

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

**KIBWEZI DISTRICT FORM FOUR INTER-SCHOOLS EXAMINATIONS  
Kenya Certificate of Secondary Education  
BIOLOGY  
PAPER 3  
CONFIDENTIAL**

**Each candidate should have the following:**

1. Ripe orange labeled specimen Q
2. Boiling tube
3. Scalpel
4. Benedicts solution
5. Iodine solution
6. Dichlorophenolindolphenol (DCPIP)
7. Source of heat
8. 3 test tubes
9. Test tube rack
10. Test tube holder

Name \_\_\_\_\_ Index No. \_\_\_\_\_

Candidate's signature \_\_\_\_\_

Date \_\_\_\_\_

**231/3**  
**BIOLOGY**  
**PAPER 3**  
**PRACTICAL**  
**JULY/AUGUST 2014**  
**1 ¾ HOURS**

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**INSTRUCTIONS TO CANDIDATES**

Answer ALL the questions in the spaces provided in the question paper.

You are supposed to spend the first 15 minutes to read the whole paper carefully before commencing your work

**FOR EXAMINERS USE ONLY**

Questions	Total marks	Candidates score
1	12	
2	17	
3	11	
Total score	40	

*This paper consists of 5 printed pages*

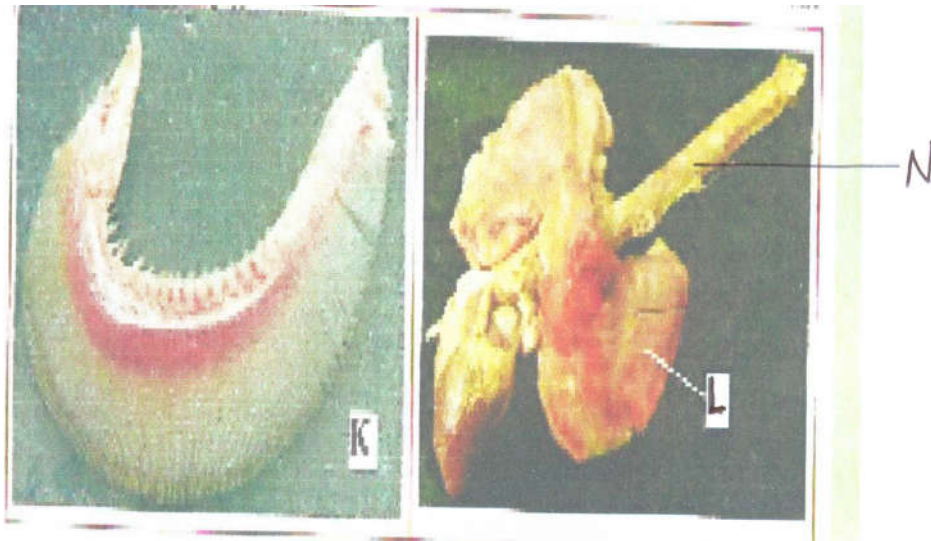
*Turn Over*

Q1. You are provided with specimen Q. Cut into two halves. Squeeze juice from one half into a boiling tube. Using the reagents provided, test the food substances present in the extract from specimen Q. Record down the food substance being tested, procedure, observation and conclusion in the table below.

Food substance	Procedure	Observation	Conclusion

(12mks)

Q2. You are provided with photographs of specimens labeled K and L. examine them and answer the questions that follow.



(a) Identify each specimen and name the class of the organism from which they were obtained. (2mks)

<u>Specimen</u>	<u>Identity</u>	<u>Class</u>
K	_____	_____
L	_____	_____

(b) Label all the parts of specimen K, on the photograph. (3mks)

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(c) State the functions of each of the parts you have labeled in (b) above. (3mks)

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(d) State three ways in which the part labeled L is adapted to its functions.

(6mks)

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(e) State the functional relationship between

(i) Specimen K and L

(1mk)

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(ii) State two adaptations of the part labeled N to its function.

(2mks)

