sugar.....  
.....  
.....  
.....  
..... [2]

(i) starch  
.....  
.....  
.....  
..... [2]

[Total 20]

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

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

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

**Signed:** .....

**Name** (in block capitals) .....

5090/3/ Z2010