

**231/3
BIOLOGY
PAPER 3
PRACTICAL
JULY/AUGUST 2014**

**KILUNGU DISTRICT FORM IV EXAMINATION 2014
Kenya Certificate of Secondary Education
BIOLOGY
PAPER 3
CONFIDENTIAL**

Each student should be provided with:

1. One irish potato tuber
2. Three boiling tubes
3. Measuring cylinder (10ml)
4. Means of cutting
5. Means of heating
6. Ruler
7. 15m/s of Hydrogen peroxide

Name _____ Index No. _____

Candidate's signature _____

Date _____

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1 ¼ HOURS

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INSTRUCTIONS TO CANDIDATES

1. Write your name and index number on the spaces provided
2. Answer ALL questions in the spaces provided

For examiner's use only

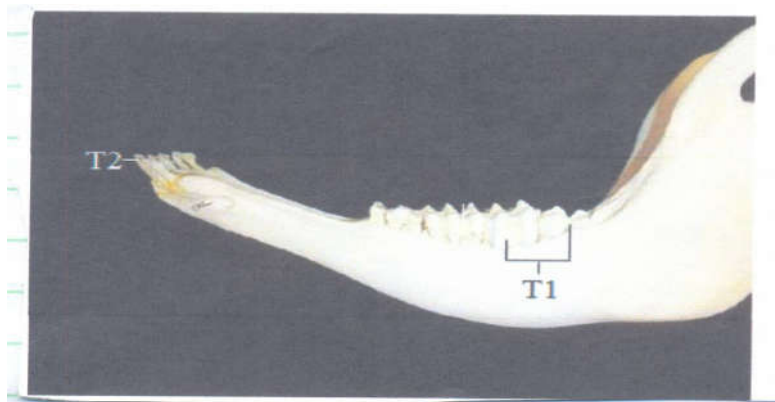
Question	Maximum score	Candidate's score
1	13	
2	13	
3	14	
Total score	40	

This paper consists of 6 printed pages

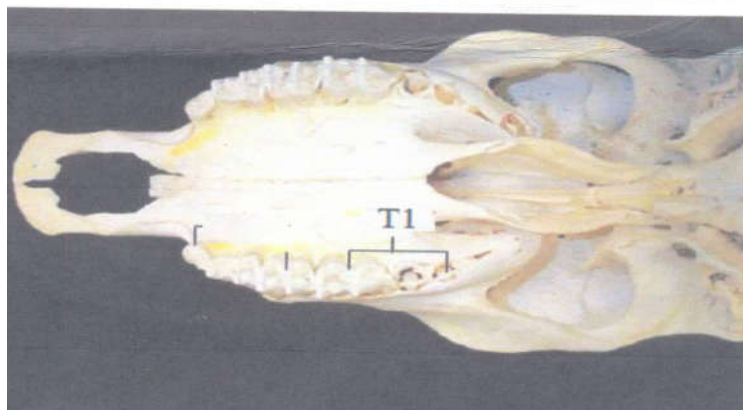
Turn Over

1. You are provided with photographs of parts of a skull of an animal. Photograph 1 is from the lower jaw while photograph 2 is from the upper jaw. Use it to answer the questions that follow.

Photograph 1



Photograph 2



(a) (i) With reasons, identify structures labeled T₁ and T₂ (4mks)

T₁

Reason

T₂

Reason

(ii) Giving one reason state the type of food the animal whose skull is shown feed on

Type of food

(2mks)

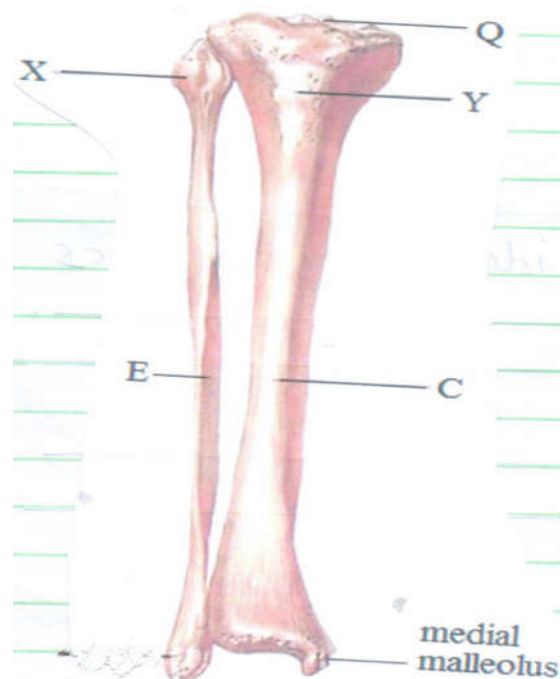
Reason

(iii) State the total number of pre-molars and molars on the skull

(1mk)

