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231/3

BIOLOGY

Paper 3 (PRACTICAL)

Oct./Nov. 2014

1¾ hours

Candidate's Signature

Date



THE KENYA NATIONAL EXAMINATIONS COUNCIL

Kenya Certificate of Secondary Education

BIOLOGY

Paper 3 (PRACTICAL)

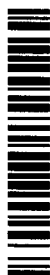
1¾ hours

Instructions to candidates

- (a) Write your name and index number in the spaces provided above.
- (b) Sign and write the date of the examination in the spaces provided above.
- (c) Answer **all** the questions in the spaces provided.
- (d) You are required to spend the first 15 minutes of the 1¾ hours allowed for this paper reading the whole paper carefully before commencing your work.
- (e) Additional pages must **not** be inserted.
- (f) **This paper consists of 6 printed pages.**
- (g) **Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.**
- (h) **Candidates should answer all the questions in English.**

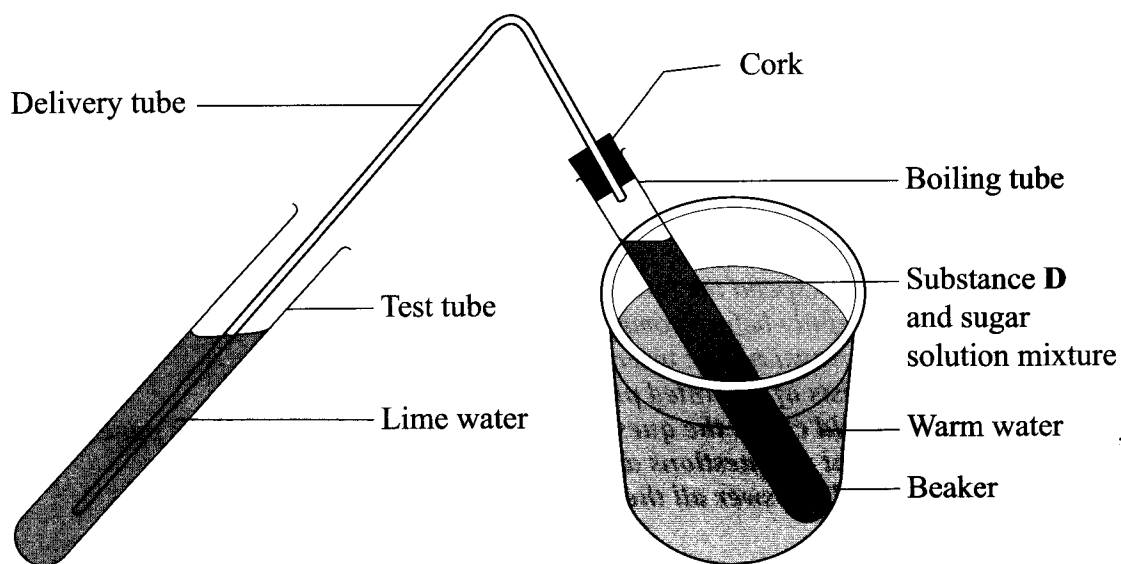
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Question	Maximum Score	Candidate's Score
1	13	
2	14	
3	13	
Total Score	40	



1 (a) You are provided with solutions labelled **Q** and **R**, a substance labelled **D** and a delivery tube fitted with a rubber bung/cork.

- I Label solution **Q** as **lime water**.
- II Label solution **R** as **10% sugar solution**.
- III Add substance **D** to the 10% sugar solution.
- IV Tightly close/plug the boiling tube with the rubber bung/cork fitted with a delivery tube.
- V Dip the other end of the delivery tube in the test tube containing lime water.
- VI Put the boiling tube in the warm water bath at 40°C and allow the set up to stand as shown in the diagram below.
- VII Observe the set up for about 15 minutes.



(i) State the observations made in the lime water. (2 marks)

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(ii) Explain the observations made in the lime water. (2 marks)

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(iii) Name the physiological process that was being investigated. (1 mark)

.....

