Name: ………………………………………………………………… Index no ……..…..................................

School: ……………………………………………………......…. Candidate's sign ……………………....

Date: …………………………………………………………………

231/2
BIOLOGY
PAPER 2
JULY /AUGUST 2011
TIME: 2 HOURS

RACHUONYO SOUTH DISTRICT JOINT EVALUATION TEST

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

Biology
Paper 2

INSTRUCTIONS TO CANDIDATES:

- *Write **your name** and **index number** in the spaces provided.*
- *Answer **all** the questions in Section **A** in the spaces provided.*
- *In section **B** answer questions **6** (compulsory) and either question 7 or **8** in the spaces provided*

For Examiner's Use Only:

SECTION	QUESTIONS	MAXIMUM SCORE	CANDIDATES SCORE
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	
	TOTAL	**80**	

This paper consists of 8 printed pages. Candidates should check to ascertain that all papers are printed as indicated and that no questions are missing

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 O.

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

Mother……..

Father ……..

(ii) What was the genotypes of the child with blood group O. (1mk)

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(b) Work out the genotype of the other children. (4mks)

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

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(d) State the percentages of children who can donate blood to all blood groups. (1mk)

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2. Some millet seeds were socked in water for two days. They were taken broken into small pieces and placed on the surface of agar within a Petri-dish. The agar contained starch. The Petri-dish was covered and kept in a warm place. After two days it was found that there was no starch in the agar.

(a) Suggest how the test for starch in the agar was carried out. (2mks)

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(b) Explain why no starch was found in the a gar. (2mks)

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(c) Why were the seeds socked in water for 2 days . (2mks)

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(d) Suggest and explain a suitable control experiment for the investigation. (2mks)

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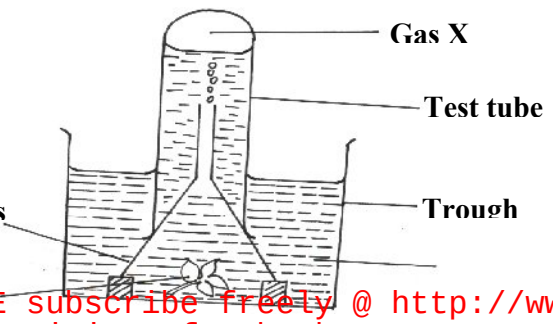
3. An experiment was set up to investigate a certain process as shown in the diagram below.



Y	**Water + sodium hydrogen carbonate**

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

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

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(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 was used in this experiment. (1mk)

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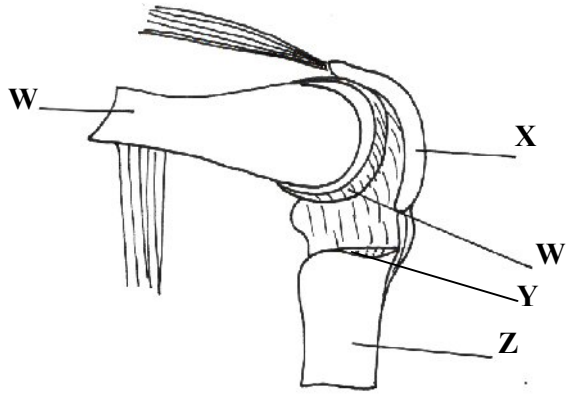
4. The diagram below is an illustration of a longitudinal section of mammalian knee.



(a) Name the parts labelled **W,Y** and **Z** (3mks)

W……..

Y……..

Z……..

(b) (i) In terms of function what type of joint is found in the knee. (1mk)

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(ii) How is bone W adapted at the distal end to Facilitate formation of this joint.

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(iii) Where in the fore limb would you find this type of joint. (1mk)

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(c) Name and state two functions of the part labeled W.

