

NAME INDEX NO
 SCHOOL SIGNATURE
 DATE

231/2
 BIOLOGY
 PAPER 2
 (THEORY)
 JULY/AUGUST, 2014
 2 HOURS

MBOONI EAST SUB - COUNTY JOINT EVALUATION TEST, 2014

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

231/2
 BIOLOGY
 PAPER 2
 (THEORY)
 JULY/AUGUST, 2014
 2 HOURS

INSTRUCTIONS TO CANDIDATES

- Write your name and Index Number in the spaces provided above.
- This paper consists of **two** sections. Section **A** and section **B**.
- Answer **ALL** questions in section **A** in the spaces provided. In section **B** answer question **6** (compulsory) and either question **7** or **8** in the spaces provided after question 8
- This paper consists of 8 Printed pages. Candidates should check the question paper to ensure that all the papers are printed as indicated and no questions are missing

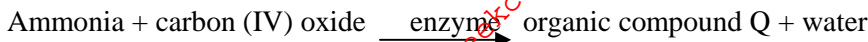
For Examiners use only.

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)

Answer all the questions

1. The equation below represents a metabolic process that occurs in a certain organ in the mammalian body.



(a) Name the process represented in the equation above. (1 mark)

.....

(b) Name the organ in which the process occurs. (1 mark)

.....

(c) Why is the process important to mammals (1 mark)

.....

(d) Identify the organic compound Q. (1 mark)

.....

(e) Explain the source of ammonia in the organ named in (b) above. (2 marks)

.....

.....

(f) What happens to organic compound Q.? (2 marks)

.....

.....

2. An athlete training to take part in an international competition moved to a high altitude area where he was to train for twelve (12) days before the competition. He took his pulse rate per minute daily and tabulated them as shown below

DAY	1	2	3	4	5	6	7	8	9	10	11	12
Pulse per minute	72	78	89	92	92	90	86	80	77	74	72	72

(a) Other than pulse rate, name one other process which was affected by change in altitude. (1 mark)

.....

(b) Account for the change in pulse rate from.

(i) Day 1 to day 7 (1 mark)

.....

.....

(ii) Day 8 to day 12 (1 mark)

.....

.....

(c) Explain the advantage this athlete has over the one who trains in a lower altitude area. (2 marks)

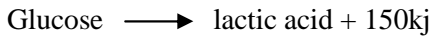
.....

.....

.....

.....

(d) The equation below represents a reaction which takes place during rapid muscular movements in humans.



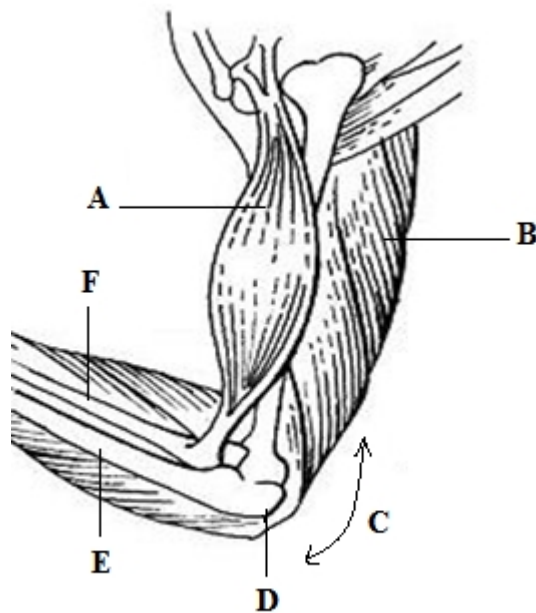
(i) State two effects of this reaction to an individual (2 marks)

.....
.....
.....
.....

(ii) How is lactic acid finally eliminated from the muscle tissue after the muscle return to normal movement (1 mark)

.....
.....
.....

3. Study the diagram below and answer the questions which follow.



(i) Identify the muscle represented by letters A and B (2 marks)

A

.....

B

.....

(ii) Describe how muscles A and B cause straightening of joint C (2 marks)

.....
.....

(b) Name the joint C (1 mark)

.....
.....

(c) Name parts label D, E and F

D

.....

E

.....

F

.....

4. In a certain bird species red flight feathers is controlled by gene R while white flight feather is controlled by gene r. The heterozygous condition Rr results into pink flight feathers.

