NAME: ……. **INDEX NUMBER: …….**

SCHOOL: …… **CANDIDATES SIGNATURE: ……..**

DATE: ……..

231/2
BIOLOGY
THEORY
PAPER 2
JULY/AUGUST 2009
2 Hours

MANGA JOINT EVALUATION TEST - 2009

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

231/2
BIOLOGY
THEORY
PAPER 2
JULY/AUGUST 2009
2 Hours

INSTRUCTIONS TO CANDIDATES

- Write your name and Index Number in the spaces provided above.
- Answer **ALL** the questions in the spaces provided

FOR EXAMINER'S USE ONLY

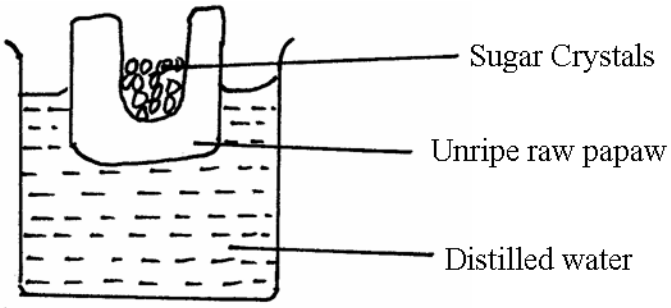
SECTIONS	QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7 OR 8	20	
	TOTAL SCORE	80	

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

SECTION A 40 MARKS

Answer All questions in the spaces provided)

1. A group of students set-up an experiment to investigate a certain physiological process. The set up was as shown in the figure below.



After sometime the student observed that a sugar solution was formed and its level rose in the cavity where sugar crystals were placed.

a) What physiological process was being investigated? (1mk)

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b) Account for the formation of sugar solution and its rise in level. (3mks)

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c) Suggest the result the students would obtain if they repeated the experiment using a boiled pawpaw. Give reasons (2mks)

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d) State two importance of the physiological process named in 1 a) above to plants (2mks)

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2. In an experiment some germinating seeds were placed in a large airtight flask and left for Four days.

a) Suggest the expected changes in the composition of gases in the flask on the fifth day. (2mks)

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b) Give reasons for your answer a) above. (1mk)

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c) Name two factors that cause dormancy in seeds. (2mks)

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d) Account for the loss in dry weight of cotyledons in a germinating pea seed. (2mks)

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e) Name the hormone that causes moulting in insects. (1mk)

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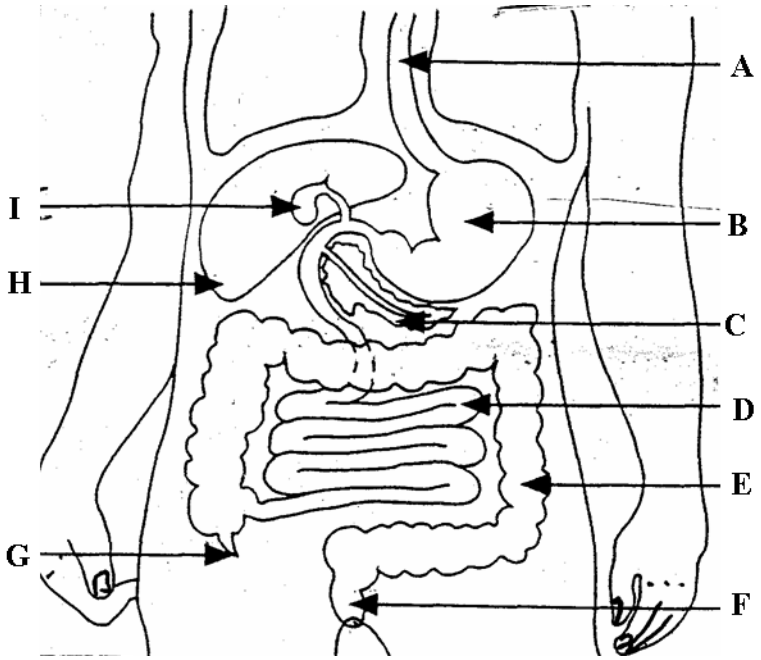
3. The diagram below shows part of the human digestive system.



a) Identify the parts labeled **A, C, G** and **H** (2mks)

A …… C ……..

G …… H ……..

b) Name one substance absorbed at part labeled **E** …….. (1mk)

c) State one role of the substance stored in structure labeled **I** in digestion. (1mk)

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d) Explain three ways by which structure labeled **D** is adapted for absorption of the products of digestion (3mks)

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e) State role of hydrochloric acid secreted by the walls of structure labeled **B**. (1mk)

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4. In a family with two children, the mother had blood group **A** while the father had blood group **B**. One of their children had blood group **AB**.

a) i) What are the genotypes of the parents? (2mks)

Mother……. Father ……

ii) What was the genotype of the child with blood group **AB**? (1mk)

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b) Determine the possible genotypes of the other children (4mks)

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c) What is the advantage of having blood group AB? (1mk)

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5. In an investigation to compare the basal metabolic rate of some animals, the amount of Oxygen absorbed per unit body weight in a given time was determined. The results are as indicated in the table below.

