NAME:……INDEX ……

SCHOOL:……SIGNATURE…… DATE……

231/2
BIOLOGY
PAPER 2
(Theory)
JULY/AUGUST 2012
TIME: 2HOURS

BUNGOMA JOINT INTER-SCHOOLS EVALUTION TEST (JISET)

Kenya Certificate of Secondary Education 2012

231/2

BIOLOGY

PAPER 2

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the spaces provided.
2. Sign and write the date.
3. This paper consists of two sections. **A and B.**
4. Answer **ALL** the questions in section A in the spaces provided.
5. In section **B**, answer question **6 (compulsory)** and either question **7 or 8** in the spaces provided.

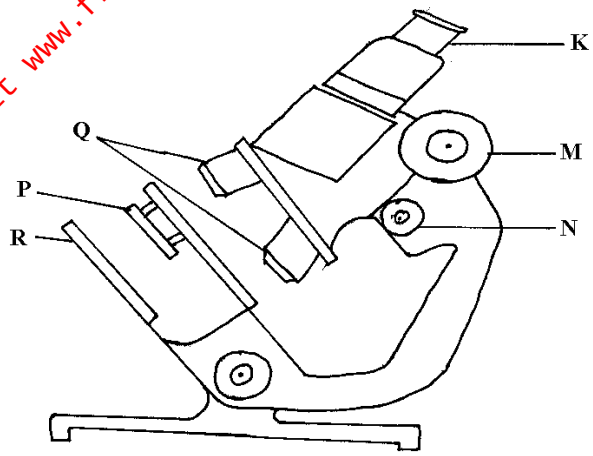
For examiners use only:

Section	Question	Maximum score	Candidates score
A	1	9	
	2	8	
	3	7	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	
TOTAL SCORE		**80**	

SECTION A

Answer all questions in the spaces provided

1. The diagram below shows some components of a light microscope.



a) Name the parts labeled (2mrks)

K

……

……

M

……

……

b) State the functions of (2mrks)

P

……

……..

Q

……

……..

c) A student was viewing a prepared slide of a plant cell under high power microscope. The features of the cell were blurred. Which one of the labelled parts of the microscope would the student use to obtain:-

(i) a sharper outline of the features. (1mrk)

……

……..

(ii) Give the formula used to calculate magnification in a light microscope. (1mrk)

……

……

d) A student was preparing a section of a plant cell to be viewed on a light microscope. Give a reason for each of the following steps:-

(i)Cutting a very thin section (1mrk)

……

……

……

(ii)Staining the section (1mrk)

……

……

……

(iii)Putting the section in water (1mrk)

……

……

……

2. a) Explain what happens to excess amino acids in the liver of humans. (4mrks)

……

……

……

……

……

……

b).i) What would happen if a person produced less anti-diurectic hormone? (1mrk)

……

……

……

ii) What term is given to the condition described in (b) (i) above? (1mrk)

……

……

……

c) State ***two*** portions of the human nephrone found only in the cortex of the kidney. (2mrk)

……

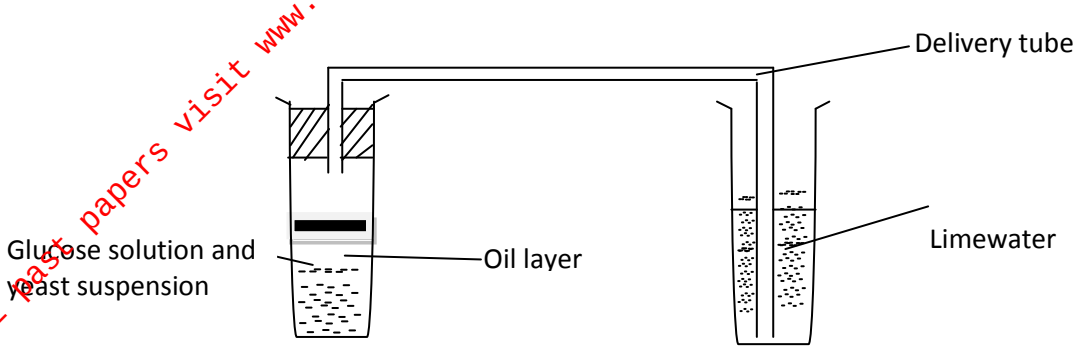
……

……

……

……

3. The diagram below shows a set up that was used to demonstrate fermentation.



Glucose solution was boiled an A added on top of it. The glucose B on was then allowed to cool before adding yeast suspension.

