

Name.....

Index No...../.....

School.....

Candidates Signature.....

Date

231/1

BIOLOGY

THEORY

Paper 1

July/August 2009

2 Hours

KIRIMA JOINT EVALUATION TEST - 2009

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

231/1

BIOLOGY

THEORY

Paper 1

July/August 2009

2 Hours

INSTRUCTIONS TO CANDIDATES

- Write your name and Index Number in the spaces provided above.
- Sign and write date of examination in the spaces provided above.
- Answer **ALL** questions in the spaces provided.
- All workings **MUST** be clearly shown where necessary.

For Examiners use only.

Question	Maximum Score	Candidates Score
1 – 31	80	

*This paper consists of 6 Printed pages.
Candidates should check the question paper to ensure that all the
Papers are printed as indicated and no questions are missing*

Answer all questions in the spaces provided.

1. Name **one** of the end products of the dark reaction in photosynthesis (1mk)
.....
.....
.....
2. Give **two** reasons why higher animals need an internal transport system (2mks)
.....
.....
3. a) Explain why a person discharges urine more frequently when environmental temperatures are low than when they are high. (2mks)
.....
.....
.....
b) Name the nitrogenous waster product excreted by a fresh water fish. (1mk)
.....
4. Why is it important to use dry mass in ecological studies and not wet mass (2mks)
.....
.....
5. Identify the agent of dispersal of the following: (2mks)
 - i) Fruits which split open along sutures when dry, hauling their seeds away from the parent plant.
.....
 - ii) Light seeds with hairy extensions
.....
6. Name the **three** main sites in plants through which gaseous exchange takes place (3mks)
.....
.....
7. Liver damage leads to impaired digestion of fats. Explain this statement. (2mks)
.....
.....
8. The diagram below represents an organelle involved in aerobic respiration.



a) Identify the organelle (1mk)

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b) Name the parts labeled X and Y. (2mks)

X Y

9. Explain how the xylem vessels are adapted to their function. (3mks)

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.....
.....

10. In cattle the gene for red hair (designated R) and that of white hair (designated W) are co-dominant. When a red haired bull was mated with a white haired heifer, a roan calf was obtained in F1.

i) Give the genotypes of the F1 offspring. (1mk)

.....
.....

ii) Work out the phenotypic ration when the F1 are selfed. (3mks)

11. State the function of the following in reproduction. (3mks)

i) Placenta

.....

ii) Acrosome

.....

iii) Follicle stimulating hormone

.....

12. State **three** evidences of organic evolution. (3mks)

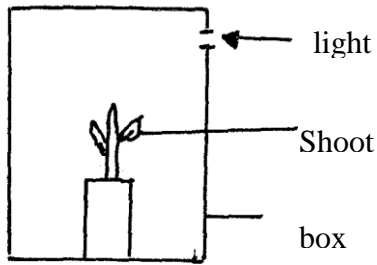
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13. In what form is oxygen transported from lungs to the tissues? (1mk)

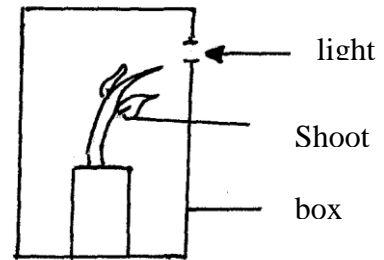
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14. The diagrams below show an experiment set up using growing bean seedlings. The been seedlings

were enclosed in a dark box with a hole on one side as shown.



At beginning



After four days of growth

a) What type of response does the shoot above show? (1mk)

.....

b) Account for the shape of the bean shoot after four days of growth. (3mks)

.....

15. Explain why several lateral buds sprout when a terminal bud in a young tree is removed. (3mks)

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16. State **three** factors that affect the rate of diffusion. (3mks)

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17. Explain how the biceps and triceps muscles bring about the movement at the hinge joint of the elbow in man. (3mks)

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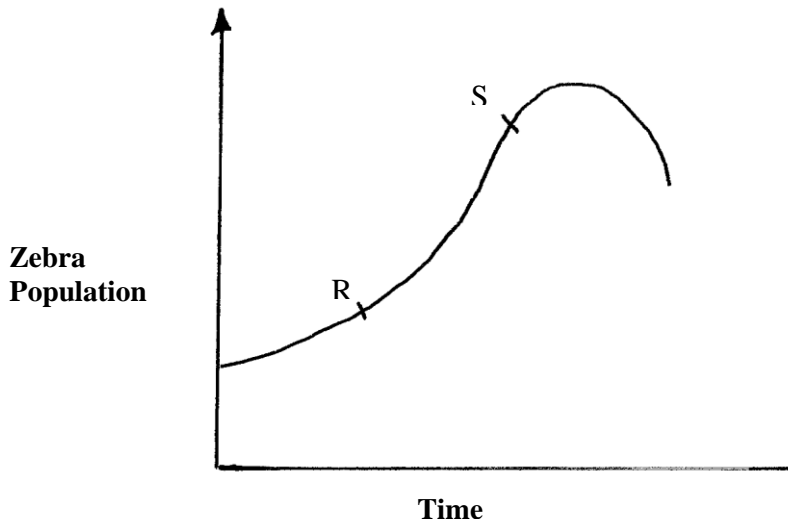
18. Name **one** mechanism that hinders self pollination in flowering plants. (1mk)

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19. In what ways are the gill filaments of fish adapted to their function? (3mks)

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20. State the function of the phloem tissue in plants (1mk)
-
21. a) In an experiment, it was found that when maggots are exposed to light, they move to the dark areas.
- i) Name the type of response exhibited by the maggots. (1mk)
-
- ii) State the survival value of the response in (a) (i) above. (1mk)
-
- b) During a road accident, an accident victim suffered head injury and consequently lost memory. Name the part of the brain that was damaged. (1mk)
-
22. a) What is meant by oxygen debt. (2mks)
-
-
- b) State one factor that affects basal metabolic rate. (1mk)
-
23. Explain what happens to excess glucose in the body. (3mks)
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-
24. a) Name the hard outer covering of the members of the phylum arthropoda. (1mk)
-
- b) State **three** roles played by the structure named in (a) above. (3mks)
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-
-
- c) State **one** other characteristic of the phylum arthropoda. (1mk)
-
25. Name **one** sex-linked trait in humans. (1mk)
-
26. The graph below represents a population growth curve of zebras in a grassland ecosystem over a period of time.



a) Account for the change in zebra population between points R and S on the growth curve above (3mks)

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b) Name the most suitable method used in estimating the zebra population. (1mk)

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27. Distinguish between convergent and divergent evolution. (2mks)

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28. Explain how temperature affects the rate of photosynthesis. (3mks)

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29. Name **two** mechanical tissues which provide support in woody plants. (2mks)

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30. State one role of hydrochloric acid secreted by the stomach wall. (1mk)

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31. Explain what would happen to the red blood cells when they are placed in hypotonic solution. (3mks)

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