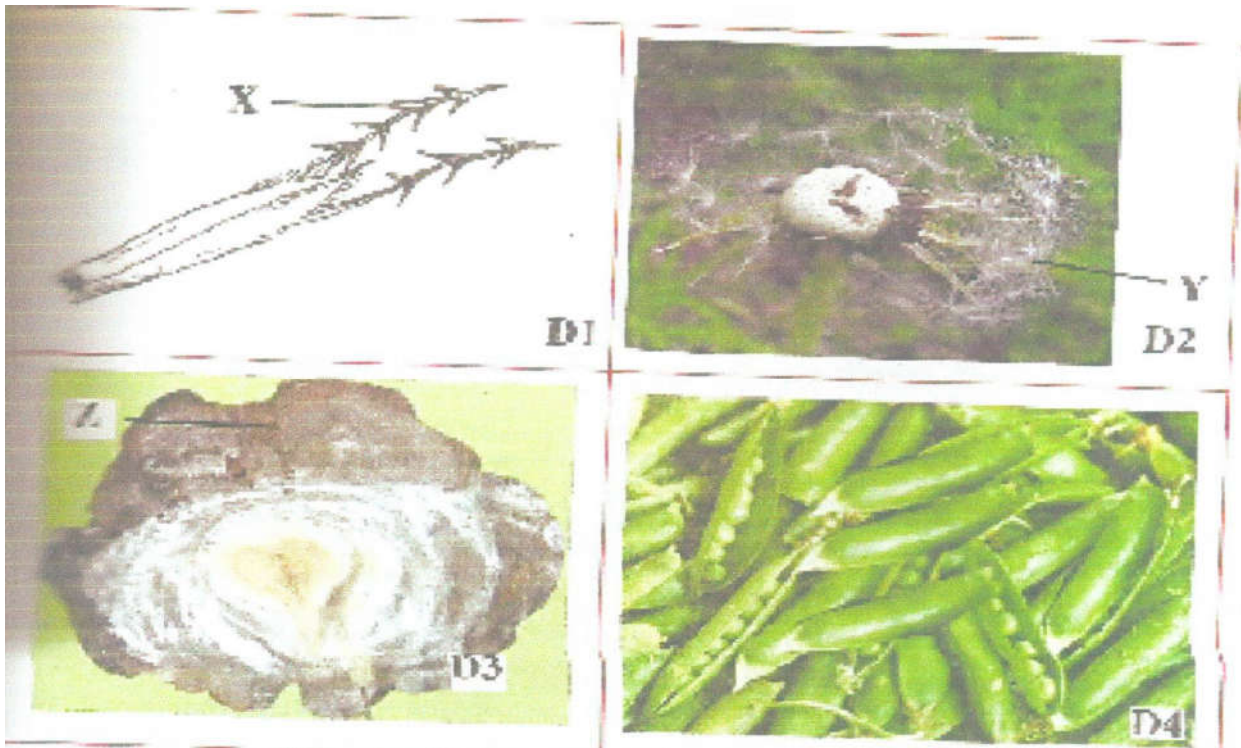
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Q3. You are provided with photographs of specimens labeled D1, D2, D3, D4. Study them



(a) Name the parts labeled X, Y and Z on the photographs and give the function of each.

Part	Function
X	
Y	
X	

(b) State the method of dispersal of specimen D4 and give the reason for your answer. (6mks)  
(3mks)

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(c) Name the type of gynoecium and placentation found in the specimen D4 (2mks)

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**MARKING SCHEME**

1.

Food substance	Procedure	Observation	Conclusion
Starch✓	- To 2cm <sup>3</sup> of juice add iodine solution dropwise✓	-Yellow/brown colour✓	- Starch absent ✓
Reducing sugars✓	- Obtain 2cm <sup>3</sup> of juice in a test tube - Add 2cm <sup>3</sup> of Benedict's solution - Heat✓	- Colour changes to green; yellow; orange✓	- A lot of reducing sugars present✓
Vitamin C/Ascorbic acid✓	- Obtain 2cm <sup>3</sup> of DCPIP/Dichlorophenol indolphenol in a test-tube; add the juice dropwise; shake✓	- DCPIP/Dichlorophenolindolphenol decolourised✓	- Vitamin C present✓

(12mks)

Q2. (a) Specimen identity class  
 K Gills✓ ½ Pisces ✓½  
 L Lungs✓½ Mammalia ✓½

(b) Gill bar;  
 Gill rakers;  
 Gill filaments;

NB: Parts correctly labeled (3mks)

On the diagram

(c) Gill bar – supports the gill filaments;  
 Gil filaments – form site of gaseous exchange;  
 Gill rakers – protect the delicate gill filaments from damage by solid particles  
 (3mks)

(d) Made of spongy elastic tissue; that expands to accommodate a large volume of air;  
 - Made up of numerous alveoli; to provide a large surface area for gaseous exchange;  
 - Well supplied with blood vessels; for quick transportation of gases;  
 (6mks)

(e) (i) Both are for gaseous exchange (1mk)

- (ii) Rings of cartilage prevent collapsing of the trachea during exhalation;
- Ciliated epithelium to waft particles towards pharynx;
  - Moist endothelium to moisten inhaled air;
  - Mucus covered epithelium to trap foreign particles;
  - Hollow trachea allows passage of air;

(2mks)

(Mark first two)

3.

Part	Function
X – Hook – like structure	Attaches onto the fur/hair of an animal hence its carried and dispersed to new habitats
Y – Pappus/hair like extension	Make it light, thus easily blown by air currents
Z – Wing-like extension	Increases the surface area so that it is easily blown away by air currents

Naming (1mk) Function (1mk) (max 6mks)

(b) Method- self dispersal by explosive mechanism

Reason – has two sutures/lines of weakness along which it dehisces on drying (3mks)

(c) Gynoecium – monocarpous

Placentation – marginal

(2mks)