Name…… **Index No. …….**

School …….. **Date……. …….**

Sign……. …….

231/2
BIOLOGY
PAPER 2
JULY / AUGUST 2010
Time: 2 Hours

BUTERE DISTRICT JOINT EVALUATION TEST - 2010
Kenya Certificate of Secondary Education (K.C.S.E)

BIOLOGY
PAPER 2
JULY / AUGUST 2010
Time: 2 Hours

INSTRUCTIONS TO CANDIDATES

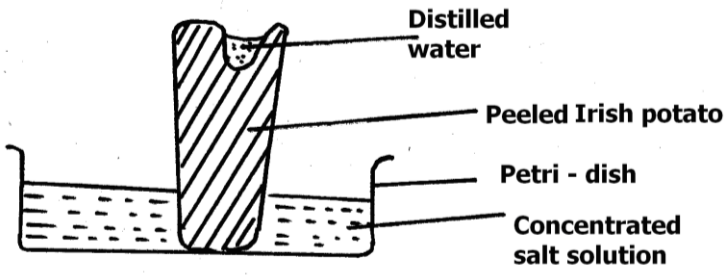
- Write your name and index number in the spaces provided above.
- Sign and write the date of examination in the spaces provided above.
- This paper consists of **TWO** sections: **A** and **B**
- Answer **ALL** the questions in section A in the spaces provided.
- In section B answer question **6 (compulsory)** and either question **7** or **8** in the spaces provided after question **8**.

FOR EXAMINERS USE ONLY

SECTION	QUESTION	Max Score	Candidate 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 the question paper to ensure that all pages are printed as indicated and no questions are missing

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



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

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b) i) State two major observations that made after some time. (2mks)

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ii) Account for the above observations in b(i) above. (4mks)

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c) State the significance of the biological process involved in the experiment. (1mk)

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2. A shoot of a seedling exposed to light on one side bends towards the source of light as it grows

a) Name the response exhibited by the shoot of the seedling. (1mk)]

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b) Explain how the bending towards the sources of light occurs. (4mks)

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c) Give three roles of tropism to plants. (3mks)

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3. The equation bellows shows a chemical reaction that takes place in green plants under certain conditions

Carbon (IV) Oxide + Water ⟶ Glucose + X

(a) Name the; (2mks)

(i) Substance represent by X……

(ii) Process represented by the equation

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b) Other than the reactancts, state two conditions necessary for this reaction to occur. (2mks)

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c) Name three types of cells in which the process occurs (3mks)

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d) Define a compensation point . (1mk)

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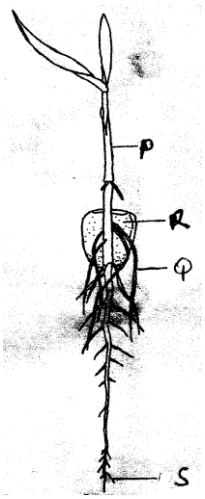
4. The diagram below represents a maize seedling



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

P.....

Q.....

b) State the function of the part labelled R. (1mk)

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c) Give three adaptations of the structure labelled S to its functions. (3mks)

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d) What is the role of air in germination of the above seedlings ? (2mks)

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5. A study was carried out to investigate the distribution of certain mammals in a game reserve with three different habitats. The results are shown in the table below.

HABITAT	**NUMBER IN HABITAT**			
	WILDEBEEST	**BUFFALO**	**RHINOCERAS**	**LESSER KINDU**
GRASSLAND	-	63	13	-
WOODED GRASSLAND	56	87	50	25
FOREST	10	-	50	75

From the above table suggest:

a) i) a suitable method that could have been used to obtain the data from the three habitats. (1mk)

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ii) Three reasons why all the mammalian species were found in the wounded grassland. (3mks)

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b) From the data, deduce the feeding habits of (2mks)

(i) Wildbeest

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(ii) Lesser kudu

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c) The vegetation in this game reserve was destroyed by fire. Two weeks after the onset of rains, most of the animals were found in the grassland. Explain. (2mks)