a) Why was the glucose solution boiled before adding the yeast suspension? (1mrk)

……

……

……

b) What was the importance of cooling the glucose solution before adding the yeast suspension? (1mrk)

……

……

……

c) What was the use of the oil in the experiment? (1mrk)

……

……

……

d) Give ***two*** reasons why accumulation of lactic acid during vigorous exercise lead to an increase in heart beat. (2mrks)

……

……

……

e).Other than carbon (iv) oxide, ***name*** the other products of anaerobic respiration in plants. (2mrks)

……

……

……

4. In an experiment, a black mouse was mated with a brown mouse; all the off-springs were black. The off-springs grew and were allowed to mate with one another. The total number of (F2) generation off-springs was 96.

a) Using the letter symbols capital letter B for the gene of black colour and small b for brown colour, Work out the genotype of the F1 generation. (3mrks)

b) From the information above, work out the following for the F2 generation.

i) Genotypic ratio. (2mrks)

……

……

ii) Phenotypic ratio. (1mrk)

……

……

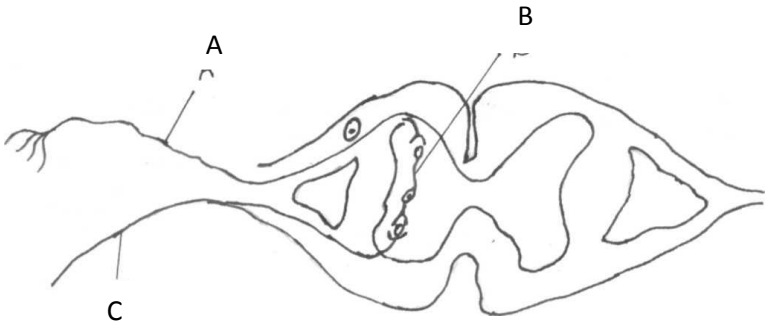
iiii) The total number of brown mice (2mrks)

……

……

……

5. When a person's hand accidentally touches a hot object it is quickly withdrawn, below is the diagram showing how response occurs



a).Describe a reflex action that will lead to the withdrawal of hand from an object. (7mrks)

……

……

……

……

……

……

……

……

……

……

b).Name the substance responsible for the transmission of an impulse across the synapse.

(1mrk)

……

……

……

SECTION B

Answer question <u>six</u> and any other one question from this section in the spaces provided.

6. (Compulsory)

An investigation was carried out between 1964 and 1973 to study the changes in fish population in a certain lake. Four species of fish A, B, C and D were found to live in the lake. In 1965, a factory was built near the lake and was found to discharge hot water in the lake raising the temperature from 25^{o} c to 30^{o} c. In 1967, sewage and industrial waste from a nearby town was diverted into the lake. In 1969, discharge of hot water, sewage and industrial waste into the lake was stopped. The fish populations during the period of investigation are shown in the table below.

Fish population during the period of investigation

Fish species	1964	1966	1968	1970	1971	1971	1973
A	6102	223	20	106	660	4071	7512
B	208	30	11	22	63	311	405
C	36	100	0	0	0	0	0
D	4521	272	23	27	79	400	617

a) (i) In which year was the fish population lowest? (1mrk)

……

……

(ii)***State*** the factors that might have caused the lowest fish populations during the year you have stated in (a) (i) above. (3mrks)

……

……

……

……

……

(iii)Explain how each factor you have stated in (a) (ii) above could have brought about the changes in the fish populations. (11mrks)

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

(iii)Why did fish species C remain 0 after 1969? (1mrk)

……

……

……

b).Other than the factors stated in (a) (i) above, state other four that may affect the population of fish in the lake. (4mrks)

……

……

……

……

……

……

……

……

……………………………………………………………………………………………………

…………………………………………………………………

7 (a). What is meant by the term digestion? (2mrk)

b) Describe how the mammalian small intestine is adapted to its function. (18mrks)

8. Discuss the various evidences which show that evolution has taken place. (20mrks)

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……