Animal	**Body weight (kg)**	**Volume of oxygen absorbed (gm/hr)**
Buffalo	4,500	53
Baboon	70	190
Dog	12	280
Rat	0.1	870
Mouse	0.025	1,580

a) What is the meaning of the term basal metabolic rate? (1mk)

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b) i) Compare the volume of oxygen consumed between the buffalo and the mouse (2mks)

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ii) Account for the comparison in b i) above

buffalo (2mks)

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Mouse (2mks)

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c) State one other factors that affects basal metabolic rate of an organism. (1mk)

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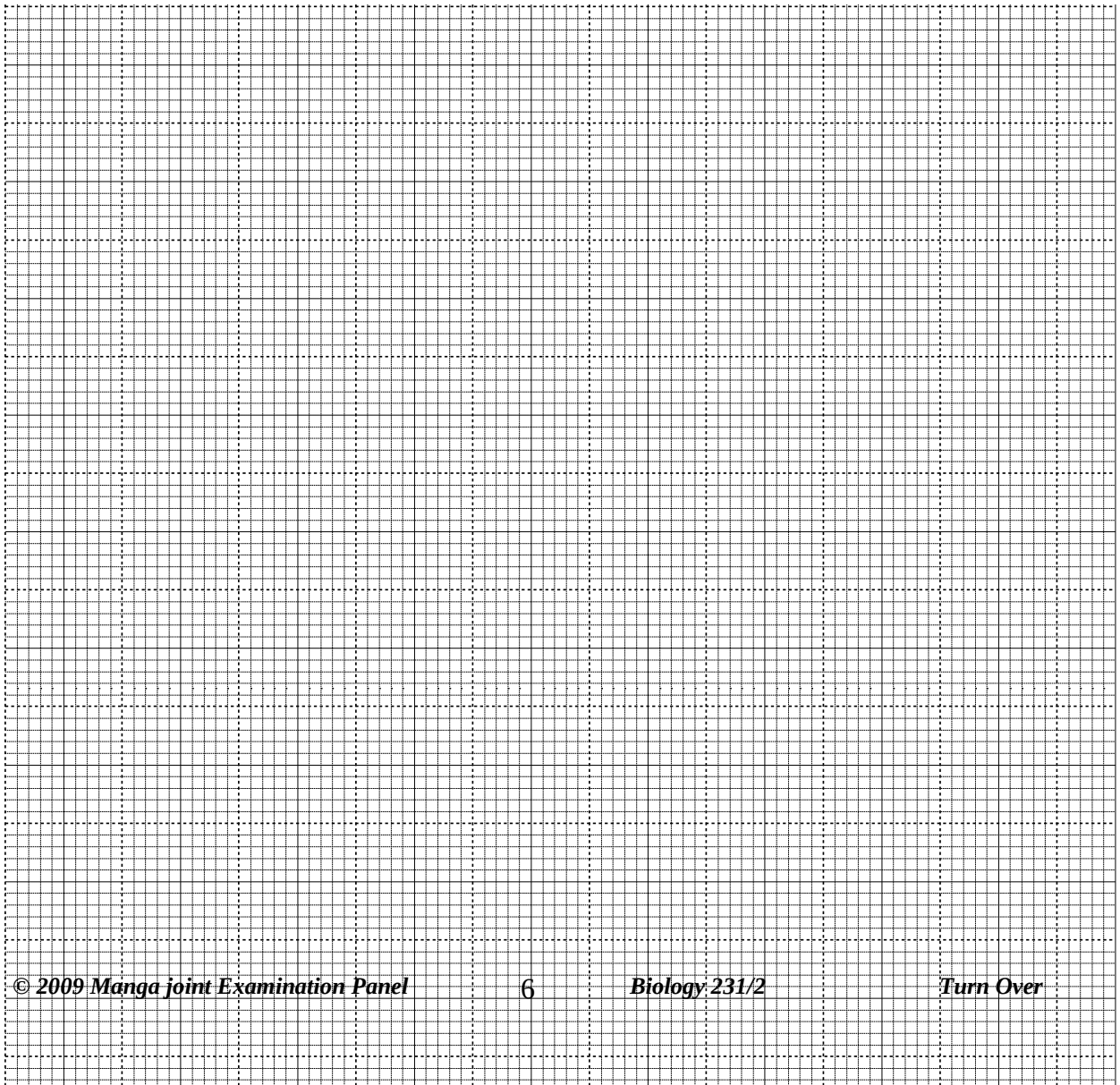
SECTION B. (40 MARKS)

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

6. Ten young rats were placed in a cage. The amount of food available to the mice each day was kept constant. The results obtained were as shown in the table below

Time in months	0	2	4	6	8	10	12	14	16	18
Number of rats	10	10	55	105	300	445	440	180	135	150

a) Using a suitable scale, plot a graph of a number of rats against time (6mks)



b) With reference to the graph, account for the changes in rat population between

i) 0 to 2 months (1mk)

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ii) 2 to 10 months (2mks)

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iii) 10 to 12 months (2mks)

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iv) 12 to 16 months (2mks)

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c) i) Between which two months was the population change greatest. (1mk)

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ii) Calculate the rate of population change over the period you have given in a) above (2mks)

d) Briefly describe how you would use the capture – recapture method to estimate the

population of grasshoppers. (4mks)

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7. Discuss the adaptations of the mammalian skin to its function. (20mks)

8. a) Explain the meaning of each of the following as used in evolution.

i) Natural selection (3mks)

ii) Struggle for existence (3mks)

b) Discuss the evidences of organic evolution (14mks)

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