K.C.S.E BIOLOGY PAPER 231/2 2004

1. You are provided with specimens labelled J_1, J_2, K_1 and K_2. Examine them

(a) With a reason, name the order to which specimens J_1 and J_2 and K_1 and K_2 belong. (4 marks)

J_1 and J_2 .....

Reason .....

K_1 and K_2 .....

Reason .....

(b) (i) Name the curved part of specimen J_1 (1 mark)

.....

(ii) What is the importance of the curvature? (1 mark)

.....

(c) Explain how the curved part in J_1 will straighten so that the stem will look like that of J_2 (4 marks)

.....

.....

(d) Name the part that protects the plumule in specimens K_1 and K_2 (1 mark)

.....

(e) (i) Which of the two types of seedlings may form swellings on the roots later in its life? (1 mark)

.....

(ii) What is the name of the swellings? (1 mark)

.....

(iii) Name the organisms that would be found in the swellings. (1 mark)

.....

(iv) Explain the relationship that exists between the named organisms and the plant. (1 mark)

.....

(f) (i) Name the structures found on the stem just below the leaves of specimen J_2 (1 mark)

.....

(ii) State two functions of the structures named in (f) (i) above. (2 marks)

.....

(g) (i) State the type of germination exhibited by specimens K_1 and K_2 (1 mark)

.....

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

.....

(h) Name the root system found in specimens

J_1 and J_2 (1 mark)

.....

K_1 and K_2 (1 mark)

.....

2. You are provided with specimen labelled M and N. Examine them.

(a) Identify the specimens and in each case give two reasons for your answer. (6 marks)

(i) Specimen M .....

Reasons 1. .....

2. .....

(ii) Specime N .....

Reasons 1. .....

2. .....

(b) State four ways in which specimen N is adapted to its functions (4 marks)

.....

.....

(c) State four differences between specimens M and N. (4 marks)

M N

.....

.....

(d) Draw and label the anterior view of specimen N. (6marks

3. You are provided with a specimen labelled Q and hydrogen peroxide.

(a) (i) What part of a plant is specimen Q? (1 mark)

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(ii) Give a reason for your answer. (1 mark)

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(b) State two roles played by specimen Q in the life cycle of the plant from which it was obtained. (2 marks)

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(c) Cut two equal cubes whose sides are about 1 cm from specimen Q. Place one of the cubes into a boiling tube labelled A. Crush the other cube using pestle and mortar. Place the crushed material in another boiling tube labelled B.

To each boiling tube add 4 ml of hydrogen peroxide. (2 marks)

(i) Record your observations

.....

(ii) Account for the results in (c) (i) above ..... (2 marks)

.....

(iii) Write an equation for the breakdown of hydrogen peroxide (1 mark)

(d) Feel half of specimen Q and crush in a mortar. Use the reagents provided to test for the various food substances in the extract obtained from the crushed material.

Record the procedures, observations and conclusions in the table below. (9 marks)

	Food substance	Procedure	Observations	Conclusion
1				
2				
3				