FORM FOUR CLUSTER KCSE MODEL 3

BIOLOGY PAPER 1 QUESTIONS

1. State the importance of nutrition in living things.

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2. Explain how dirty lenses of a light microscope would be cleaned.

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3. Outline two roles of active transport in the human body.

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4. Explain the role of stomata in photosynthesis.

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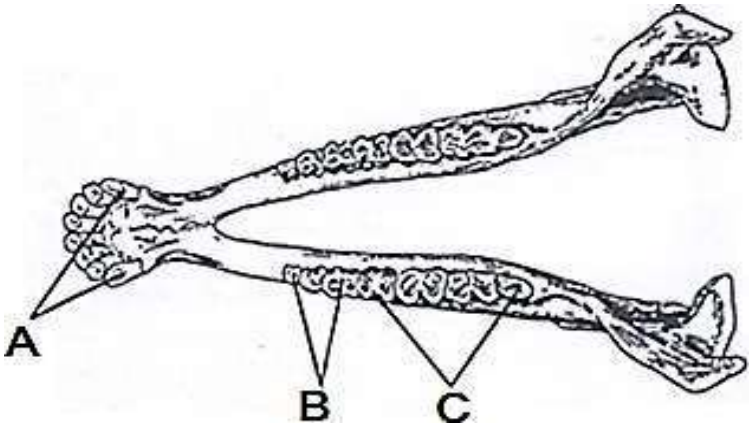
5. The diagram below shows a jaw of an animal.



a) (i) State the mode of feeding of this animal. (1 mark)

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

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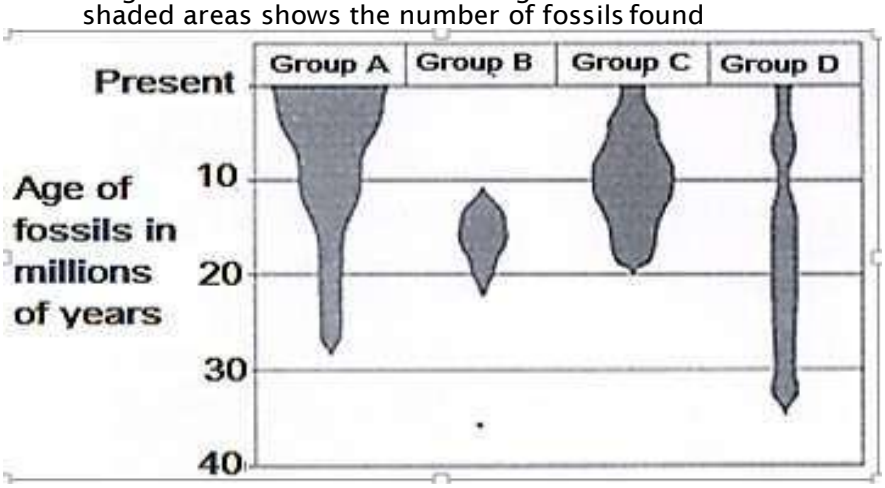
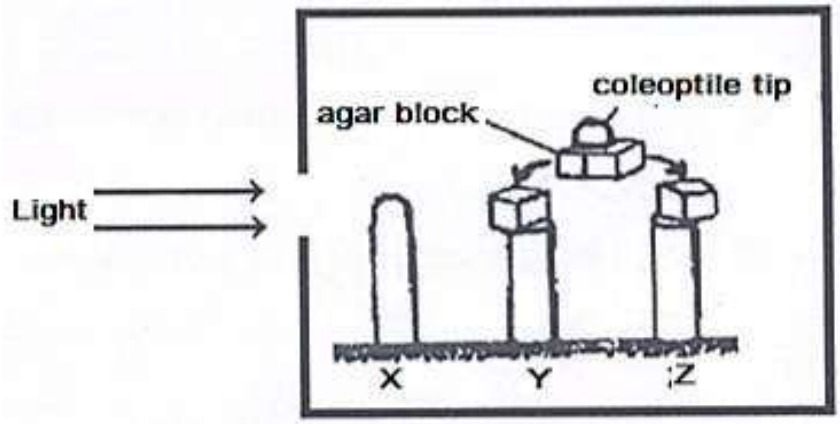
b) Write the dental formula of the animal from which this jaw was obtained. (1 mark)

6. . If a woman who cannot roll her tongue marries a man who is a tongue roller but is the son of a non-roller father, what would be the chances of them producing a non-roller child? (Ability to role the tongue is dominant to non-rolling)

7. In the Grand Canyon, scientists have found fossils of several different groups of organisms. The diagram shows the number and age of the fossils that the scientists found. The width of each shaded areas shows the number of fossils found



8. An experiment was set up as shown below. The shoots



State the expected observations in each coleoptile after a few days.

