

# KCSE TRIAL 2020

## BIOLOGY PAPER 1

1. State the function of the diaphragm in a light microscope. (1mark)

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2. State the function of the following cell organelles  
a.) Centriole (1mark)

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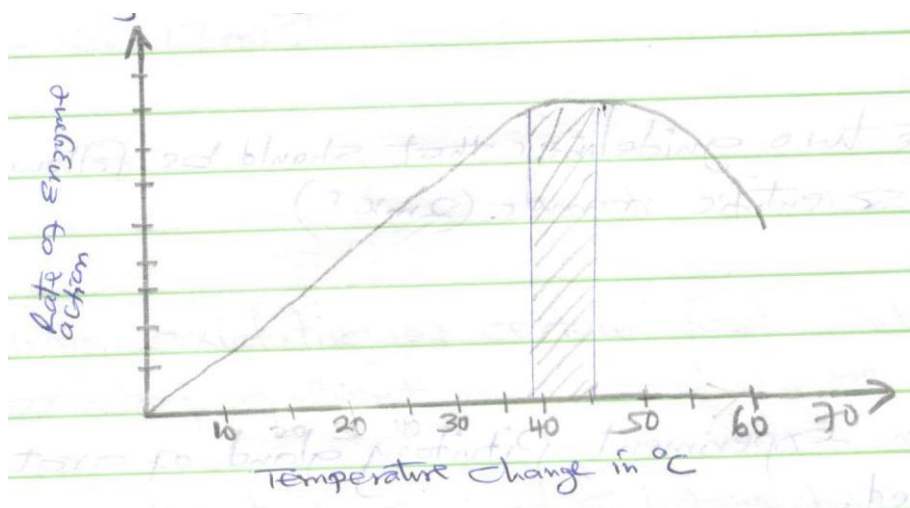
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- b.) Golgi bodies (1mark)

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3. Study the graph below.



Account for the rate of reaction at:

- i.) 10<sup>o</sup> C (2marks)

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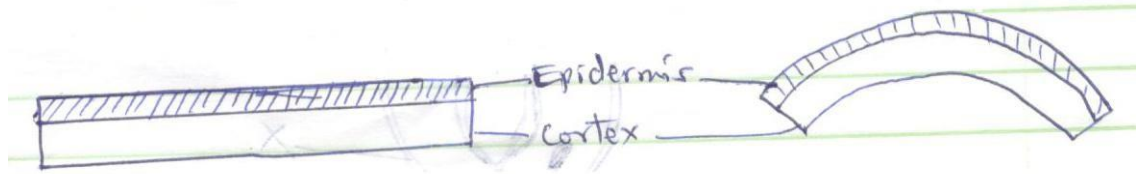
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- ii.) 50<sup>o</sup> C (2marks)

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4. Strips were cut lengthwise from the stem of a herbaceous plant and placed in a salt solution for 30 minutes as shown below.



Account for the results obtained when the strip was placed in the salt solution. (4marks)

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5. (i) Name the main products of the dark stage of photosynthesis. (1 mark)

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- (ii) State the importance of chlorophyll in photosynthesis. (1 mark)

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6. State the two guidelines that should be followed when typing scientific names. (2marks)

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7. In an experiment, Pituitary gland of a rat was removed.  
a.) State the effect this will have on the quantity of urine produced by the rat. (1 mark)

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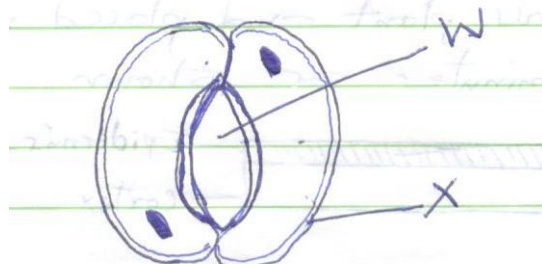
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- b.) Give a reason for your answer in (a) above. (1 mark)

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8. The diagram below shows part of a plant.



a.) Name the cell labelled X and part labelled W. (2marks)

X .....

W .....

b.) State two adaptations of cell labeled X to its function (2marks)

9. Explain why a baby loses more heat per unit weight than an adult when exposed to the same environmental conditions. (2marks)

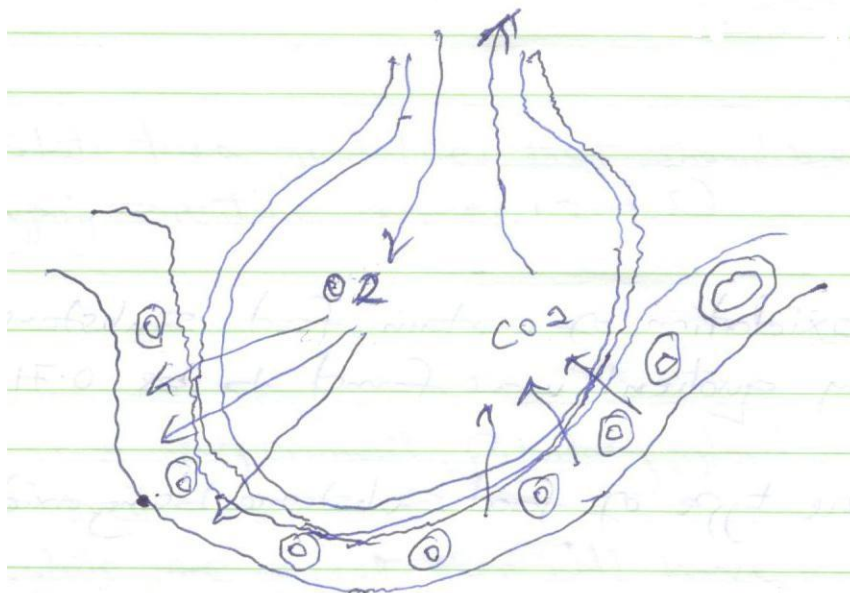
10. During oxidation of certain food substances, the respiratory quotient was found to be 0.718.