(a) By use of a punnet or fussion lines, find the genotype of a cross between pink flight feathered bird and white flight feathered bird.

.....

.....

.....

.....

.....

(b) Which type of dominance is illustrated here? (1 mark)

.....

.....

(c) i) Identify the nuclei acid whose base sequence is shown below. (1 mark)

.....

.....

G - A - C - U - A - G - C - G - U

(ii) Give a reason for your answer in (i) above (1 mark)

.....

.....

(iii) If this nucleic acid was involved in protein synthesis, how many amino acid would be present in the protein synthesized.

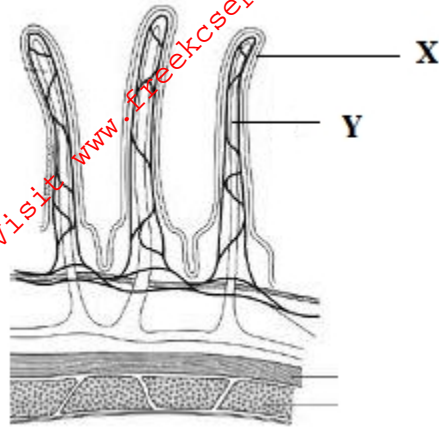
.....

.....

.....

.....

5. The diagram below represents a longitudinal section through the ileum wall.



a) Identify the structures labeled X and Y (2 marks)

X
.....
Y
.....

b) State one function of X and Y (2 marks)

X
.....
Y
.....

c) State two functions of the ileum (2 marks)

.....
.....
.....

d) Explain the role of the liver in digestion (1 mark)

.....
.....
.....

e) State the endocrine (hormonal) role of pancreas in a mammal (1 mark)

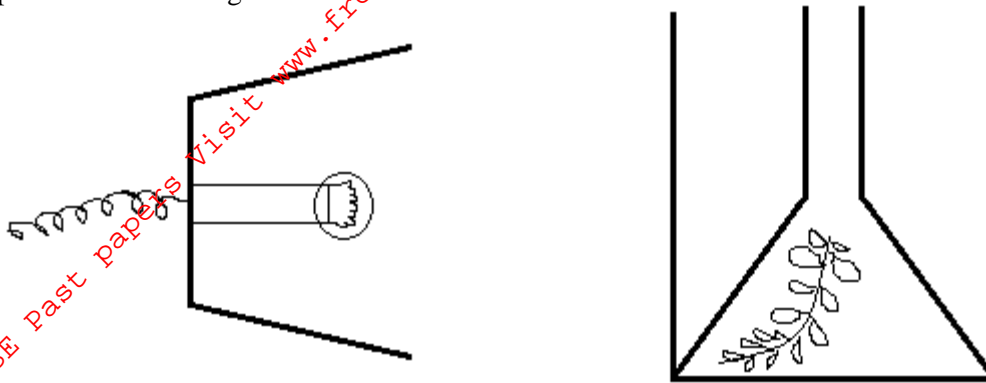
.....
.....
.....

