(ii) Name **one** observable feature that adapts specimen **D_4** to the habitat you have mentioned in (b) (i) above (1mk)

……

(iii) Give **one** reason for your answer in (b) (ii) above. (1mk)

……

(v) What is the importance of the structure marked S in specimen **D_4**? (1mk)

……

(C) (i) The stem of specimen **D_2**, was squeezed strongly. State the expected observations. (2mks)

……

……

(ii) Suggest how specimen **D_2** is adapted to its habitat. (1mk)

……

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NAME: ……..…… INDEX NO: ..…...……

SCHOOL: ……..……..

Candidates signature: ……..

Date …..……..

231/2
BIOLOGY
PAPER 2
THEORY
JULY / AUGUST 2010
2 HOURS

KAKAMEGA NORTH DISTRICT JOINT EVALUATION TESTS

Kenya Certificate of Secondary Education (K.C.S.E) 2010

231 / 2
BIOLOGY
PAPER 2

INSTRUCTIONS TO CANDIDATES

- *Write your name and index number in the spaces provided.*
- *Answer **ALL** questions in this paper in the spaces provided.*

For Official Use Only

Section	Question	Maximum Score	Candidates Score
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	
Total Score		80	

SECTION A (40 MARKS)

1. In a family with four children, the father had blood group A while the mother had blood group B. One of the children had blood group 0.

(a) (i) **What** were the genotypes of the parents? (1mk)

Mother

……
……

Father

……
……

(ii) What was the genotype of the child with blood group 0? (1mk)

……
……

(b) **Work out** the genotypes of the other children.

(c) **Which** child can receive blood from any member of the family? (1mk)

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……

(d) **State** the percentage of children who can donate blood at all blood groups. (1mk)

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2. (a) **What** is active transport? (1mk)

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(b) **State three** factors that increase the rate of active transport. (3mks)

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(c) **Give four** roles of active transport in living organisms. (4mks)

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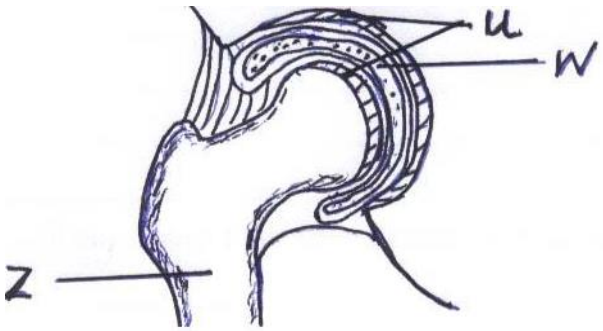
3. The diagram below represents one of the joints in the mammalian skeleton.



(a) **Name** the type of joint shown in the diagram.

……
……

(b) **Name** the parts labeled Z and U.

Z: ……

U: ……

(c) **Name two** parts of the body where this type of joint is found. (2mks)

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……

(d) **State** the functions of the fluid found in W. (2mks)

……

……

……

(e) **Name** the type of muscles found in the gut. (1mk)

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……

……

4. (a) **What** is accommodation? (1mk)

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……

……

(b) **Describe** the sequence of events that occur in the eye for one to be able to see clearly

(i) a distant object (4mks)

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(ii) if one moved from a dim lit room to bright light. (3mks)

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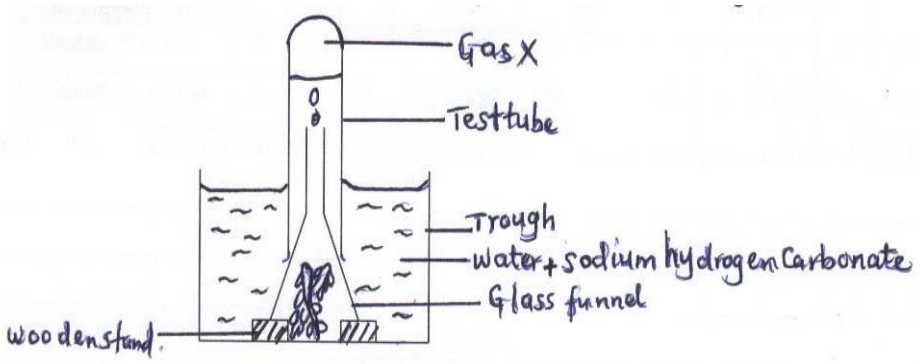
5. An experiment was set up to investigate a certain process as shown in the diagram below.



The set up was left in bright sunlight for 4 hours.

(a) **State** the aim of the experiment. (1mk)

……

……

……

(b) Name X and Y. (2mks)

X: ……

Y: ……

(c) Other than sunlight, **name three** factors that would affect the experiment. (3mks)

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(d) **State** how the identity of X could be confirmed. (1mk)

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(e) **Explain** why only submerged water plants are used in this experiment. (1mk)

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6. In an ecological study, a grass hopper population and that of crows was estimated in a certain grassland area over a period of one year. The results are as shown in the table below.

Month	J	F	M	A	M	J	J	A	S	0	N	D
Number of adult grasshoppers xl0^2	90	20	11	25	2500	1652	120	15	10	35	192	456
Number of crows	4	2	0	1	8	22	7	2	1	1	5	15
Amount of rainfall	20	0	55	350	520	350	12	10	25	190	256	350

(i) **What** is the relationship between the rainfall and grasshopper population? (1mk)

……

……

……

(ii) (a) **Account** for the relationship stated in a (i) above. (3mks)

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……

(b) **Explain** the relationship between the grasshopper population and that of the crows.

(3mks)

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……

(c) If the data was used in the construction of pyramid of numbers, **what** would be the trophic level of; (3mks)

i. Grasshopper

……

……

ii. Crows

……

……

iii. The grass in the study area

……

……

(d) If the area studied was one square kilometer, **state**;

(i) One method that could have been used to estimate the crow population. (1mk)

……

……

(ii) One method that could have been used to estimate the grasshopper population. (1mk)

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……

(e) **Suggest** what would happen if a predator for grasshoppers entered the study area. (2mks)

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(f) **What** is meant by the term carrying capacity? (1mk)

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(g) Why would the carrying capacity of wild animals in woodland grassland be higher than that of cattle? (2mks)

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(h) What is an ecosystem? (3mks)

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7. **Describe** the role of the liver in homeostasis. (20mks)

8. (a) **State three** reasons why transport is necessary in animals. (3mks)
   (b) **Describe** how the mammalian heart is adapted to its function. (17mks)

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