(b) Photograph P below is from a mammalian skeleton

Photograph P



(i) Identify bone C and E

(2mks)

C _____

E _____

(ii) Name the bone that articulates at point Q and the type of joint formed. (2mks)

Bone _____

Joint _____

2. You are provided with a specimen labeled K and hydrogen peroxide

(a) (i) What part of plant is specimen K? (1mk)

(ii) Give a reason for your answer in a (i) above (1mk)

(b) Cut three equal cubes whose sides are about 1cm from specimen K. place one of the cubes in a boiling tube labeled A; boil the second cube for about 15 minutes and then place it into a boiling tube labeled B; Cut the third cube into small pieces and place the pieces in a boiling tube labeled C To each boiling tube add 5ms of hydrogen peroxide

(i) Record your observations in the table below (3mks)

Tube	Observations
A	
B	
C	

(ii) Account for your observations in tubes B and C (4mks)

B

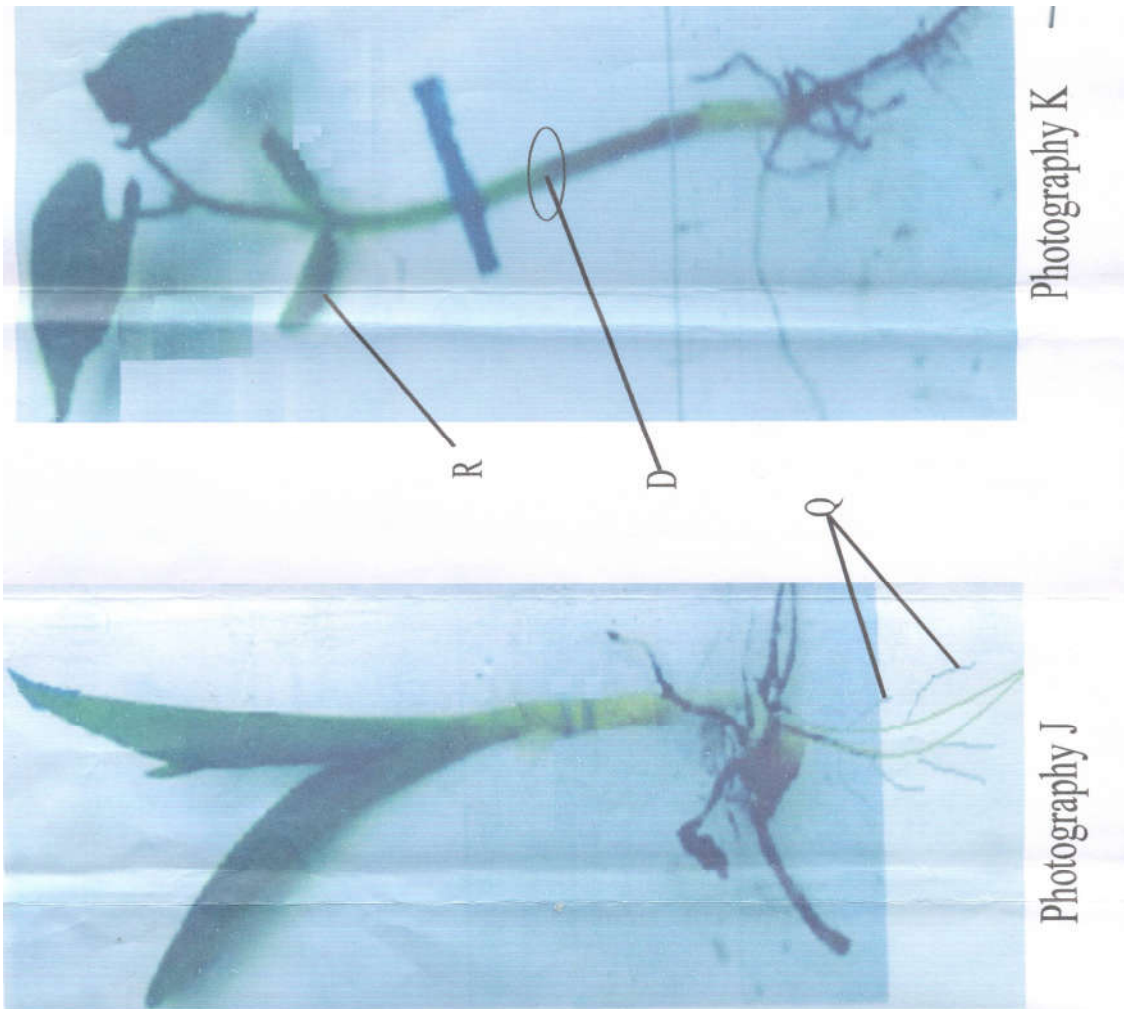
C

(c) (i) Write a word equation for the reaction that occurs in test tube A (2mks)

