

Name.....

Index No.

School

231/2
 BIOLOGY
 PAPER 2
 THEORY
 JULY / AUGUST 2007
 TIME : 2 ½ Hours

NAROK DISTRICT MOCK EXAMINATION – 2007
Kenya Certificate Of Secondary Education (KCSE)

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 BIOLOGY
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 THEORY
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INSTRUCTIONS TO CANDIDATES

- This paper has two sections A and B.
- Answer all questions in section A in the spaces provided on the question paper.
- From section B answer question 6 (compulsory) and either question 7 or 8 in the spaces provided after question 8.

For Examiner’s Use Only

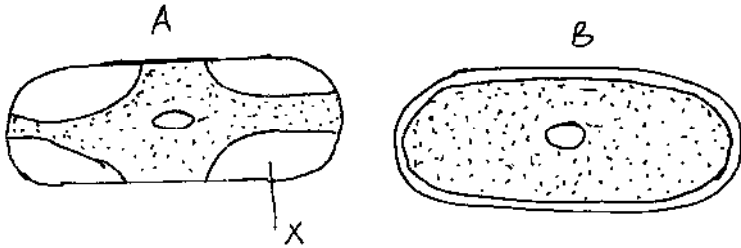
Section	Question	Maximum Score	Candidate’s score
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	
TOTAL		80	

*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*

SECTION A (40 MARKS)

Answer ALL the questions in this section in the spaces provided.

1. The cells shown below were obtained from two different plant cells which were immersed in 2% and 25% salt solutions.



- a) Which of the two cells A and B, was immersed in 2% salt solution. Give a reason for your answer. (2mks)

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- b) Name the substance present in the part marked X in cell A. Explain your answer. (2mks)

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- c) Comment on the nature of the 25% salt solution in relation to the cell sap. (1mk)

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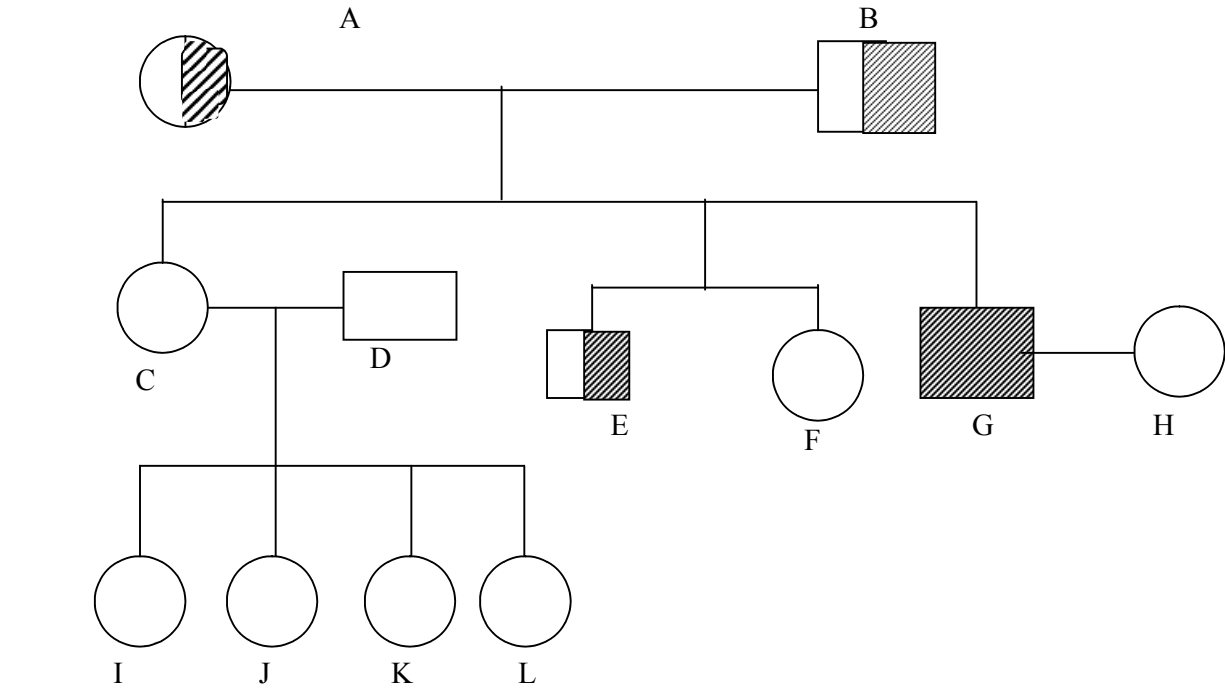
- d) (i) What biological phenomenon leads to the observations made in A. (1mk)

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


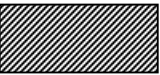
- (ii) State two importance of osmosis in plants. (2mks)

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2. Phenylketonuria is an inherited disease. The allele (n) for the disease is recessive to the normal allele (N). The diagram below shows how the condition is inherited.



KEY

-  - Carrier female
-  - Normal female
-  - Carrier male
-  - Normal male
-  - Male sufferer

a) Give the genotype of each individual in the table below.