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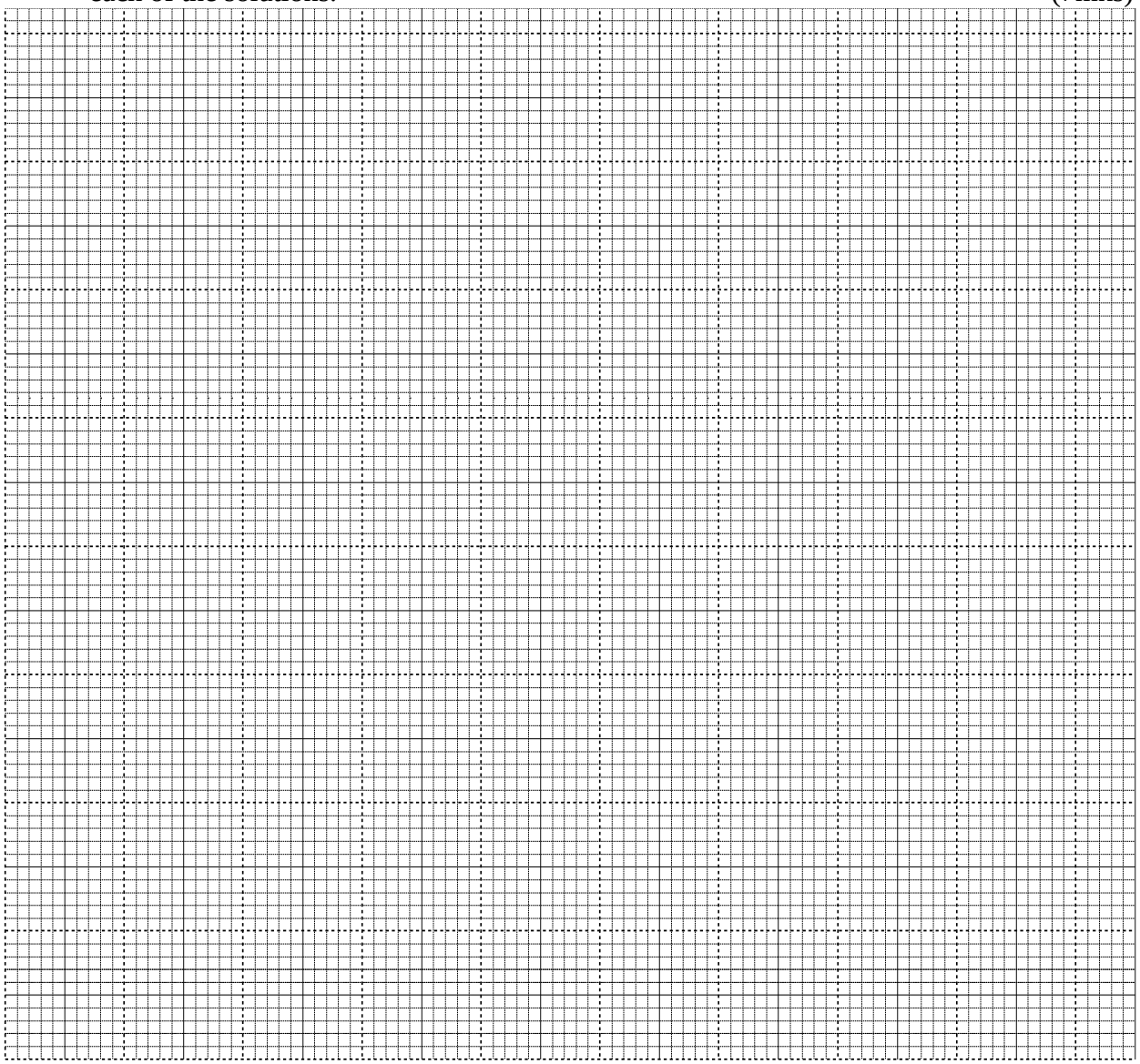
SECTION B (40 MKS)

6. In an experiment, wondering jew plants with green leaves were kept in the dark for one hour. Strips of leaves measuring 5 mm by 10 mm from these plants were then cut and floated with the lower epidermis down on the experimental solutions in petridishes . The experimental solutions were sodium chloride and potassium chloride with equal concentration of 150mM. The Petri dishes were then placed in light and temperature kept at 20°C.

After 5 minutes, a leaf strip was removed from each experimental solution, quickly blotted dry and the percentage number of open stomata was found after counting under a microscope . This procedure was repeated with other strips from the same experimental solutions at intervals of 10 minutes . The results are shown in the table below .

Time (minute, floating on solution)	5	15	25	35	45	55
% open stomata in Kcl Sol. (150 m M)	0	0	20	76	82	86
% Open stomata in NaCl Sol. (150 m M)	0	0	6	22	42	45

a) On same axes, plot graph for percentage of open stomata against time for treatment in each of the solutions. (7mks)



b) Why was it necessary to keep the plants in the dark for a period of time before the experiments. (1mk)

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c) Using the graph in (a) above, give an explanation for the behaviour of guard cells during this experiment. (6mks)

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d) Predict what would happen if the experiment had been carried out in the dark. (1mk)

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e) Explain how the stomata opens using the photosynthetic theory only. (5mks)

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7. How is the mammalian heart suited to its function. (20mks)

8. How would the personalities below explain why ducks have webbed feet?

a) Lamark

b) Darwin