

NAME:.....INDEXDATE.....

SCHOOL CANDIDATE'S SIGNATURE

CLASS..... ADM NO.....

231/3

BIOLOGY

PAPER 3(PRACTICAL)

TIME: 1³/₄ Hours

Kenya Certificate of Secondary Education (K.C.S.E.)

Biology

Paper 3

(Practical)

Time: 1³/₄ Hours

INSTRUCTIONS TO CANDIDATES

- Write your *name*, *Admission number* and name of your school in the spaces provided above
- *Sign* and write the *date* of examination in the spaces provided.
- This paper consists of three questions
- Answer all the questions in the spaces provided.
- You are required to spend the first 15 minutes of the 1³/₄ Hours allowed for this paper reading through all the questions before commencing your work.
- This paper consists of 5 printed pages.
- Candidates should check to ascertain that all pages are printed as indicated and that no questions are missing.

For Examiners Use Only

Question	Maximum score	Candidate's score
1	12	
2	16	
3	12	
Total Score	40	

1. Below is a diagram showing a type of metamorphosis exhibited by a butterfly



- a) Give the name of the type of metamorphosis in the diagram above. (1mark)

 b) Write down two importance of metamorphosis. (2marks)

 c) Name stages **Q** and **R** (2mks)
 Q.....
 R.....
 d) Give **three** differences in the biological activities between development stages **R** and **S**. (3marks)

Development stage R	Development stage S

- e) Name the two major hormones that are associated with metamorphosis in Insects. (2marks)

 f) (i) Name the class to which the organisms **T** in the diagram above belongs. (1mark)

(ii) Give a reason for your answer in f (i) above.

(1 mark)

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2. You are provided with a specimen labeled E, 0.01% DCPIP and 0.1% Ascorbic acid. Examine specimen E.

(a) (i) What part of a plant is specimen E?

(1 mark)

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

(1 mark)

.....
(b) Cut a transverse section through specimen E.

(i) Draw and label one of the cut surfaces

(5 marks)

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State the magnification of your drawing.

(1 mark)

(c) (i) To 1cm^3 of DCPIP in a test tube, add 0.1% solution of Ascorbic acid drop by drop until the colour of DCPIP disappears. Shake the test tube after addition of each drop.

Record the number of drops used.

(1 mark)

Squeeze out the juice from specimen E into a beaker. Filter and discard the residue.

(ii) To another 1cm^3 of DCPIP in a test tube add the juice from specimen E drop by drop. Shake the test tube after addition of each drop until the colour of DCPIP disappears.

Record the number of drops used.

(1 mark)

(iii) From the results obtained in (c) (i) and (ii) above, calculate the percentage of Ascorbic acid in the juice obtained from specimen E.

Show your working.

(2 marks)

(iv) State **two** factors that would influence the accuracy of the results.

(2 marks)

(d) (i) Suggest the expected results if the juice from the specimen E was boiled for 30 minutes, cooled and added drop by drop to DCPIP solution.

(1 mark)

(ii) Explain the expected results in (d)(i) above.

(1 marks)

3. You are provided with a specimen labeled L.

(a) Giving a reason suggest the method of dispersal for the specimen.

Method (1 mark)

Reason (1 mark)

(b) Remove the seeds and fleshy part from the specimen leaving a peeling of 3mm thick. From the peeling, obtain **two** equal strips each measuring 5cm in length and 1cm in width. Immerse one strip in solution S_1 and the other in solution S_2 . Leave the set up for about 30 minutes. After 30 minutes, remove the strips and compare the shape and texture of the two strips.

Record your observations in the table below (4 marks)

Strips immersed in	Shape	Texture
S_1		
S_2		

(c) Account for the shape of the strips at the end of the experiment.

(i) Strip immersed in solution S_1 (3 marks)

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(ii) Strip immersed in solution S_2 (3 marks)

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