(ii) What is the significance of the reaction to living organisms (1mk)

(iii) Name the organ in mammals where the above reaction occurs at the highest rate (1mk)

3. Study the following photographs and answer the questions that follow.



(a) (i) State the class to which specimen J and K belongs

J _____ (1mk)

K _____ (1mk)

(ii) Using observable features only give reasons for your answer in a (i) above

J _____ (2mks)

K _____ (2mks)

(b) Identify the type of germination shown by specimen J and K

J _____ (1mk)

K _____ (1mk)

(c) Name the parts labeled

R _____ (1mk)

Q _____ (1mk)

(d) Using photograph K, indicate using letter x to show two regions where mitosis would take place at highest rate (2mks)

(e) Sketch a cross section of what would be revealed if a thin section of part D of specimen K was observed under a light microscope (2mks)

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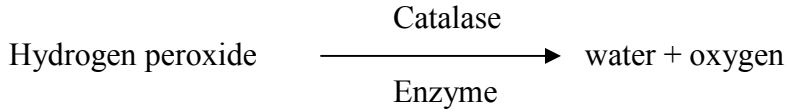
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MARKING SCHEME**

1. (a) (i) T1 – Molar teeth
Reason – presence of cusps/ridges
T2 – Incisors
Reason – chisel shaped/wide/sharp edges/wedge shape
- (ii) Vegetation/grass/shrubs/herbs/plant leaves rej. Pasture, herbivores, vegetables but mark reason
Reason
- Presence of diastema;
- Absence of teeth (incisor and canine) at the front part of the upper jaw;
- Presence of horny pad;
- Presence of premolars/cusps for grinding vegetation
- (iii) 20
- (b) (i) C – Tibia
E – Fibula
(ii) Femur
Joint – Hinge joint
2. (a) (i) Tuber
(ii) Presence of auxillary buds/scale leaves
- (b) (i)

Tube	Observations
A	Bubbles formed/effervescence
B	Very few/No bubbles/no effervescence
C	A lot of bubbles produced

- (ii) Tube B: The enzyme was denatured by boiling; hence could not break down hydrogen peroxide into water and oxygen
Tube C: The cutting increased the surface area; Thus exposing more enzyme catalase to break down hydrogen peroxide into water and oxygen

(c) (i) Hydrogen peroxide + catalase enzyme \longrightarrow water + oxygen + catalase enzyme
Or



Rej. If symbols are used

(ii) Detoxification;

(iii) Liver;

3. (a) (i) J – Monocotyledonae;
K – Dicotyledonae;

(ii) J – Fibrous roots present; leaves with parallel veins;

K – Tap roots present; two cotyledons present; leaves with network venation;

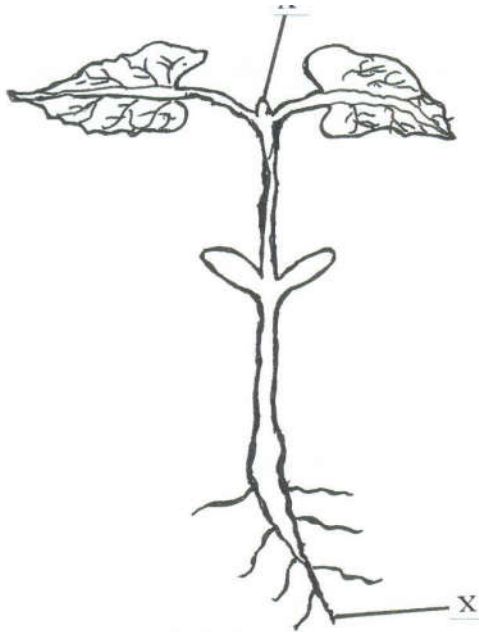
(b) J – Hypogeal;

K – Epigeal;

(c) R – Cotyledon remains;

Q – Root hairs;

(d)



(e)

