

NAME..... INDEX NO.....

231/3
BIOLOGY
PAPER 3
(PRACTICAL)
JULY/AUGUST, 2014
TIME: 1¼ HOURS

CANDIDATE'S SIGN.....

DATE.....

KIHARU/KAHURO DISTRICT JOINT EXAMINATION - 2014

Kenya Certificate of Secondary Education
BIOLOGY
PAPER 3
(PRACTICAL)
TIME: 1¼ HOURS

INSTRUCTIONS TO CANDIDATES:

- Write your **name** and **index number** in the spaces provided **above**.
- Sign** and **write** the date of examination in the spaces provided **above**.
- Answer all the questions in the spaces provided.
- You are required to spend the first 15 minutes of the 1¼ hours allowed for this paper reading the whole paper carefully before commencing your work.
- Additional papers must not be inserted.
- This paper has **three** questions and pages.
- Students should check the question paper to ascertain that all the paper are printed as indicated and that no questions are missing.
- Candidates should answer all the questions in English.

FOR EXAMINER'S USE ONLY:

Question	Maximum Score	Candidate's Score
1	15	
2	15	
3	10	
Total Score	40	

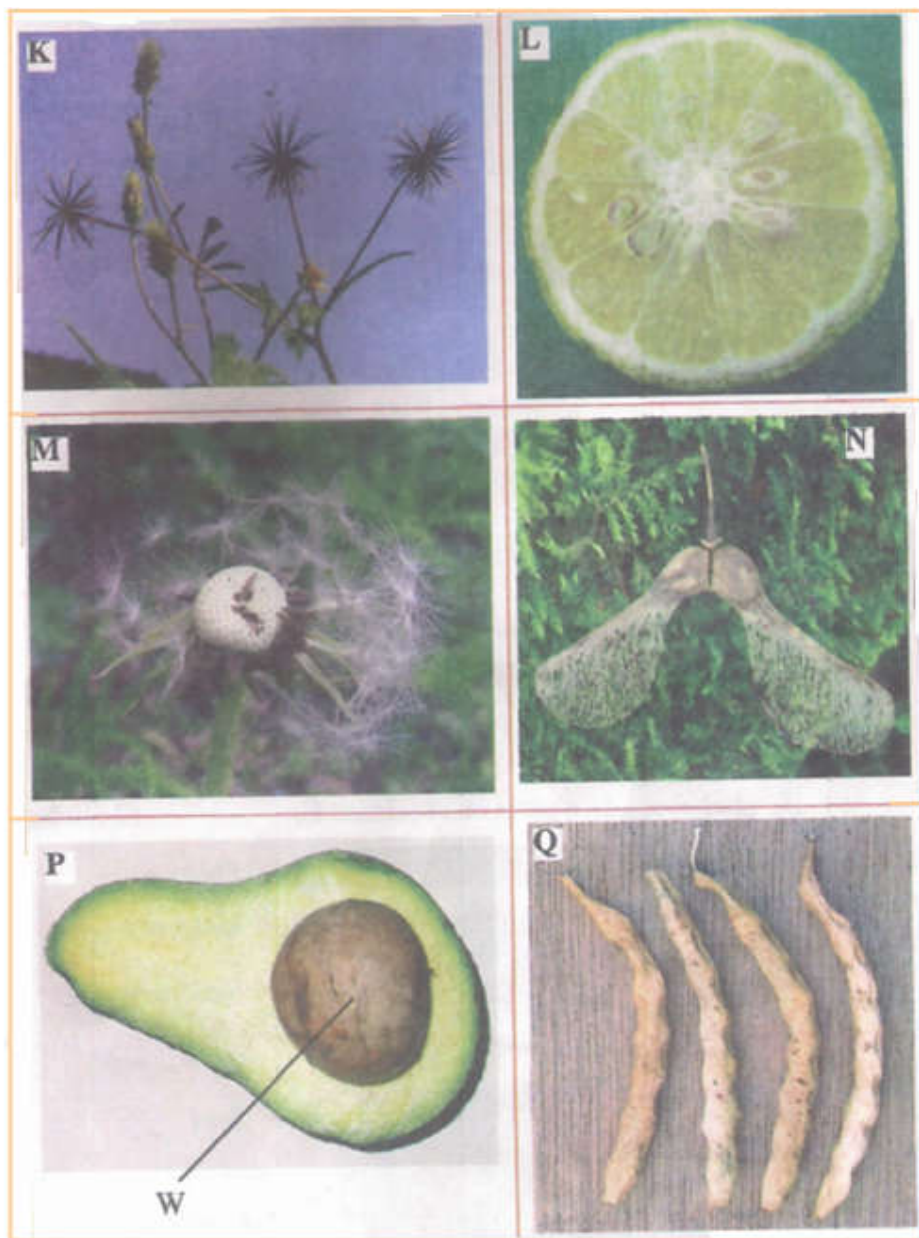
1. You are provided with a food sample labelled solution P. Using the reagents provided, carry out tests to identify the food substances present in the sample.

