

Name Index Number

231/1
BIOLOGY
 Paper 1
 (THEORY)
 March 2013
 2 Hours

Candidate's Signature
 Date
 Class



Kenya Certificate of Secondary Education
ALLIANCE GIRLS HIGH SCHOOL
 Pre- mock Examinations
BIOLOGY
 Paper 1
 (THEORY)
 2 HOURS

Instructions to Candidates

- Write your name and index number in the spaces provided above.
- Sign and write the date of examination in the spaces provided above.
- Answer ALL questions in the spaces provided.
- This paper consists of 10 printed pages.
- Check the question paper to ascertain that ALL the pages are printed as indicated and no questions are missing.

FOR EXAMINERS' USE ONLY

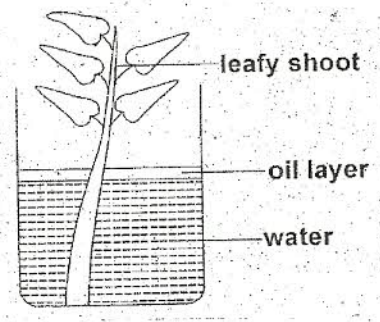
Questions	Maximum Score	Candidate's Score
1 - 26	80	

1. Black jack (*Bidens pilosa*) belongs to the family compositae. What is the plant's.
- a) Genus (1mark)

- b) Species (1mark)

2. State three functions of saliva during food digestion. (3marks)
- i)
- ii)
- iii)
3. State three properties of plasma membrane. (3marks)

4. Some students set up experiment shown below to investigate a certain physiological process in plants. After one hour they placed cobalt chloride paper on leaf surface.



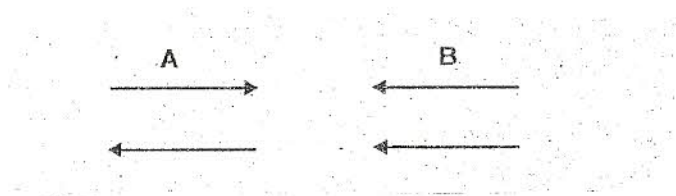
- a) What process was being investigated? (1mark)

- b) State the role of the oil layer in the experiment. (1mark)

- c) Suggest changes observed on the cobalt chloride paper after one hour. (1mark)

- d) Suggest one precautionary measure that the students were supposed to observe during the preparation and setting up of the experiment. (1mark)

5. a) Which one of the illustration below shows the direction flow of blood and flow of water in the gill cavity of a bony fish? (1mark)



- c) Name the process. (1mark)

- d) State the significance of this flow system. (1mark)

6. a) State two characteristics of monera which are not found in other kingdoms. (2marks)

- b) State two characteristics features of members of division Bryophyta. (2marks)

7. The equation below shows what happens in cellular respiration.

$$C_{18}H_{36}O_{2(aq)} + 26O_{2(g)} \rightarrow 18CO_{2(g)} + 18H_2O_{(l)} + \text{energy}$$

- a) Name the type of respiration shown. (1mark)

- b) Determine the respiratory quotient of the process. (2marks)

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 c) What food substrate is broken in the respiration? (1mark)

8. a) State one way in which the mitochondria and chloroplasts are structurally similar. (1mark)

b) State one reason why the mitochondrion is referred to as the power house of the cell. (1mark)

9. The origin of all energy in in the ecosystem is solar radiation. Out of this only 10% is trapped by producers during photosynthesis while the rest is lost.

a) State two ways through which energy is lost. (2marks)

b) What would be the role of bacteria in an ecosystem? (1mark)

10. a) What is seed dormancy? (1mark)

b) Name a growth inhibitor in seeds. (1mark)

11. The table below represents percentage composition of gases in inhaled and exhaled air.

Gas	% in inhaled air	% in exhaled air
Oxygen	20.00	16.9
Carbon (IV) oxide	0.03	0.40
Nitrogen and other gases	79.97	79.97

a) Explain why the concentration of oxygen is lower in the inhaled air. (2marks)

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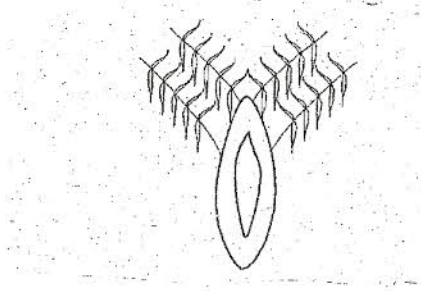
b) Explain why the concentration of nitrogen and other gases remain the same in both inhaled and exhaled air. (1mark)

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12. State three structural modifications of the kidneys of desert animals like that of a camel. (3marks)

