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

Wednesday   **30 OCTOBER 2013**

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.
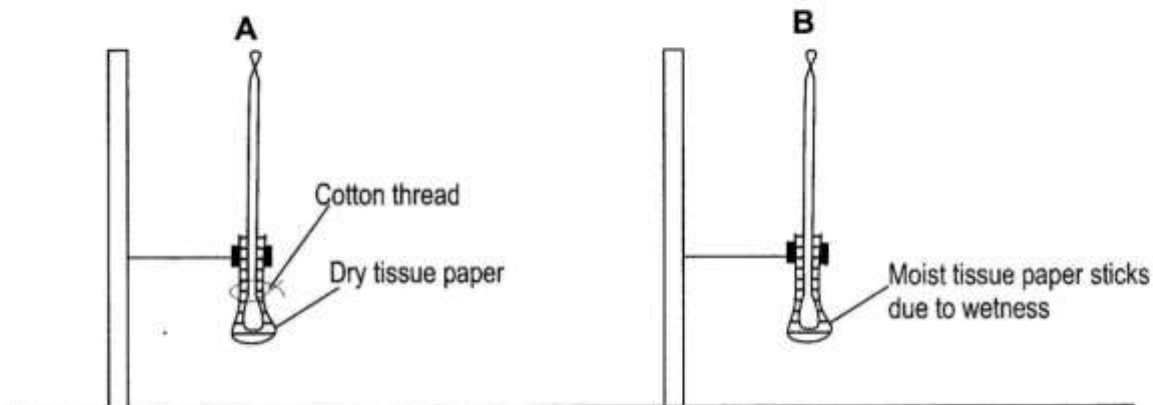
INFORMATION FOR CANDIDATES

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.

Answer **all** the questions.

1   You are provided with two thermometers **A** and **B** which have been kept at room temperature.

Wrap the bulb of thermometer **B** with moist tissue paper. Thermometer **A** is already wrapped for you with a similar amount of dry tissue.

(a)   Start reading the thermometer soon after wrapping the moist tissue to thermometer **B** and record temperature readings at intervals of one minute for a period of 5 minutes for each thermometer. Record the readings in table form in the space provided below.

	Thermometer **A** (Dry tissue)	Thermometer **B** (Moist tissue)
Room temperature reading		
1st reading		
2nd reading		
3rd reading		
4th reading		
5th reading		

[5]

(b) Draw graphs to show the relationship in temperature between the two environments of the thermometers on the same graph paper.
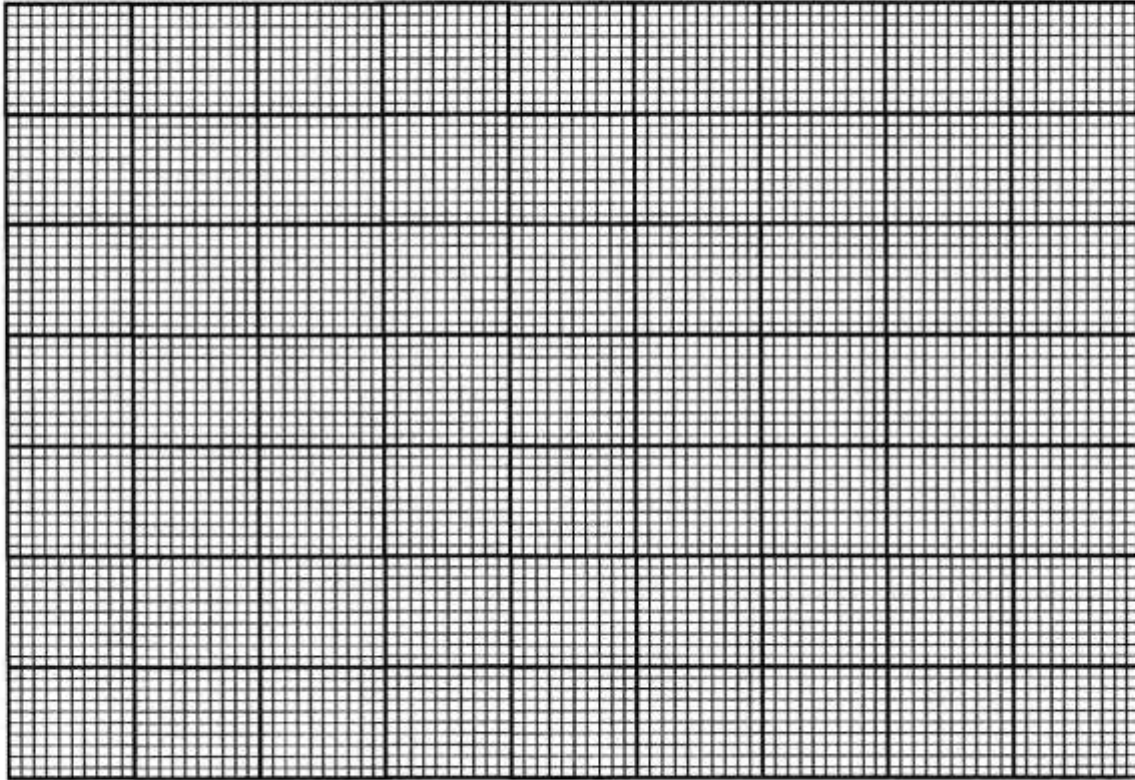
[4]

(c) Describe what happened to the temperature during the period of observation.

    (i) Thermometer **A**..

    .... [1]

    (ii) Thermometer **B**...

    .... [1]

(d) State the conclusion of the experiment.

....

....

.... [2]

(e) Why does a dog hang its tongue outside the mouth under certain conditions?

....

....

.... [2]

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[Turn over

(f) (i) Make a drawing of visible external features of specimen **X**.

[3]

(ii) Examine one of the wings of specimen **X**. Measure the length of the wing. Calculate the magnification of the wing, using the drawing made in **(f) (i)** above.

Measurement of length of wing ....

Magnification:

[2]

[Total 20]

(d) Make a drawing of specimen **C**.

[3]

Measure accurately the longest side of the specimen.

Measurement: ....

Calculate the magnification of the drawing.
Show your working in the space provided below.

[3]

[Total 20]

2   You are provided with Specimens **C**, **D** and **E**.

(a) What characteristic in specimens **C**, **D** and **E** shows;

   (i)   continuous variation?

   .... [1]

   (ii) discontinuous variation?

   .... [1]

(b) (i)   Which specimen shows co-dominance?

   .... [1]

   (ii) Give reasons for your answer.

   ....

   .... [1]

(c) Birds with feathers **D** and **E** were crossed. All the offsprings of the F1 generation
were the colour of **E**.

Using suitable symbols show in form of a genetic diagram how this happened.

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[10]