	Test for	Procedure	Observation	Conclusion
1.	Protein			
2.	Starch			
3.	Reducing sugar			
4.	Vitamin			

- (b) (i) State **one** function of vitamin C in human body. (1mk)

- (c) Name **two** enzymes involved in digestion of proteins. (2mks)

2. The figures below are photographs of specimens obtained from plants. Examine the photographs and answer the questions that follow.



- (a) In the table below name the mode of dispersal and the features that adapted the specimen(s) to that mode of dispersal. (2mks)

Specimen	Mode of dispersal	Adaptive features
K		
L		
M		
N		
P		
Q		

- (b) (i) On the diagram labeled specimen **L** label any two parts. (1mk)
- (ii) State the type of placentation in specimen **L**. (1mk)
-

- (c) Name the structure labeled **W** on specimen **P**. (1mk)
-

3. The figure below is a photomicrograph of a blood smear from a person suffering from ascertain disease. Study it and then answer the questions that follow.



- (a) Name the structure labeled **V** and **W**. (1mk)
-

- (b) (i) What disease was the person suffering from? (1mk)
-

- (c) (i) What advantages is the person likely to have over normal individuals. (1mk)
-
-

- (ii) Give reason for your answer in c(i) above. (1mk)
-
-
-

- (e) (i) Using a ruler, determine the diameter of the structure labeled **W** between points **Y** and **Z** in millimeter. (1mk)

- (ii) Given that the magnification of this photomicrograph is **X2000**, determine the actual diameter of the structure **B** in micrometer show all your working. (2mks)

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1.	Test for	Procedure	Observation	Conclusion
	Protein	Put P in a test tube - Add sodium hydroxide. $\checkmark^{1/2}$ - Add copper (II) sulphate $\checkmark^{1/2}$	Colour changes from <u>blue</u> to <u>purple</u> \checkmark^1	Protein present \checkmark^1
	Starch	Put P in a test tube. - Add iodine solution \checkmark^1	Colour of iodine changes to blue black. \checkmark^1	Starch present \checkmark^1
	Reducing sugar	Put P in a test tube. Add an equal amount of Benedict's solution $\checkmark^{1/2}$ and heat to boil. $\checkmark^{1/2}$	Blue colour of Benedicts retained \checkmark^1	Reducing sugar absent \checkmark^1
	Vitamin C	Put DCPIP in a test tube $\checkmark^{1/2}$ add solution P $\checkmark^{1/2}$ dropwise	Blue colour changes to colourless \checkmark^1	Vitamin C present \checkmark^1

(12mks)

RJ

- If procedure is wrong.
- For reducing sugar, must be heated.

(b) Prevents scurvy \checkmark^1

(c) $\left. \begin{array}{l} - \text{Pepsin } \checkmark^1 \\ - \text{Peptidase } \checkmark^1 \\ - \text{Rennin} \end{array} \right\} \text{any two}$

2.	Specimen	Mode of dispersal	Adaptive features
	K	Animal(s);	Hooks/hook - like structure;
	L	Animal(s);	Freshy/succulent pericarp;
	M	Wind;	Parachute/Hair-like projection
	N	Wind;	Winged pericarp;
	P	Animal;	Fleshy/succulent;
	Q	Self explosive; Mechanism;	Suture/line of weakness;

- (b) (i) $\left. \begin{array}{l} - \text{Epicarp } \checkmark^1 \\ - \text{Mesocarp } \checkmark^1 \\ - \text{Endocarp } \checkmark^1 \\ - \text{Seed } \checkmark^1 \\ - \text{Placenta } \checkmark^1 \end{array} \right\}$

Any two correctly labelled (1mk)

(ii) Axile

(c) Seed/Endocarp;

3. (a) V – red blood cells ✓¹
 W – platelets ✓¹
- (b) Sickle cell anaemia ✓¹
 (ii) Anaemia ✓¹
- (c) (i) Resistance to malaria ✓¹
 (ii) Plasmodium can not survive in sickled red blood cells
- (e) (i) - 13mm ✓¹

$$\text{Magnification} = \frac{\text{Length of drawing}}{\text{Length of specimen}} \checkmark^{1/2}$$

$$1\text{mm} = 1000\mu\text{m}$$

$$13\text{mm} = 13000\mu\text{m} \checkmark^{1}$$

$$\therefore X2000 = \frac{13000}{\text{actual}}$$

$$\text{Actual diameter} = \frac{13000}{2000} \checkmark^{1}$$

$$= 6.5\mu\text{m}$$

RJ If no unit, given