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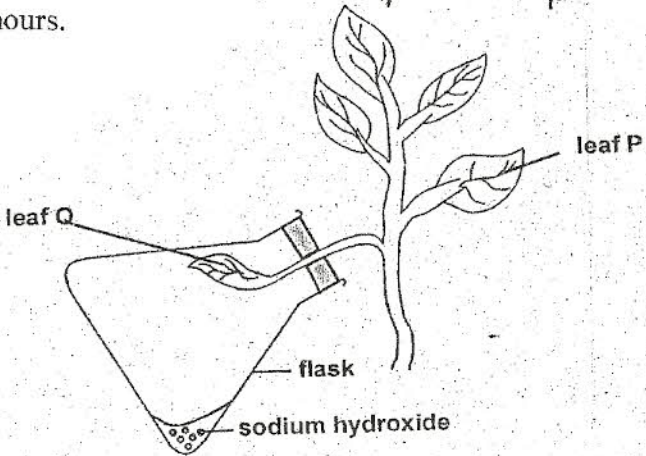
13. Study the diagram below and giving a reason name the agent of dispersal for the fruit. (2marks)



Agent

Reason
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14. Below is a set up of an experiment to investigate a certain process in a plant. The plant was kept in the dark for 48 hours.



- a) Why was the plant kept in the dark for 48hours? (1mark)

- b) State the purpose of sodium hydroxide in the experiment. (1mark)

- c) After 48 hours, leaf P and Q were tested for starch. What results would be expected? (2marks)

15. a) State the difference between Darwinism and Lamarckian theories of evolution. (2marks)

b) Giving examples, state the meaning of analogous structures. (2marks)

16. a) The green and black aphids lay unfertilized eggs that hatch and develop to new organisms. What term is used for the above process. (1mark)

c) What name is given to the condition where implantation of a zygote takes place in the wall of oviduct. (2marks)

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17. a) State two functions of xylem tissues.

(2marks)

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b) How are xylem tissues suited to perform the functions stated in (a) above. (2marks)

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18. a) What is meant by term non-disjunction?

(1mark)

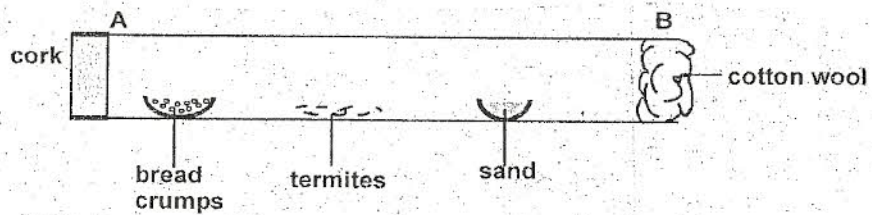
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b) Give two examples of continuous variation in humans.

(2marks)

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19. The following set up was used to investigate the response of termites towards a certain stimulus.



a) Why was cotton wool used instead of wood cork in part B of the set up? (1mark)

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b) The termites moved towards point A. Name this response.

(1mark)

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c) State one importance of this kind of response. (1mark)

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20. a) Distinguish between hypogeal and epigeal germination. (1mark)

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b) Why is water necessary for germination of seeds? (2marks)

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21. A person of blood group AB requires a transfusion.

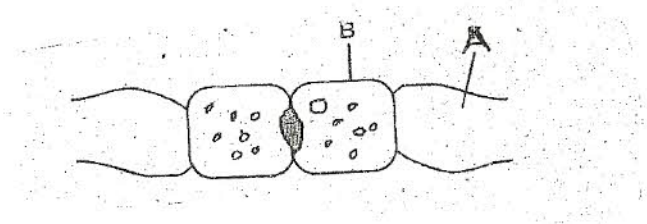
a) Name the blood groups of the possible donors. (1mark)

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b) Give reasons for your answer in (a) above. (2marks)

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22. The diagram below represents a closed stoma.



a) Identify the cells labelled A and B. (2marks)

A

B

b) Name the excretory product in plants which is excreted through the stomata. (1mark)

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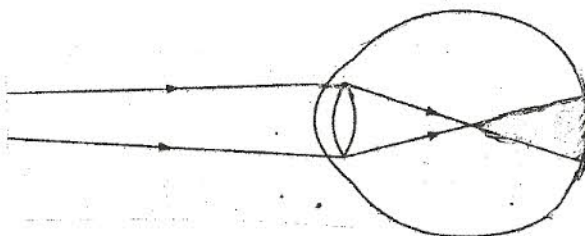
c) State one adaptation of the guard cell to its function. (1mark)

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23. AIDS is caused by the HIV virus. State three ways in which one can get infected with the virus. (3marks)

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24. The diagram below shows the position of an image formed in a defective eye.



a) Name the defect. (1mark)

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b) Explain how the defect named in (a) above can be corrected. (2marks)

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25. Distinguish between nervous and endocrine communication in animals. (3marks)

Nervous	Endocrine
i)	i)
ii)	ii)
iii)	iii)

26. a) Name the hormone responsible for larval formation in insects. (1 mark)

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b) Where is the hormone in (a) above secreted? (1 mark)

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c) Account for the loss in dry weight of cotyledons in a germinating bean seed. (1 mark)

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