

Name.....

Index No.

School

231/1

BIOLOGY

Paper 1

THEORY

July / August - 2007

Time: 2 Hours

HOMABAY/SUBA DISTRICT MOCK EXAMINATION-2007

Kenya Certificate of Secondary Education (K.C.S.E)

231/1

BIOLOGY

Paper 1

THEORY

July / August - 2007

Time: 2 Hours

INSTRUCTION TO CANDIDATES

- Answer All the questions in the spaces provided.

For Examiner's Use only

Question	Maximum Score	Candidate's Score
1 – 28	80	

This paper consists of 12 printed pages.

*Candidates should check the question paper to ensure that all pages are printed as indicated
and no questions are missing*

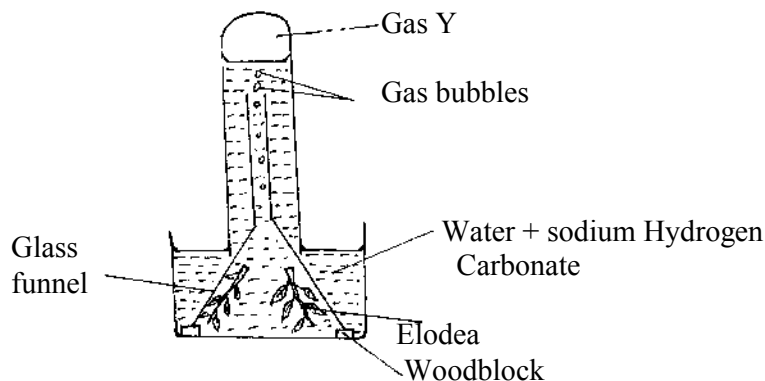
(ii) the portion marked C. (1mk)

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4. In an experiment to investigate a product of photosynthesis, the set up was as shown in the diagram below. The apparatus was placed in the sun.



a) State the confirmatory test for gas Y. (1mk)

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b) Explain why Elodea is the most suitable plant for this experiment. (2mks)

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c) State the function of the sodium hydrogen carbonate in the experiment. (1mk)

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5. a) Name one hormone involved in insect metamorphosis. (1mk)

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b) State the importance of metamorphosis to the life of insects. (2mks)

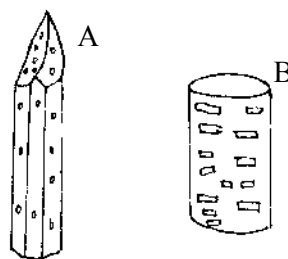
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6. A student measured the diameter of a mitochondrion on a photomicrograph whose magnification was x50000 to be 1mm. What was the actual size of the mitochondrion in micrometres? (2mks)

7. The diagrams below are of two conducting elements of the xylem tissue.



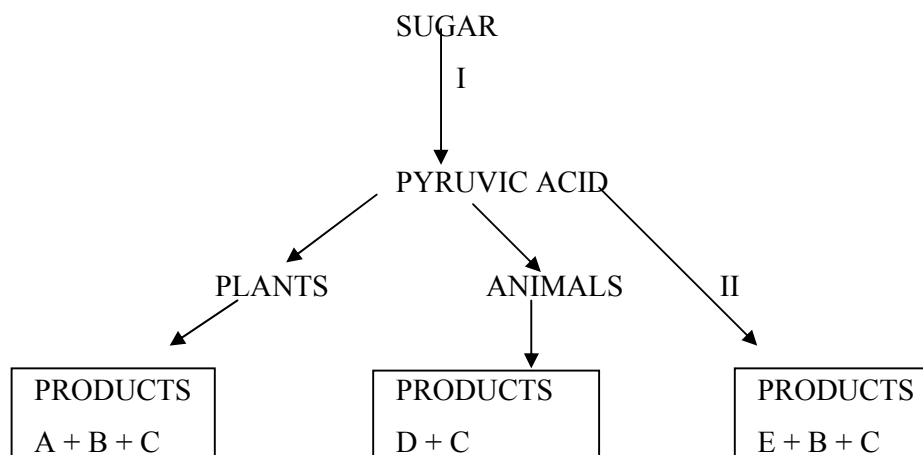
- a) Identify each of them. (2mks)

A B.....