Name ……

Function……

(d) State the role played by the part labeled **X**. (2mks)

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3. (a) (i) Name the blood vessel that connect arteries to veins. (1mk)

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(ii) Explain **three** ways in which the vessels named in (a) (i) above are adapted to carry their function. (3mks)

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(b) Name blood vessel with the highest concentration of

(i)Glucose

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(ii) Carbon (IV) Oxide

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(c) (i) State the function of cardiac muscles (1mk)

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(ii) What is single circulation. (1mk)

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SECTION B (40MARKS)

6. An ecologist carried out an investigation between 1988 and 2000 to study the changes of fish population in small section of Nairobi river. Four species of fish A,B,C and D were found to live in the section of the river.

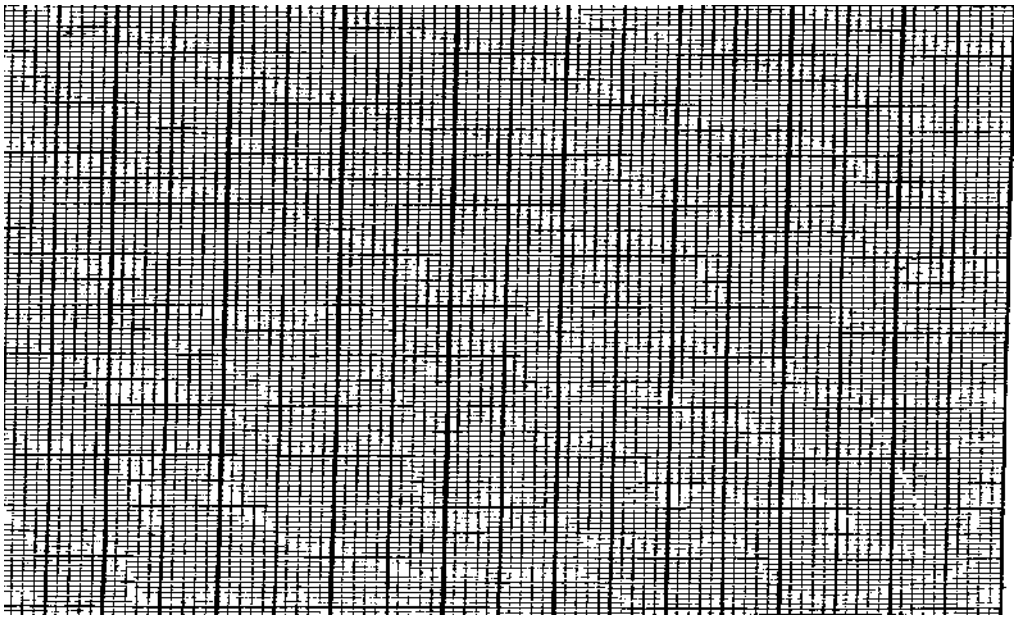
In 1989 a factory was built near this section of Nairobi river and was found to discharge hot water into the river. This elevated the average temperature from 25^{o}C to 40^{o}C. In 1991 a burst sewer from nearby residential estate continually discharged raw sewage into the river.

In 1993 the discharge of hot water and sewage effluent into the river was stopped . the fish population during the period of investigation are shown in the table below.

Fish population during period of investigation

Fish species	1988	1990	1992	1994	1996	1998	2000
A	600	200	100	300	350	400	700
B	200	100	80	100	150	300	400
C	36	10	0	0	0	0	0
D	452	27	10	15	79	100	239

(a) With reference to species A and B only use the grid provided to draw a bar graph depicting fish population against time. (6mks)



(b)(i) In which year was fish population lowest. (1mk)

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(ii) Pick one factor which probably caused the reduction of fish population in the year stated in (b) (i) above and explain how it could have led to drastic reduction in fish population. (6mks)

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(c) What is the difference in the rate of population recovery of species A and D (2mrk)

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(d)(i)State the method that might have been used by ecologist in estimating the fish population. (1mk)

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(ii) Describe how you would carry out the method you have stated in d(i) above. (3mks)

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7. Describe how mammalian heart is adapted to its function. (20mks)

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8. (a) Describe how urea as formed in the liver c ells from excess amino acid. (5mks)

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b) Discuss economic importance of five plant excretory products (10mrks)

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(c) Explain how plants remove waste products from their body. (5mrks)

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