For More Free KCSE Past papers Visit www.freekcsepastpapers.com

SECTION B

Answer question 6 compulsory and either question 7 or 8 in the space provided

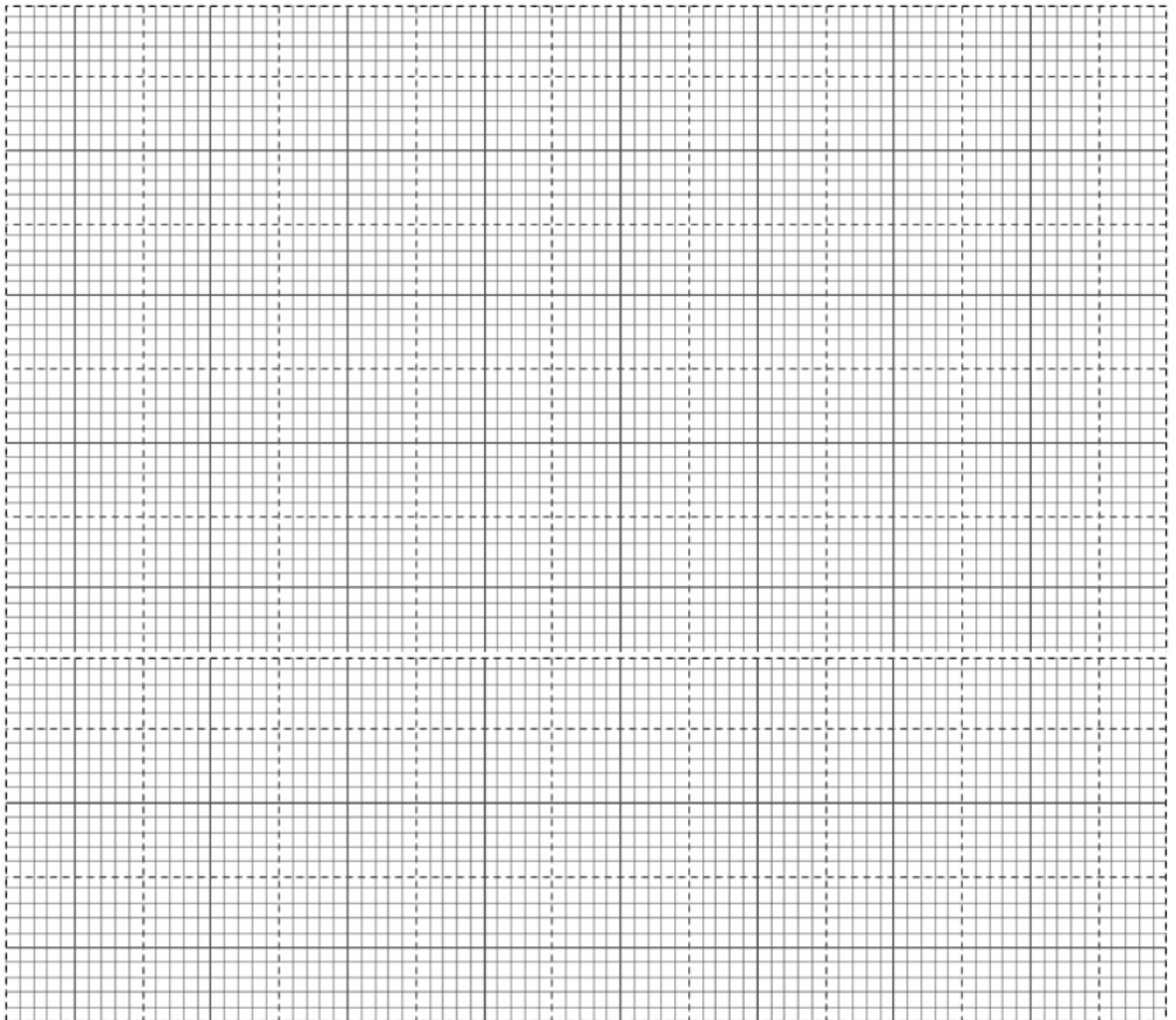
6. The diagram below shows an experiment that was carried out to measure rate of photosynthesis in a water plant when exposed to different light intensities.



The shoot was exposed to different light intensities and the rate of photosynthesis estimated by counting the number of bubbles of the gas leaving the shoot per minute. The results are tabulated below.

Number of bubble per minute	7	14	20	24	26	27	27	27
Light intensity (arbitrary units)	1	2	3	4	5	6	7	8

- a) Draw the graph of the number of bubbles produced per minute against light intensity. (6 marks)



b) At what light intensity did the shoot produce

i) 18 bubbles per minute

(1 mark)

.....
.....

ii) 25 bubbles per minute

(1 mark)

.....
.....

c) Give two better ways of measuring the rate of photosynthesis other than counting bubbles produced per minute.

(2 marks)

.....
.....

d) What is role of light intensity in photosynthesis

(2marks)

.....
.....

e) Account for the expected results if the experiment was done at the following temperatures.

(i) 4⁰c

(2 marks)

.....
.....

(ii) 34⁰

(2marks)

.....
.....

(iii)60⁰

(2marks)

.....
.....

f) Apart from light intensity and temperature, name other two factors that affect the rate of photosynthesis.

(2marks)

.....
.....

7. (a) How are lungs adapted to their function?

(b) Describe the mechanism of opening and closing of the stomata using the photosynthesis theory.

8. (a) Describe the various mechanism of fruit and seed dispersal.

(b) Describe the various events that occur in a flower after fertilization.

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

For More Free KCSE Past papers Visit www.freekcsepastpapers.com