

NAME: ..... INDEX NO: .....

SCHOOL: ..... DATE : .....

CANDIDATE'S SIGNATURE:.....

231/2

BIOLOGY

PAPER 2

(THEORY)

JULY / AUGUST 2014

TIME: 2 HOURS

## NANDI NORTH SUB-COUNTY JOINT EVALUATION 2014

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

BIOLOGY

PAPER 2

TIME: 2 HOURS

### INSTRUCTIONS TO CANDIDATES:

- (a) Write your **Name** , **Index Number** and **School** in the spaces provided.
- (b) **Sign** and write the **Date** of examination in the spaces provided.
- (c) This paper consists of **TWO** sections **A** and **B**.
- (d) Answer **all** questions in section A in the spaces provided.
- (e) In section B, answer question 6 (compulsory) and either question 7 or 8 in the spaces provided.

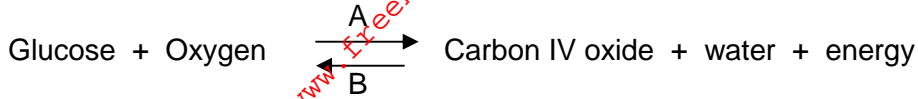
### FOR EXAMINER'S USE ONLY

SECTION	QUESTION	MAX. SCORE	CANDIDATE SCORE
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	
	<b>TOTAL</b>	<b>100</b>	

## SECTION A (40 MARKS)

Answer all questions in this section in the spaces provided.

1. The following equation summarizes two chemical reactions



- (a) Name the chemical reactions indicated by each of the arrows:

A: ..... (1mk)

B: ..... (1mk)

- (b) Name the cell organelles in which each of the reactions A and B occur.

A: ..... (1mk)

B: ..... (1mk)

- (c) (i) Name the energy-rich compound formed directly as a result of the reaction indicated by the arrow A. (1mk)

.....

- (ii) Name the form of energy in the reaction indicated by arrows B. (1mk)

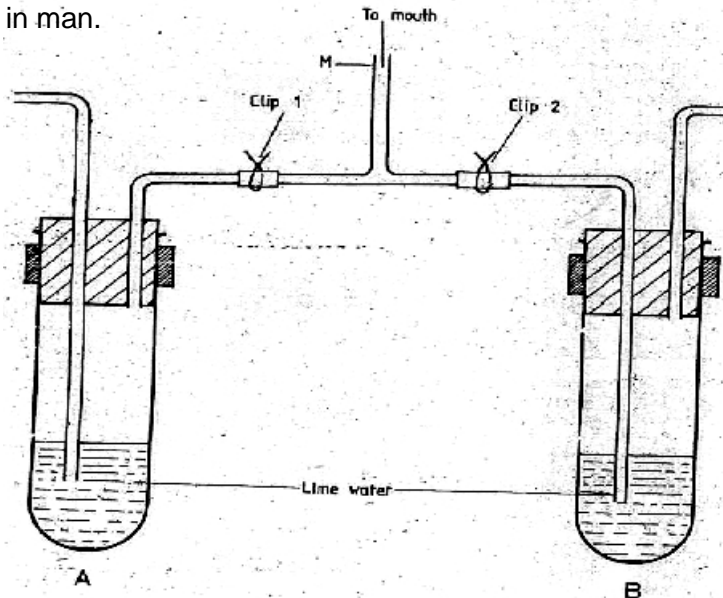
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- (iii) State **two** uses of the above energy-rich compound in (c) (i) above. (2mks)

.....

.....

2. The diagram below represents the apparatus that can be used to investigate an aspect of gaseous exchange in man.



A person placed his mouth at tube **M** and breathed in and out several times through the tube.

- (a) State the purpose of clip 1 and 2 in this experimental set up. (2mks)

Clip 1: .....

.....

Clip 2: .....

.....

(b) What results are expected after breathing in and out several times? (2mks)

.....

.....

