

**K.C.S.E BIOLOGY PAPER 231/1 2005**

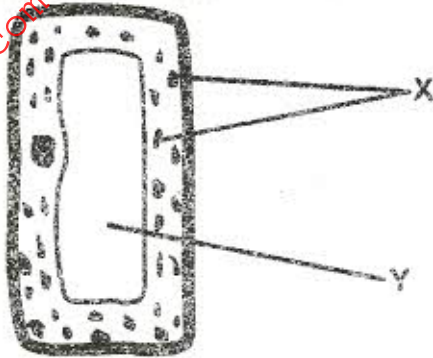
**SECTION A (20 marks)**

Answer all the questions in this section in the spaces provided.

1. Apart from hearing, state another function of the human ear. (1 mark)

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2. The diagram below represents a cell.



- (a) Name the parts labelled X and Y. (2 marks)

X .....

Y .....

- (b) Suggest why the structures labelled X would be more on one side than the other. (1 mark)

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3. What is the role of the vascular bundles in plant nutrition? (3 marks)

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4. What is meant by

- (a) organic evolution (1 mark)

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(b) continental drift? (1 mark)

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.....

5. To which class does an animal with two body parts and four pairs of legs belong? (1 mark)

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6. Name the substance which accumulates in muscles when respiration occurs with insufficient oxygen (1 mark)

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7. State the importance of osmosis in plants. (3 marks)

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8. Name three factors in seeds that cause dormancy. (3 marks)

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9. Why would carboxyhaemoglobin lead to death? (2 marks)

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10. Name the organism that causes amoebic dysentery. (1 mark)

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**SECTION B (40 marks)**

Answer all the questions in this section in the spaces provided.

11. The diagram below represents a part of the rib cage.



(a) Name the parts labelled W, Y and Z (3 marks)

W .....

Y .....

Z .....

(b) How does the part labelled Z facilitate breathing in? (3 marks)

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12. In a garden with plants of same species, 705 plants had red flowers while 224 had white flowers.

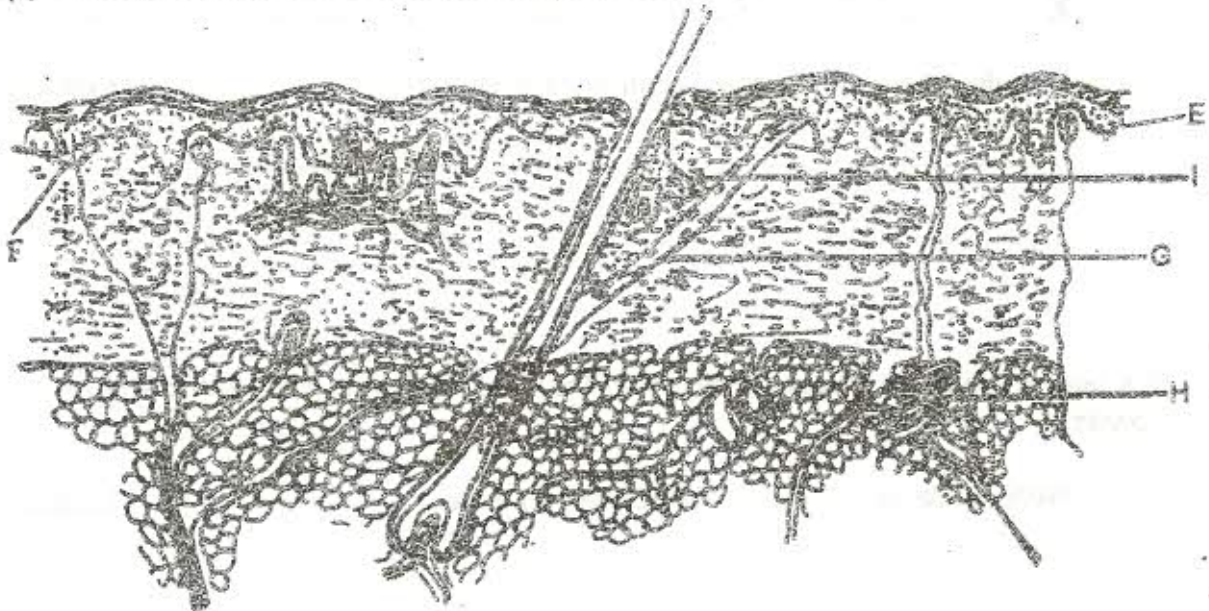
(a) Work out the ratio of red to white flowered plants (1 mark)

(b) (i) Using letter R to represent the dominant gene, work out a cross between F<sub>1</sub> offspring and a white flowered plant. (4 marks)

(ii) What is the genotypic ratio from the cross in b(i) above? (1 mark)

(c) What is meant by the term allele? (1 mark)

13. The diagram below shows a section through the mammalian skin.



(a) Name the parts labelled E, F and G (3 marks)

E .....