- b) What makes the cellulose side wall of both A and B impermeable to water and solutes. (1mk)

8. State two advantages of natural selection to organisms. (2mks)

9. Study the flow chart below and answer the questions that follow.



a) Name the process taking place in step labelled I. (1mk)

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b) Give two reasons why accumulation of substances D in the body leads to an increase in the heartbeat. (2mks)

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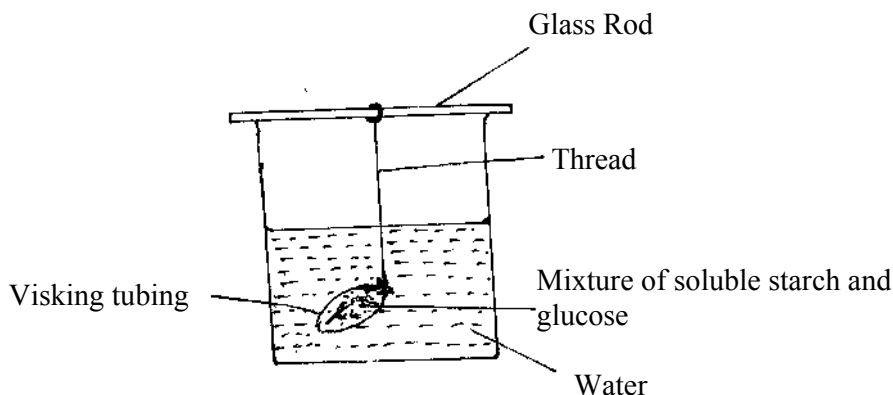
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c) Identify substance E. (1mk)

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10. In an experiment to investigate certain physiological process, a student had his experiment set up as shown below.



To a certain the occurrence of the physiological process investigated he carried out food test on the water in the beaker. Both starch test and reducing sugar test at the beginning of the experiment were negative. After the set up was left undisturbed for 20 minutes, starch test was still negative but that of reducing sugar was positive.

a) State the physiological process which takes place in the human body illustrated by the set up above. (1mk)

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b) Name the part of the human body where the processes stated in (10) (a) above takes place. (1mk)

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11. A group of students were walking in the forest and they came across two organisms A and B showing the following characteristics

A	B
- Two pairs of walking legs per segment	- One pair of walking legs per segment
- One pair of antennae	- One pair of antennae
- Jointed appendages	- Jointed appendages

State the class to which each organism belongs. (2mks)

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12. a) Name the principal site of gaseous exchange in the lungs of humans. (1mk)

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- b) State two ways in which the structure named in (12) (a) above is adapted to its function (2mks)

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13. An investigation was carried out on a terrestrial ecosystem. The population sizes and species biomass were determined and recorded as shown in the table.

SPECIES	POPULATION SIZE	SPECIES BIOMASS
A	1×10^3	1×10^3
B	1×10^3	1×10^{-1}
C	1×10^5	1×10
D	1×10	1×10^4

- a) If these organisms had feeding relationships, construct a simple food chain involving all the organisms. (1mk)

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b) Construct pyramid of numbers using the data provided above. (2mks)

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c) State one disadvantage of using pyramid of numbers in expressing feeding relationships in ecological ecosystem. (1mk)

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14. Why is excretion of nitrogenous wastes more of a problem to animals than plants?(2mks)

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15. a) Give two possible ways of establishing the genotype of an organism whose genotype is unknown. (2mks)

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b) Why is it that a father can only transmit haemophilia to his daughter but not to his son? (1mk)

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16. a) Explain why swallowing and breathing in can not occur at the same time. (2mks)

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b) Why is it necessary that pepsin be produced in its inactive form? (1mk)