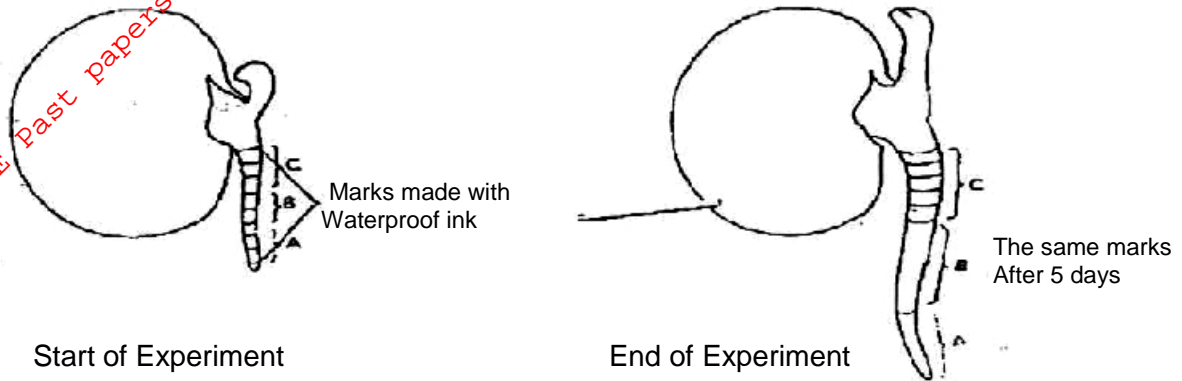
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(c) State **two** advantages of breathing through the nose rather than the mouth. (2mks)

.....

.....

3. The diagram below shows the results obtained in an experiment on growth of a bean seedling.



(a) Suggest the aim of the experiment. (1mk)

.....

(b) State the processes that occur in each of the regions marked A, B and C. (3mks)

A:.....

B:.....

C:.....

(c) Account for the observations made in the regions A and C.

Region A (2mks)

.....

.....

Region C (2mks)

.....

.....

4. Haemophilia is a sex-linked disorder in human. It is caused by a recessive allele (h) present in X-chromosome. A normal man marries a carrier female.

(a) What would be the genotypes of the parents of this marriage?

Man:..... (1mk)

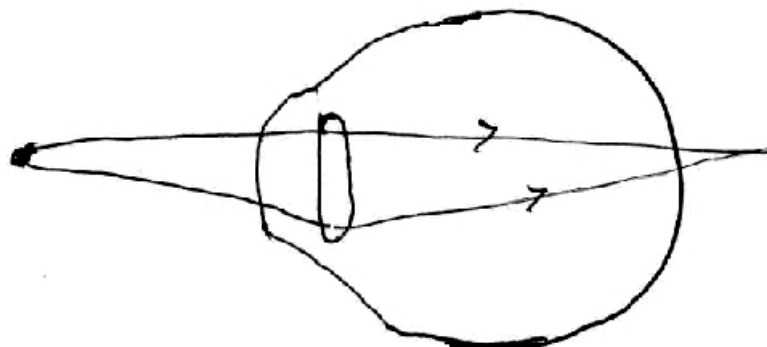
Woman:..... (1mk)

- (b) What would be the genotypes of the offsprings in the marriage above? Show your working. (5mks)

- (c) From the offsprings obtained in (b) above, give the ratio of completely normal children to haemophilic children. (1mk)

.....  
 .....

5. The diagram below illustrates a certain eye defect.



- (a) State the defect. (1mk)

.....

- (b) On the diagram, illustrate how the defect can be corrected. (2mks)

- (c) State **two** advantages of having two eyes in human beings. (2mks)

.....  
 .....

- (d) State the adaptations of the following parts of a mammalian eye.

- (i) Choroid (2mks)

.....  
 .....

- (ii) Conjunctiva (2mks)

.....  
 .....