F .....

G .....

(b) State two functions in each case of substances secreted by the structures labelled

(i) H .....

.....

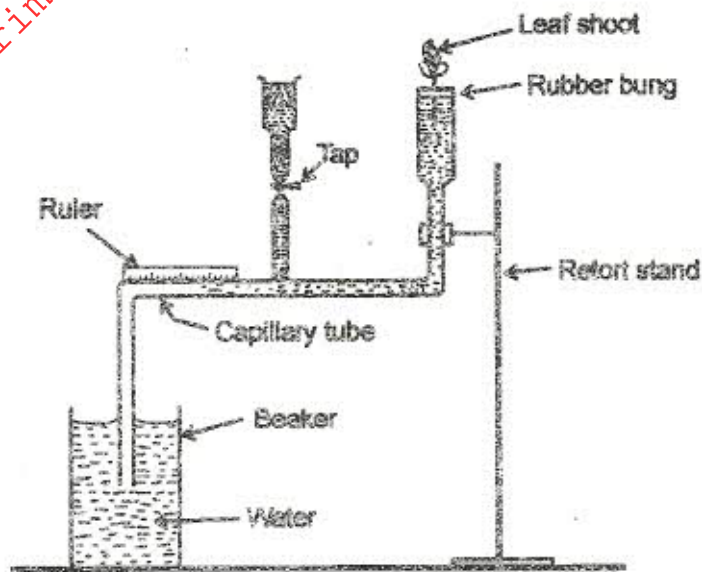
(2 marks)

(ii) I .....

.....

(2 marks)

14. A set up that was used to investigate a certain process in plants is shown in the diagram below.



(a) What process was being investigated? (1 mark)

(b) (i) State two precautions that should be taken when setting up the experiment. (2 marks)

(ii) Give a reason for each precaution stated in b(i) above (2 marks)

(c) State three environmental factors that influence the process under investigation. (3 marks)

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15. (a) What is meant by the terms

(i) epigynous flower (1 mark)

.....

(ii) staminate flower? (1 mark)

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(b) How are the male parts of wind pollinated flowers adapted to their function? (4 marks)

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16. (a) Name two organisms that cause food spoilage. (2 marks)

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(b) Name two modern methods of food preservation and for each state the biological principle behind it. (4 marks)

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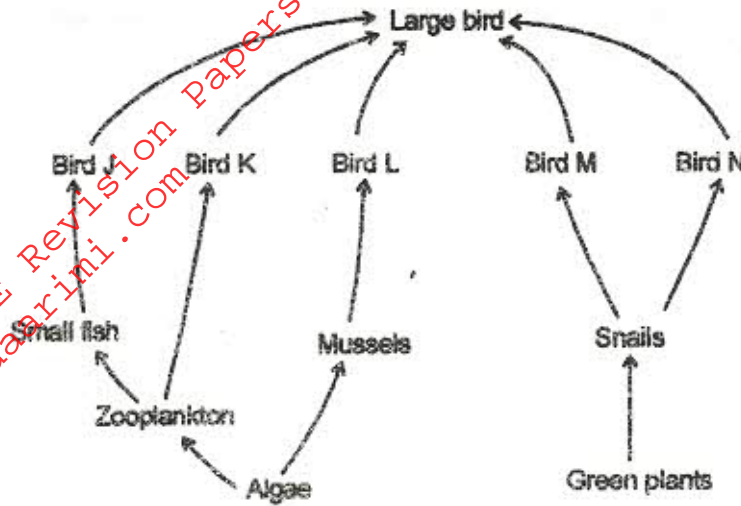
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**SECTION C (40 marks)**

Answer question 17 (compulsory) and either question 18 or 19 in the spaces provided after question 19

17. After an ecological study of feeding relationships students constructed the food web below.



(a) Name the process through which energy from the sun is incorporated into the food web. (1 mark)

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(b) State the mode of feeding of the birds in the food web. (1 mark)

.....

(c) Name two ecosystems in which the organisms in the food web live (2 marks)

.....

(d) From the information in the food web, construct a food chain with the large bird as a quaternary consumer (1 mark)

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(e) What would happen to the organisms in the food web if bird N migrated? (3 marks)

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.....

(f) Not all the energy from one trophic level is available to the next level. Explain.

(3 marks)

- (g) (i) Two organisms which play a role in the ecosystems are not included in the food web. Name them. (2 marks)

- (ii) State the role played by the organisms named in g(i) above (1 mark)

- (h) (i) State three human activities that would affect the ecosystems (3marks)

- (ii) Explain how the activities stated in h(i) above would affect the ecosystems (3 marks)

18. Describe how gaseous exchange takes place in terrestrial plants. (20 marks)