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9. State two distinguishing features of cardiac muscles.

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10. State two limitations of artificial classification.

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11. Distinguish between epicotyl and hypocotyl.

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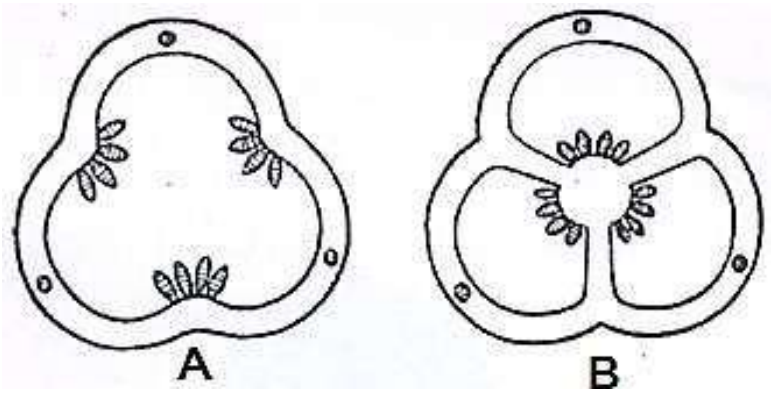
12. The diagram below shows cross section of two fruits



a) Name the type of pistil from which fruit A developed. (1 mark)

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b) Name the type of placentation in the fruit labeled B. (1 mark)

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c) Give an example of a fruit with the placentation in A. (1 mark)

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13. . a) Small insect-eating birds are feeding on the caterpillars and are eating the leaves of a tree. A pair of sparrow hawks is hunting for small birds to feed their young.

(i) Represent the information on a food chain. (1 mark)

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(ii) Draw a pyramid of numbers of the above chain. Give the organisms at each trophic level. (2 marks)

14. State the functional difference between the prostate and copwers glands.
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15. . Name the:

(i) Method of asexual reproduction in members of the kingdom Monera. (1 mark)
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(ii) The structure used for locomotion in members of the kingdom Monera. (1 mark)
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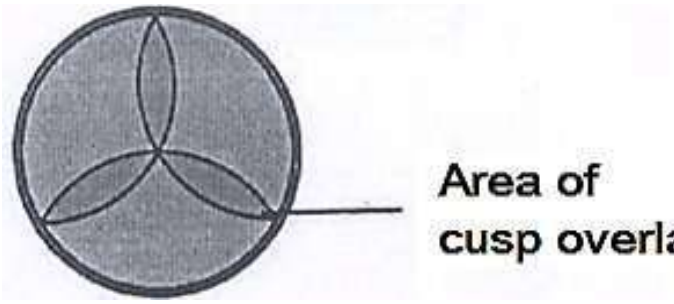
16. . The diagram below shows a heart valve under ventral view



a)(i) Identify the valve. (1 mark)
..... (ii)Give a reason for your answer. (1 mark)
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b) Where is the valve located within the heart. (1 mark)
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c) State the role of this valve. (1 mark)

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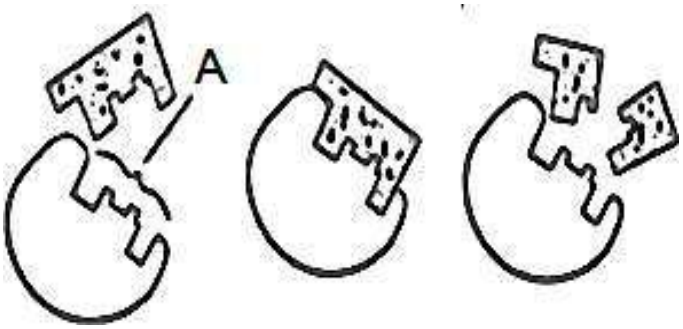
17. The diagram below shows the reaction of an enzyme.



a) Name two properties of enzymes illustrated in the diagram. (2 marks)

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b) State two other features of enzymes. (2 marks)

