

NAME:.....

ADM NO.....

CLASS:.....

FORM 4

BIOLOGY

PAPER 231/2

END OF TERM ONE 2019

TIME: 2 HOURS

Instructions to candidates,

1. Write your name and admission number in the spaces provided above.
2. Answer the question 7 (Compulsory) and Either question 7 or 8 in section B.

FOR EXAMINERS USE ONLY

QUESTIONS	TOTAL MARKS	CANDIDATES SCORE
1	8	
2	8	
3	8	
4	8	
5	8	
6	20	
7	20	
8	20	
Total	80	

SECTION A: 40MARKS)

1. In a family with four children, the father had blood group A while the mother had blood group B. One of the children had blood group O.

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

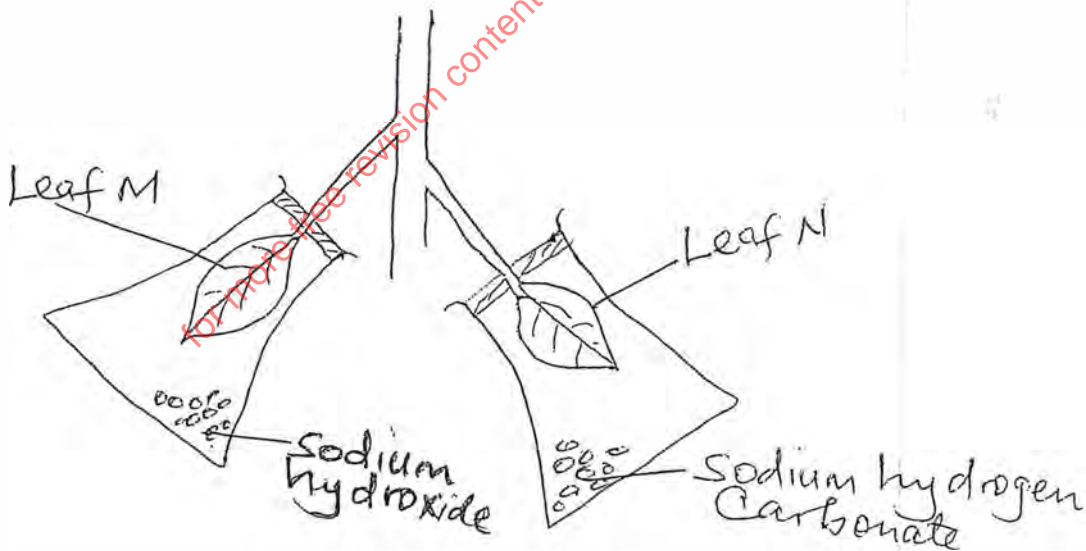
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ii). What was the genotype of the child with blood group O? (1mk)

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b). Work out the possible genotypes of the other children. (5mks)

2. A healthy plant was kept in the dark for 24 hours following which two of its leaves were enclosed in glass flasks as shown below. The setup was exposed to sunlight for a number of hours.



a). Why was it necessary to keep the plant in the dark for 24 hours? (1mk)

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b). Give the function of each of the following in the experiment.

i). Sodium hydroxide

(1mk)

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ii). Sodium hydrogen carbonate.

(1mk)

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c). Explain the expected results in leaf.

i). M when tested for starch.

(2mks)

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ii). N when tested of starch.

(2mks)

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d). Suggest a suitable control for this experiment.

(1mk)

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3. a). State **four** differences between a wind pollinated flower and an insect pollinated flower. (4mks)

Insect	Wind
i).	
ii).	
iii).	
iv).	

b). State **four** changes that happen to a flower after fertilization.

(4mks)

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4. Form two students subjected an orange plant growing outside the laboratory to the following.
- i). Selected two equal sized leaves and gently brushed then clean on both sides.
 - ii). Placed two strips of dry cobalt chloride paper in both sides of each leaf and opposite each other and covered the cobalt chloride paper with cello tape. They observed the time taken for any colour change to occur and recorded the following.

Side of leaf	Upper epidermis	Lower epidermis
Time Taken	5 minutes	2 minutes

Use the above information to answer the following questions.

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

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ii). What was the purpose of brush cleaning the leaf. (1mk)

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iii). What was the role of cello tape in this experiment? (1mk)

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b). i). What was the original colour of dry cobalt chloride paper. (1mk)

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ii). What colour change did the students observe. (1mk)

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SECTION B: (40MKS)

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

6. A research was carried out to determine the trend of growth for some boys and girls. Their average mass in kilograms was taken separately for a period of 20 years and tabulated as shown in the table below.

Age	Average mass of boys (kg)	Average mass of girls (kg)
0	2.5	2.5
2	11.1	11.5
4	15.0	16.0
6	18.5	19.3
8	22.1	27.1
10	25.1	27.1
12	27.5	30.6
14	37.0	35.5
16	44.0	44.0
18	46.9	52.5
20	48.5	55.0

a). On the same axis, draw a graph of average mass of girls and of boys against the age. (8mks)

b). From the graph, determine the

i). Mass for boys at age of 11 years. (1mk)

ii). Growth rate in girls between age 13 and 15 years. (2mks)

d). Explain the trend observed in the curves for both boys and girls. (2mks)

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e). Why do girls above 10 years require intake of food that is rich in iron than boys of the same age. (1mk)

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