Name…… **Index No. …….**

School ……...

231/2
BIOLOGY
(THEORY)
PAPER 2
JULY / AUG. 2007
2 HRS

BUTERE-MUMIAS DISTRICT MOCK EXAMINATION-2007

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

231/2
BIOLOGY
(THEORY)
PAPER 2
JULY / AUG. 2007
2 HRS

INSTRUCTIONS TO CANDIDATES

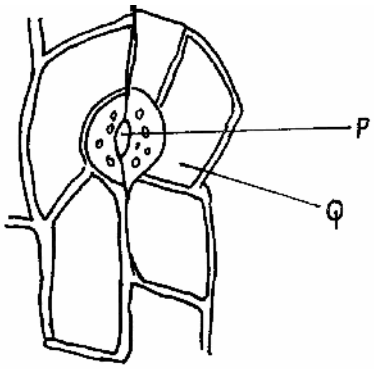
- Write your name and Index number in the spaces provided above.
- This paper consists of 2 sections: A and B.
- Answer ALL the questions in section A in the spaces provided.
- In section B, answer question 6 (compulsory) and either question 7 or 8 in the spaces provided after question 8.

For Examiner's Use Only.

Section	Question	Maximum Score	Candidate's score
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	
		80	

This paper consists of 12 printed pages.
Candidates should check the question paper to ensure that all pages are printed as indicated and no questions are missing

1. The diagram below shows a portion of a lower epidermis of a sukuma wiki leaf.



a) Name the parts labelled P and Q. (2mks)

P _____

Q _____

b) Briefly describe the photosynthetic theory of stomatal opening. (5mks)

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c) State one modification in the stomata of xerophyte plant other than being sunken and hairy.

(1mk)

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2 a) What is sickle cell anaemia? (2mks)

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b) Give two advantages of a human being having a sickle cell trait. (2mks)

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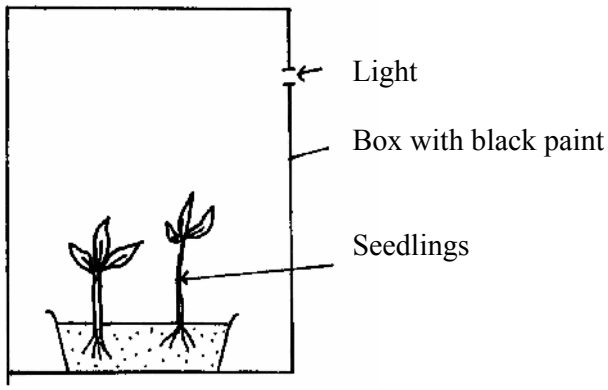
c) A normal male with respect to sickle cell anaemia marries a heterozygous female. What is the probability that their first born will be heterozygous like the mother? (show your working)

(4 mks)

Q3. A student set up an experiment as shown in the diagram below.



The set up was left for 4 days.

a) What was the aim of the experiment. (1mk)

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b) i) State the expected results after 4 days. (1mk)

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ii) Account for the results you have stated in (b) (i) above. (4mks)

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c) In another experiment, a student placed a seedling horizontally on moist cotton wool. Later the shoot grew upwards while the Radicle grew downwards. Explain why the radicle showed a downward curvature. (2mks)

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Q4 a) Birds have different shapes of beaks. Briefly explain how this came about with respect to evolution. (2mks)

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b) A farmer used a certain acaricide to spray his cattle over a long period of time. Initially, his cattle never suffered from east coast fever disease spread by ticks. Later, his cattle frequently suffered from this disease despite the spraying. Explain. (4mks)

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c) With an example in human beings define a vestigial structure. (2mks)

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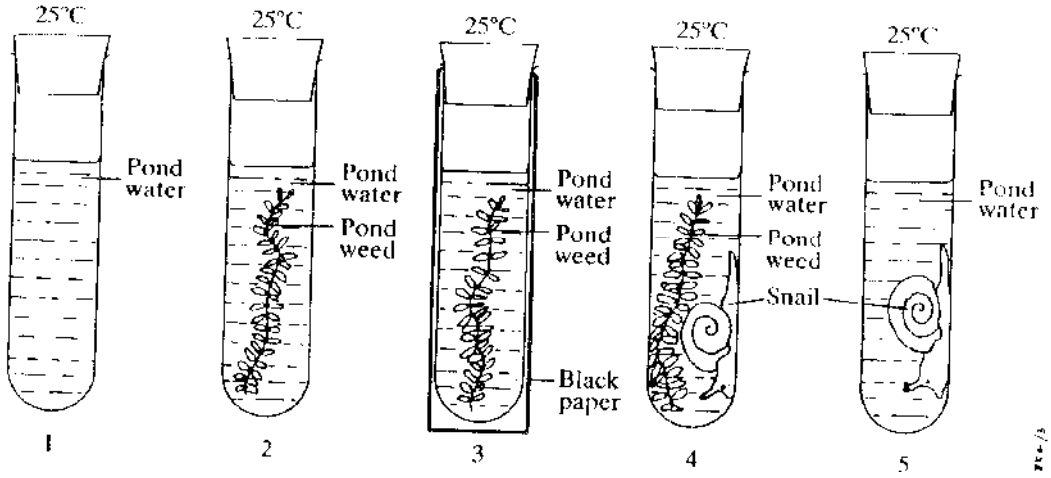
Q5 An experiment was set up as shown below using test- tubes, pond water , pond weeds, black paper and snails. All the tubes were placed in light at 25° C for sometime. A liquid called carbon dioxide indicator was added to each tube at the experiment. This liquid turns yellow in a high concentration of carbon dioxide, pink in a medium concentration of carbon dioxide and purple in a low concentration of carbon dioxide.