i) Name the type of food substance being oxidized. (1mark)

ii) State two advantages of using the food substances named. (2marks)

11. Name two structures used for gaseous exchange in plants. (2marks)

12. The diagram below shows the exchange of gases in alveolus.



a) State how the alveoli are adapted for their function. (3marks)

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b) Name the cell labeled A (1 mark)

13. During germination and early growth, the weight of the endosperm decreases while that of the embryo increases. Explain (2marks)

14. a) What is the importance of metamorphosis? (1 mark)

b) Give an example of insect that undergoes :  
i) complete metamorphosis (1 mark)

ii) incomplete metamorphosis (1 mark)

15. Define the following terms used in ecology  
i) biosphere (1 mark)

ii) population (1 mark)

iii) synecology (1 mark)

iv) carrying capacity (1 mark)

16. The paddles of whales and the fins of fish adapt these organisms to aquatic habitats.

a.) Name the evolutionary process that may have given rise to these structures. (1 mark)

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b.) What is the name given to such structures? (1 mark)

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c.) Give two examples of vestigial organs in man. (1 mark)

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17. a.) Define polyploidy (1 mark)

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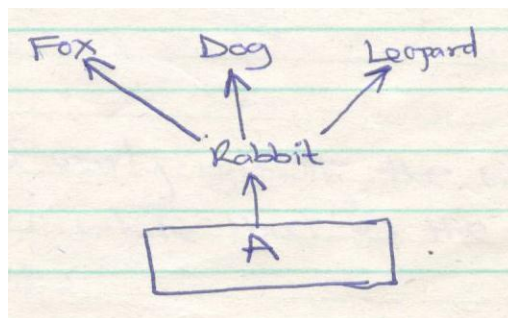
b.) Name three disorders resulting from gene mutations. (3marks)

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18. State the importance of sexual reproduction. (2marks)

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19. The diagram below shows part of a food relationship in an ecosystem.



a) Name the food relationship shown in the diagram. (1 mark)

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b) Name the trophic level occupied by organism A. (1 mark)

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c) What is the main source of energy in the ecosystem shown in the diagram above?  
 (1 mark)

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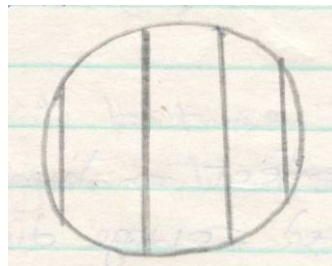
20. Name three supportive tissues in plants. (3marks)

i.) .....

ii.) .....

iii.) .....

21. A form one student trying to estimate the size of onion cells observed the following on the microscope’s field of view.

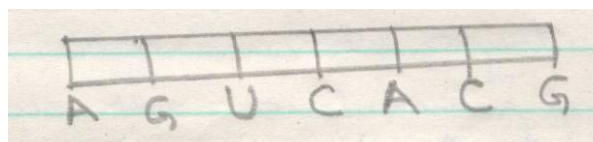


a) Explain the resolving power of a microscope. (1 mark)

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b) If the student counted 20 cells across the field of view calculate the size of one cell in micrometers. (2marks)

22. Below is a nucleic acid strand.



a) Name the nucleic acid. (1 mark)

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b) Explain the reason of your answer in (a) above. (1 mark)

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 23. a) Explain three ways in which a red blood cell is adapted to its function .(3marks)

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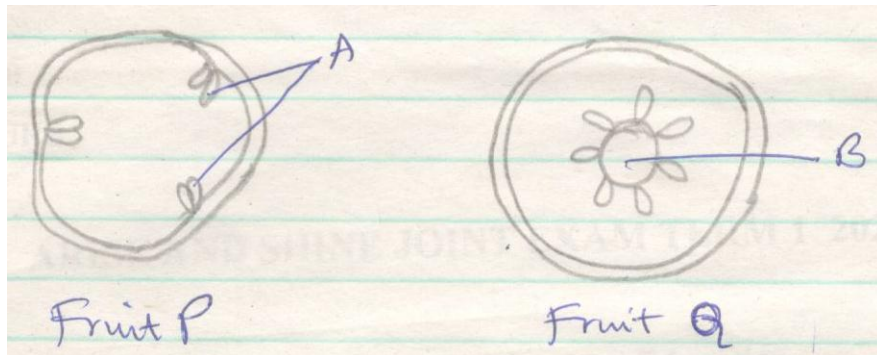
b) In which form is carbon (IV) oxide transported. (1 mark)

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24. Explain the likely effect on humans and other organisms of untreated sewage discharge into water body that supplies water for domestic use. (3marks)

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25. Below are cross sections of two fruits. Study them and answer the questions that follow.



a.) Name the parts labeled  
 A..... (1 mark)

B..... (1 mark)

b.) Name the type of placentation in fruit. (2marks)

P.....

Q.....

26. a) Differentiate between hypogeal germination and epigeal germination. (2marks)

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b) Explain two causes of dormancy in seed. (2 marks)

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27. Identify two divisions in the kingdom plantae that show alternation of generations. (2marks)

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