

FORM FOUR CLUSTER KCSE MODEL 3
BIOLOGY PAPER 3 QUESTIONS

1. Fruits of banana, *Musa spp*, change as they ripen.

You are provided with two pieces from an unripe banana fruit, labeled S1, and two pieces from a ripe banana fruit, labeled S2.

(a) (i) Describe the observable differences between one piece of S1 and one piece of S2. (3marks)

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(ii) Using forceps, dip the cut surface of one piece of S1 and one piece of S2 into the iodine solution for approximately 3 seconds. Describe and explain the observable differences between S1 and S2 after this test. (2marks)

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(b) (i) Describe a food test that you could carry out that the ripe banana S2 contains more reducing sugar than the unripe banana S1 (2marks)

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Cut the other pieces of S1 and S2 each into three equal parts. Test one of these pieces of S1 and one of these pieces of S2 for reducing sugar.

(ii) Complete the table below by recording your observations and conclusions. (2marks)

	S1	S2
Observations		
Conclusions		

(a) One of the changes that take place as a banana fruit ripens is the breakdown of starch to sugar.

How do your results in (a) (ii) and (b) (ii) support this statements? (2marks)

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Put one piece of S1 into an empty beaker and leave this open to the air. Label the beaker S1.

Put the other piece of S1 into one of the beakers labeled S3, which contains a dilute acid. Label this beaker S1.

Put one piece of S2 into an empty beaker and leave this open to the air. Label the beaker S2.

Put the other piece of S2 into one of the beakers labeled S3, which contains a dilute acid. Label this beaker S3.

Leave these for at least 15 minutes. While waiting for 15 minutes, begin Question 2.

Observe the appearance of the pieces of S1 and S2 that were left.

(b) (i) Complete the table below by describing the appearance of the two pieces of S1 and S2. (4marks)

	S1	S2
Observations		
Conclusions		

(ii) Suggest what may have caused any differences in appearance between the pieces of banana left open to the air and those immersed in dilute acid. (1 mark)

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(iii) Outline, but do not carry out, an investigation to find out the effect of pH on the changes you observed. (2marks)

2. The attached photograph shows an organism.

(a) (i) State the class to which the organism belongs. (1 mark)

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(ii) Give a reason for your answer. (2marks)

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(b) (i) From the diagram calculate the tail power of the organism. (1 mark)

(ii) State the magnification of your answer in (b) (i) above. (1 mark)

(c) Using the letters A to E, state the fins responsible for each of the following: (i) Prevents pitching. (1 mark)

(ii) Prevents rolling and yawing. (1 mark)

(iii) Steering and braking. (1 mark)

(d) Other than fins explain two observable adaptations of the locomotion.(2marks)

3. The attached photograph shows two flowers M and N..

(a) Name the parts labeled R and S. (2marks)

(b) Describe the floral parts of the flower in photograph M.(3marks)

(c) (i) State the type of pollination of the flower in photograph M. (1 mark)

(ii) Give two reasons for your answer. (2marks)

(d) (i) State the agent of pollination for the flower in photograph N. (1 mark)

(ii) Give two reasons for your answer. (2marks)

(e) Suggest to differences between the pollen grains of the flowers in the photographs M and N. (2marks)

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