a) Complete the following results table. (2mks)

	Tube 1	Tube 2	Tube 3	Tube 4	Tube 5
Colour	Pink			Pink	Yellow

b) Explain why tube 1 was used in the experiment (1mk)

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c) Account for the results in tubes:

i) 3 (2mks)

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ii) 4 (2mks)

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d) Give one reason to explain why a terrestrial plant cannot be used in the above experiment

(1mk)

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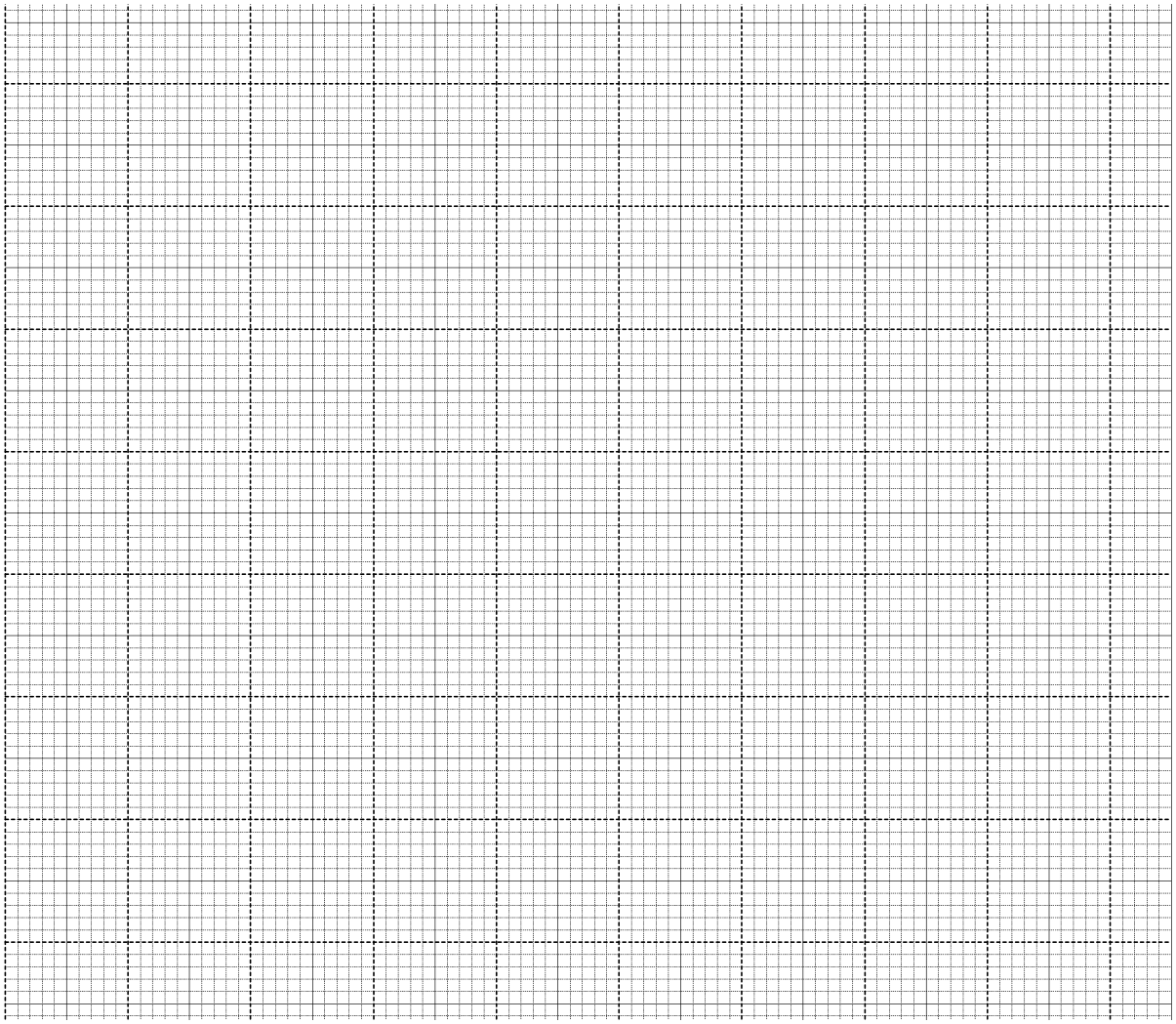
SECTION B (40 marks)

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

6. An experiment was carried out to investigate the growth rate of pollen tube of a morning glory flower over a period of time. The results are as shown in the table below.

Time (mins)	0	20	40	60	80	100	120	140	160
Growth of pollen tube (mm)	00	02	06	12	17	19.2	20.4	21	21.4

a) Using a suitable scale, draw a graph of growth of pollen tube against time. (6mks)



b) i) What was the length of the pollen tube at 90 minutes. (1mk)

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ii) At what time was the length of the pollen tube 9 mm? (1mk)

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b) With reasons, describe the growth pattern of the pollen tube between-;

i) O to 80 minutes (2mks)

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ii) 100 to 160 minutes (2mks)

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c) State the importance of the growth of pollen tube to the morning glory flower. (2mks)

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e) Describe the process of fertilization in a flowering plant. (6mks)

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7. Explain the sources of water pollution and their effects on aquatic ecosystem. (20 mks)

8. Describe the adaptations of the mammalian heart to it' s functions (20 mks)

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