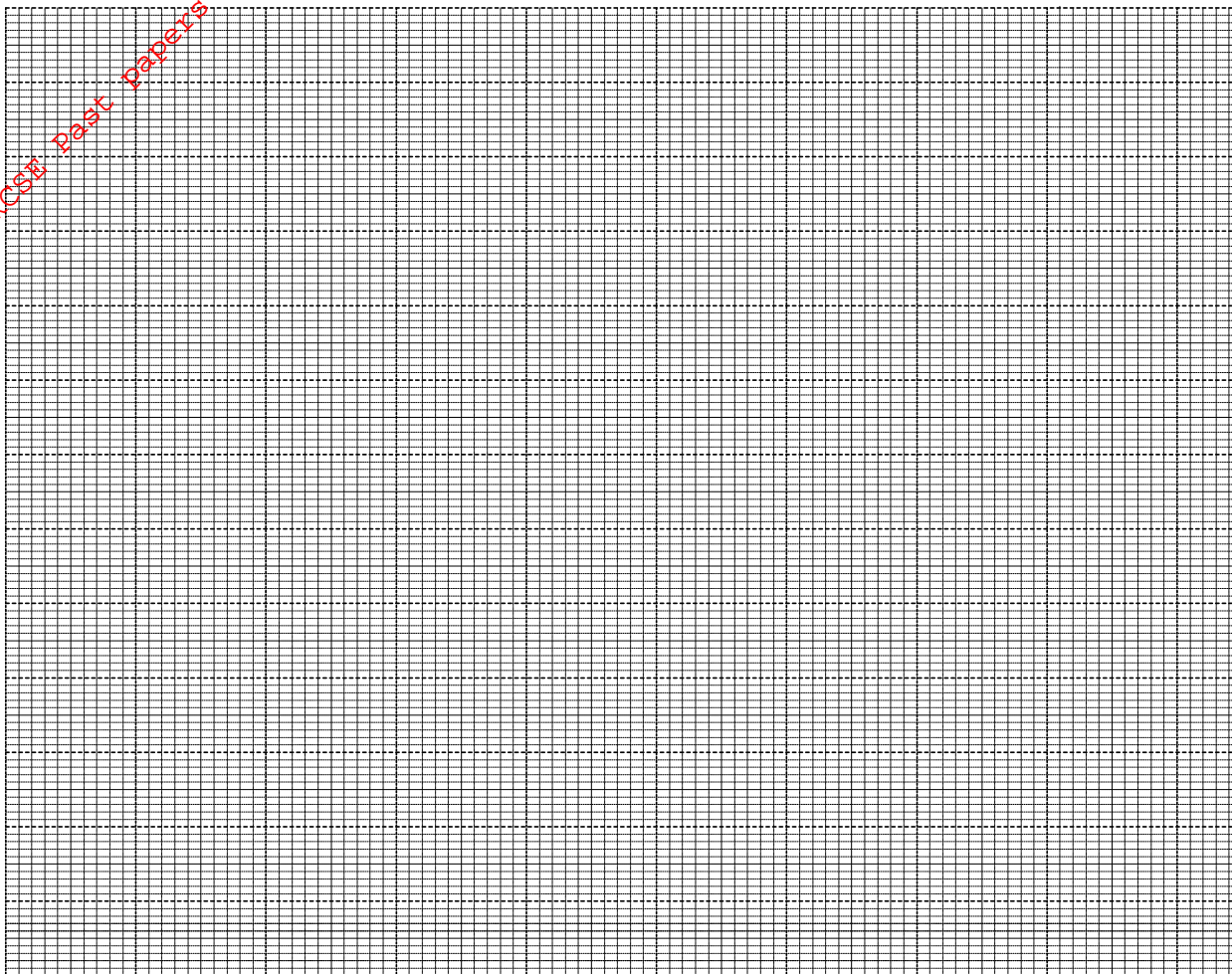
## SECTION B

**Answer question 6 (Compulsory) and any other one question from this section.**

6. The table below shows how the quantities of sweat and urine vary with external temperature.

External temperature $^{\circ}\text{C}$	0	5	10	15	20	25	30	35
Urine $\text{cm}^3/\text{h}$	100	90	80	70	60	50	40	30
Sweat $\text{cm}^3/\text{h}$	5	6	10	15	30	60	120	200

- (a) Using the same axes, draw graphs of quantities of urine and sweat produced against the external temperature. (6mks)



- (b) At what temperatures are the amounts of sweat and urine produced equal? (1mk)

.....

- (c) Account for the amount of sweat produced as the temperature rises. (3mks)

.....

.....

.....

- (d) Explain the observation made on the amount of urine produced as temperature rises. (4mks)

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.....

.....

(i) Hair (3mks)

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papers vis

(i) Follicle stimulating hormone. (2mks)

(ii) Luteinising hormone. (3mks)

(b) Describe the digestion of starch in man. (15mks)

This image shows a full page of primary-ruled paper. It features approximately 20 horizontal dotted lines spaced evenly apart, providing a guide for handwriting practice. The lines extend across the entire width of the page, leaving small margins at the top and bottom. There are no vertical lines or other markings present.

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