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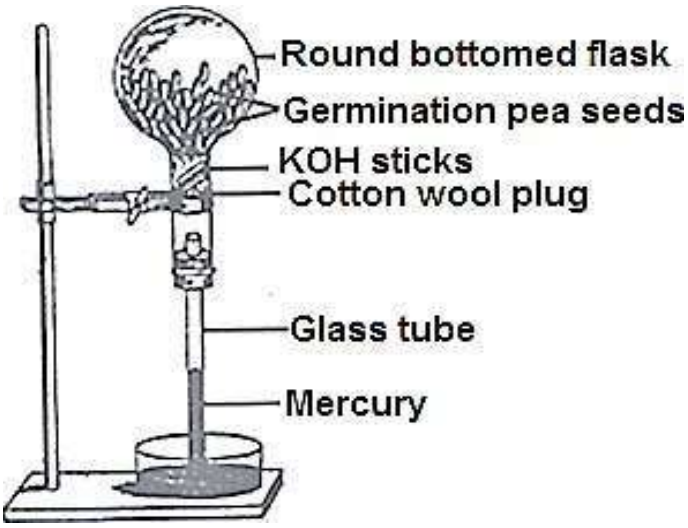
18. The diagram below shows an experiment.



a) State the aim of the experiment. (1 mark)

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b) Account for the observations. (3 marks)

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19. State two ways in which leaves of floating aquatic plants are adapted for gaseous exchange.

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20. State two features of the endodermis.

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21. . a) State the function of the granular layer of the skin. (1 mark)

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b) Other than giving the skin its colour, state the role of melanin. (1 mark)

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22. . State two roles of ribosomes on the rough endoplasmicreticula.

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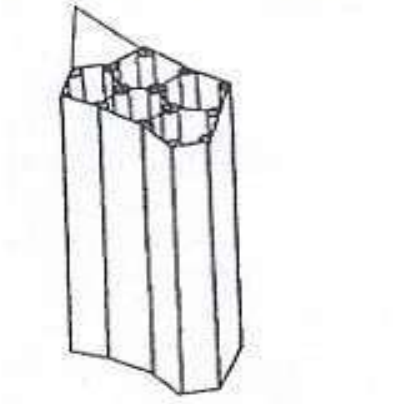
23. The diagram below shows a support tissue in plants.

Thicks ribs of cellulose



a) Identify the tissue. (1 mark)

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

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24. An ocean separated two populations of the same species of birds over a long period of time. Both populations initially fed on insects only. Later it was observed that one population fed entirely on fruits and seeds, although insects were available. Explain this type of evolutionarychange.

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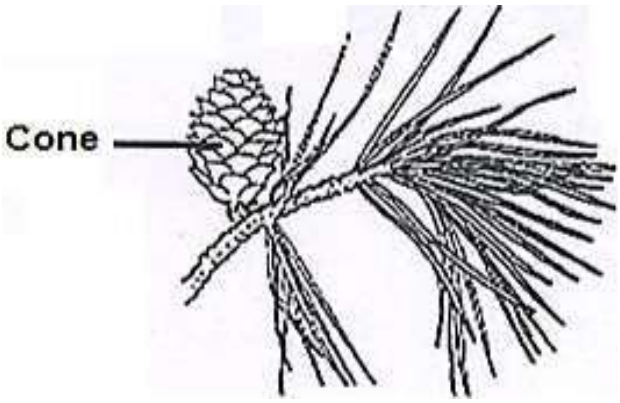
25. The diagram below shows a part of a flowering plant. Study it answer the questions that follow.



a) (i) To which class does the plant belong? (1 mark)

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

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b) Suggest whether this is a male cone or a female cone.

Give a reason for your answer.(2 marks)

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26. A plastic water bottle full of water was stopped using a piece of stem obtained from a young herbaceous plant, whose epidermis had been peeled off. After 24 hours it was noted that the stopper closed the container tightly.

a) Why was the epidermis peeled? (1 mark)

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. b) Account for the observations made. (3 marks)

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27. State the functions of each of the following parts of the nervous system in control of the heart beat:

(i) The vagus nerve. (1 mark)

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(ii) The sympathetic nerve (1 mark)

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28. Explain the role of pleural membranes in gaseous exchange.
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29. Name the product of anaerobic respiration that is essential in:

(i) The brewing industries. (1 mark

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(ii) The bread baking industry. (1 mark)

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