NAME……**INDEX NO**……

DATE……**CANDIDATE'S SIGNATURE**……

BIOLOGY

PAPER 2

THEORY

JULY/AUGUST 2014

TIME: 2 HOURS

KAKAMEGA COUNTY JOINT EVALUATION TEST

Kenya Certificate of Secondary Education 2014

231/2

BIOLOGY

PAPER 2

JULY/AUGUST 2013

INSTRUCTIONS TO CANDIDATES

- *Write your name and index number in the spaces provided at the top of this page*
- *Sign and write the date of examination in the spaces provided above*
- *This paper has **two** sections, **A** and **B***
- *Answer **ALL** questions in section **A** in the spaces provided on the question paper*
- *In section **B** answer question **6(compulsory)** and either question **7** or **8** in the spaces provided after question **8**.*

For Examiner's Use Only

SECTION	QUESTIONS	MAX.SCORE	CAND.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) MKS

1. The figure below was used to demonstrate a certain physiological process in germinating Pea seeds.

(a)What observations would be made in the set-up at the end of the experiment? (2mks)

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(b)i. Suggest what would happen in the set-up if the seeds were mixed with pyrogallic acid (1mk)

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(ii) Explain your answer in b(i) above. (2mks)

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(c) What chemical change is taking place in the germinating peas? (2mks)

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(d) Suggest a control experiment for this set-up.(1mk)

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2(a) i. Briefly outline events that take place during binary fission.(3mks)

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(ii) Name two organisms in which binary fission takes place. (2mks)

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(b) Explain the meaning of the following terms. (2mks)

(i)Dichogamy

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(ii)Parthenocarpy

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(c) Name the type of cells that nourish the sperms. (1mk)

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3.Carefully study the diagram below and answer questions that follow.

(a) Identify the structure. (1mk)

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(b) Name parts labeled W and Z. (2mk)

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(c) What is the role of part labeled X? (1mk)

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(d) Name the bony structure that articulates with Z. (1mk)

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(e) State three structural differences between biceps muscles and muscles of the gut. (3mks)

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4. In an experiment to compare the basal metabolic rate of some animals, the amount of oxygen consumed per unit body weight in a given period of time was determined. The table below shows the results of the investigations.

Animal	Body weight(Kg)	Oxygen consumed (g/hr.)
Buffalo	546	47
Man	58	203
Rabbit	3	318
Rat	0.1	700
Mouse	0.02	1510

(a) Comment on the volume of oxygen consumed by the buffalo and the mouse. (1mk)

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(b) Account for the above comparison for:

(i) Buffalo (2mks)

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(ii) Mouse (2mks)

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(c) What is Basal metabolic Rate (BMR)? (1mk)

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(d) Explain how high temperature increases the rate of diffusion. (2mks)

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5. (a) What is multiple allelism? (1mk)

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(b) A pure breeding black male mouse was mated with a pure breeding brown female mouse. All the offspring had black coat colour.

(i) Explain the appearance of black coat colour in the offspring. (1mk)

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(ii) If the black parental mouse was mated with a mouse that is heterozygous for coat colour, work out the genotypic ratio of offspring. Show your working (5mks)

(iii) State two disorders in human beings that are as a result of chromosomal mutations. (2mks)

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SECTION B (40MKS)

Answer question 6(COMPULSORY) in the spaces provided. Answer either question 7 or 8 in the spaces provided after question 8.

6. An investigation was conducted to compare water loss from twigs of two species of plants Q and L. The apparatus shown below was used for this investigation. The twigs had equal leaf surface.

The results of the investigation were recorded in the table below.

Time of the day	6am	8am	10am	12noon	1pm	2pm	3pm	4pm	6pm	8pm	12 midnight
Water loss gh^{-1} species Q	O	4	20	40	55	36	26	20	2	O	O
Water loss gh^{-1} species L	8	20	39	131	198	182	130	81	45	12	12

(a) Plot a graph of water loss gh-1 against time for the two plants. (7mks)

(b) Name the apparatus used in the above investigation (1mk)

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(c)State TWO precautions that were taken in setting up this experiment.(2mk)

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(d) Which of the plant species is likely to be adapted to arid conditions? Give reason. (2mks)

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(e) Use the graph to answer the questions that follow:

(i) At what time of the day was $60gh^{-1}$ of water lost by plant species? (1mk)

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(ii) What was the rate of water loss from plant species Q at 11.00am? (1mk)

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(f) Account for the rate of water loss between 6.00am to 1.00pm by plant species L. (4mks)

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(g) Suggest how the stomata of species Q are structurally adapted to water loss. (2mks)

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7(a) Give four effects of hypothyroidism. (4mks)

(b) Briefly describe the process of hearing in man. (16mks)

8. Explain the adaptations of xerophytes to their habitat. (20mks)

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