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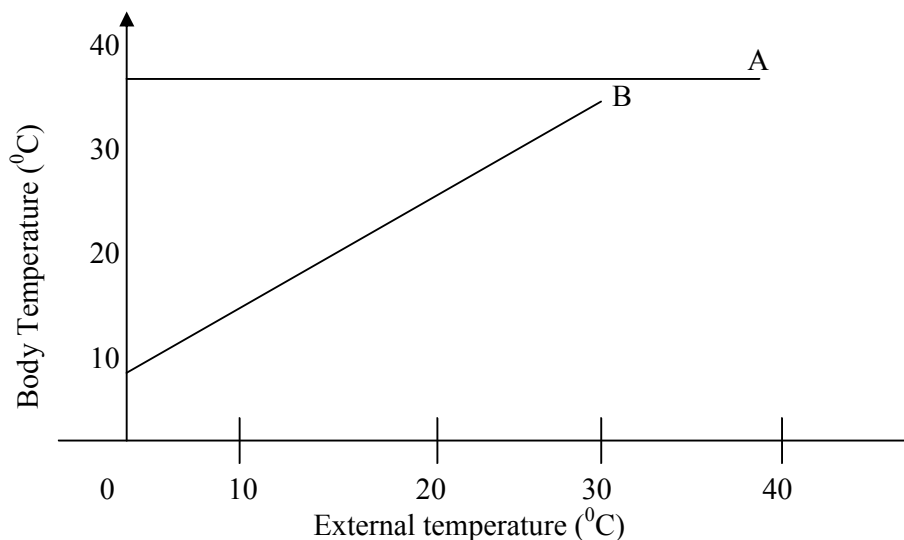
17. a) Name the part of the brain which deals with regulation of body temperature. (1mk)

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b) The graph below shows the temperature of two organisms A and B under different external temperatures. Study it and answer the questions that follow.



b) Give the terms used to describe organisms A and B. (2mks)

A

B

c) What advantage does organism A have over B. (1mk)

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18. State the distinguishing features used in separating members of the phylum Arthropoda into various classes. (2mks)

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19. a) Name two kinds of nuclei found in a mature pollen grain. (2mks)

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- b) State what is meant by double fertilization in flowering plants. (2mks)

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20. Carbon (iv) oxide can be transported from the tissues to the lungs within the red blood cells.
Give two advantages of this mode of transport. (2mks)

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21. a) Differentiate between the primary growth and secondary growth in woody plants. (2mks)

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- b) Name two tissues responsible for secondary growth in flowering plants. (2mks)

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22. a) State two significance of myelin sheath. (2mks)

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- b) Name the cell that secretes the myelin sheath. (1mk)

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- c) List the following in order in which they are involved in a simple reflex action.

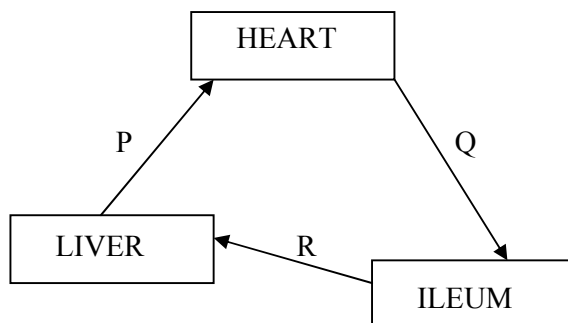
Motor neurone, effectors, stimulus, Intermediate (relay) neurone,
sensory neuron, impulse, receptor. (1mk)

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23. The diagram below shows part of the mammalian circulatory system.



- a) Identify the blood vessel marked Q. (2mks)

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- b) State two differences in the composition of blood in vessel R and P. (2mks)

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24. Name two strengthening tissues in woody plants. (2mks)

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25. State three structural adaptations of a thoracic vertebra to its function. (3mks)

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26. (i) Name the type of response exhibited by the growth of pollen tube towards the ovary in a flowering plant. (1mk)

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- (ii) State two importance of response named in 26 (i) above to the plants. (2mks)

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27. Explain why sweat accumulates on a person's skin in a hot humid environment. (2mks)

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28. Name the deficiency disease caused by lack of vitamin A in human. (1mk)

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