(iv) Write a word equation for the physiological process investigated. (1 mark)

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(v) Why was the warm water bath used in the experiment? (2 marks)

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(b) Put a drop of the contents in the boiling tube on a microscope slide. Stain with a drop of methylene blue and cover with a cover slip.
Observe it under a light microscope using low, medium and high power objective lenses.

(i) Draw and label one of the structures observed under the high power objective lens. (3 marks)

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(ii) State the magnification of your drawing. (1 mark)

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(iii) State the identity of substance D. (1 mark)

.....

2 You are provided with specimens labelled E and F.

(a) (i) Name the sub-division to which the specimens belong. (1 mark)

.....

(ii) Using observable features on the specimens, give **two** reasons for your answer in (a)(i) above. (2 marks)

.....

.....

(b) State the differences between the

(i) Leaves of specimens E and F. (5 marks)

LEAF E

LEAF F

.....

.....

.....

.....

.....

(ii) Stems of specimens E and F. (2 marks)

STEM E

STEM F

.....

.....

(c) Using observable features on the specimen, state the adaptation of the stem of specimen E to its habitat. (4 marks)

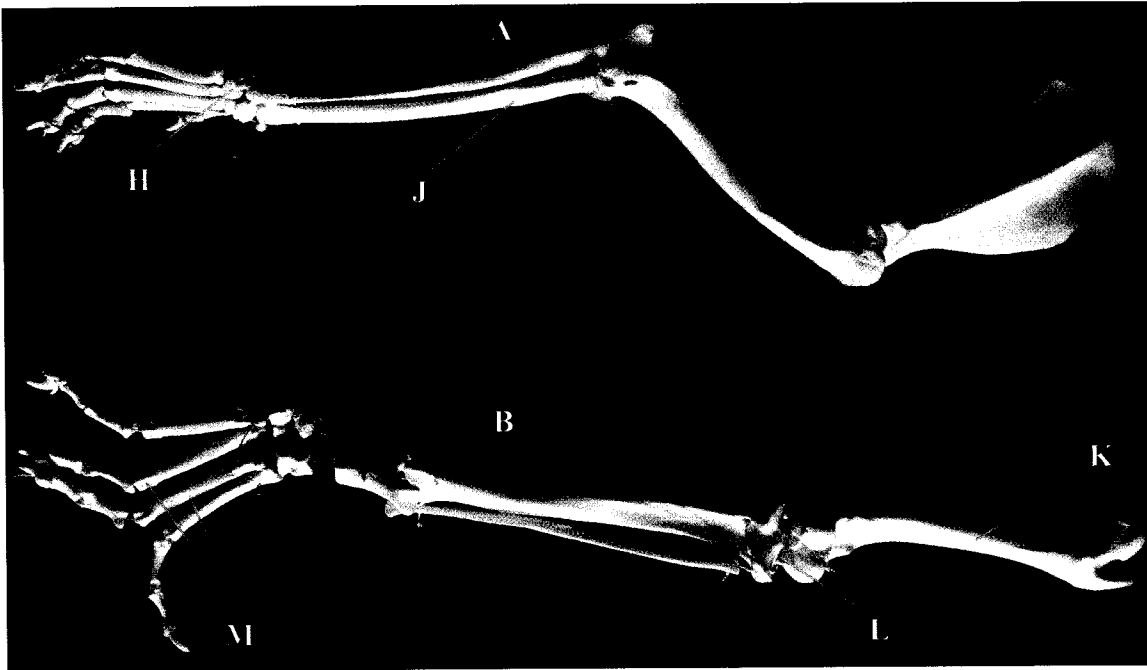
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3 The photograph below shows two (A and B) skeletal limbs of a certain mammal.



(a) (i) Which of the two (A and B) skeletons represents a forelimb? (1 mark)

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(ii) State **two** features observable on the skeleton to confirm your answer in (a)(i) above. (2 marks)

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

(b) Name the bones labelled J, K and M.

J (1 mark)

K (1 mark)

M (1 mark)

(c) Which bone forms the second joint with the bone labelled K? (1 mark)

.....

(d) Name the type of joint formed at the part labelled **H** and **L**.

H (1 mark)

L (1 mark)

(e) Apart from the bones, state the function of any **two** other components of a joint. (4 marks)

Component	Function
.....
.....

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