Individual	Genotype
A	
G	
K	

(3mks)

b) Identify the children of A and B that are homozygous for the condition. (2mks)

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c) i) Name the chromosome in which the gene for hairy ear is located in man. (1mk)

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(ii) State two effects of non-disjunction in humans. (2mks)

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3. a) Why does a membrane form around an egg immediately after fertilization. (1mk)

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b) Give three differences between an human egg and a sperm. (3mks)

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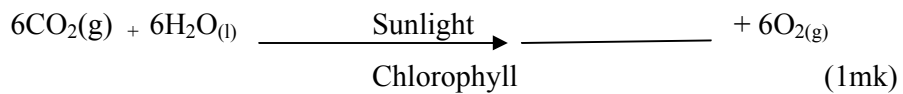
c) (i) What is the difference between fertilization in flowering plants and that in man. (1mk)

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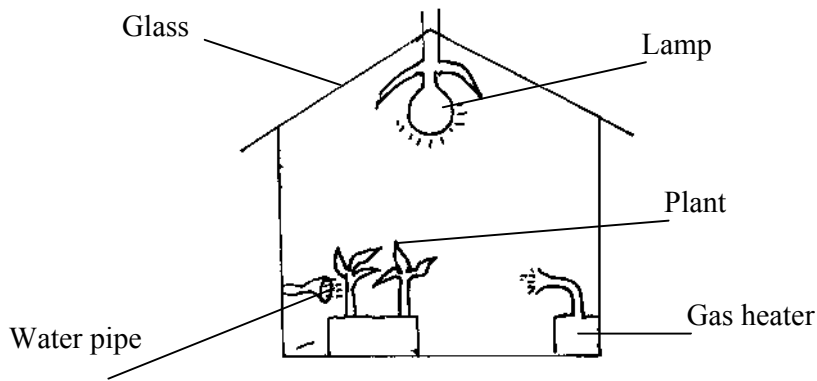
(ii) State three characteristics of the male parts of an insect pollinated flower. (3mks)

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4. a) Complete the balanced symbol equation for photosynthesis.



b) Market gardeners use automatic control mechanisms in their green houses. The diagram below shows such a commercial mechanism which provide everything the plants need for a high rate of photosynthesis.



Explain two ways in which the gas heater could increase the rate of photosynthesis. (4mks)

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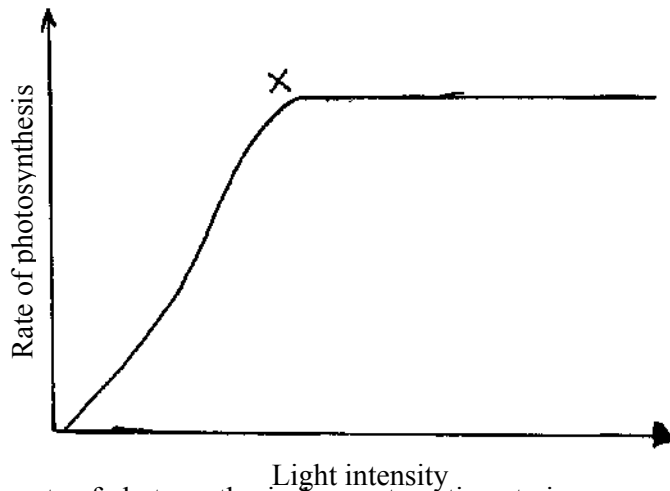
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c) The graph below shows the effect of increasing light intensity on the rate of photosynthesis.



i) Explain why the rate of photosynthesis does not continue to increase as light intensity increases. (1mk)

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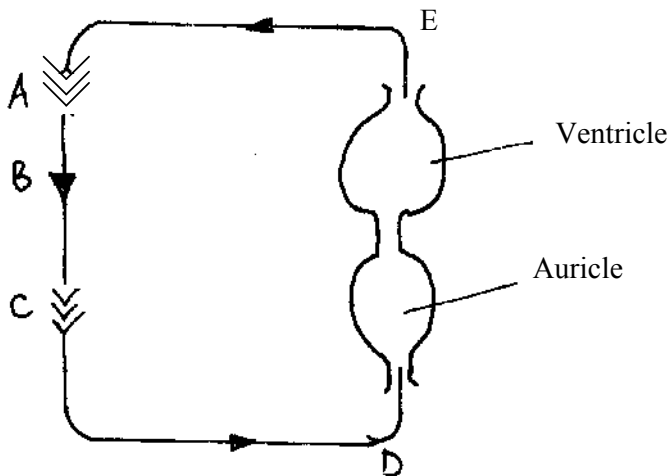
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(ii) Name two factors limiting the rate of photosynthesis at point X. (2mks)

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5. The diagram below represent blood circulation in a fish.



a) Name the part of the fish represented by A and C.

A (1mk)

C (1mk)

b) i) State the difference in composition of blood in blood vessel labelled B and E.

(1mk)

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(ii) State two ways in which the above circulatory system differs from the one found in mammals. (2mks)

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c) State three adaptations of the cardiac muscles to their function.

(3mks)

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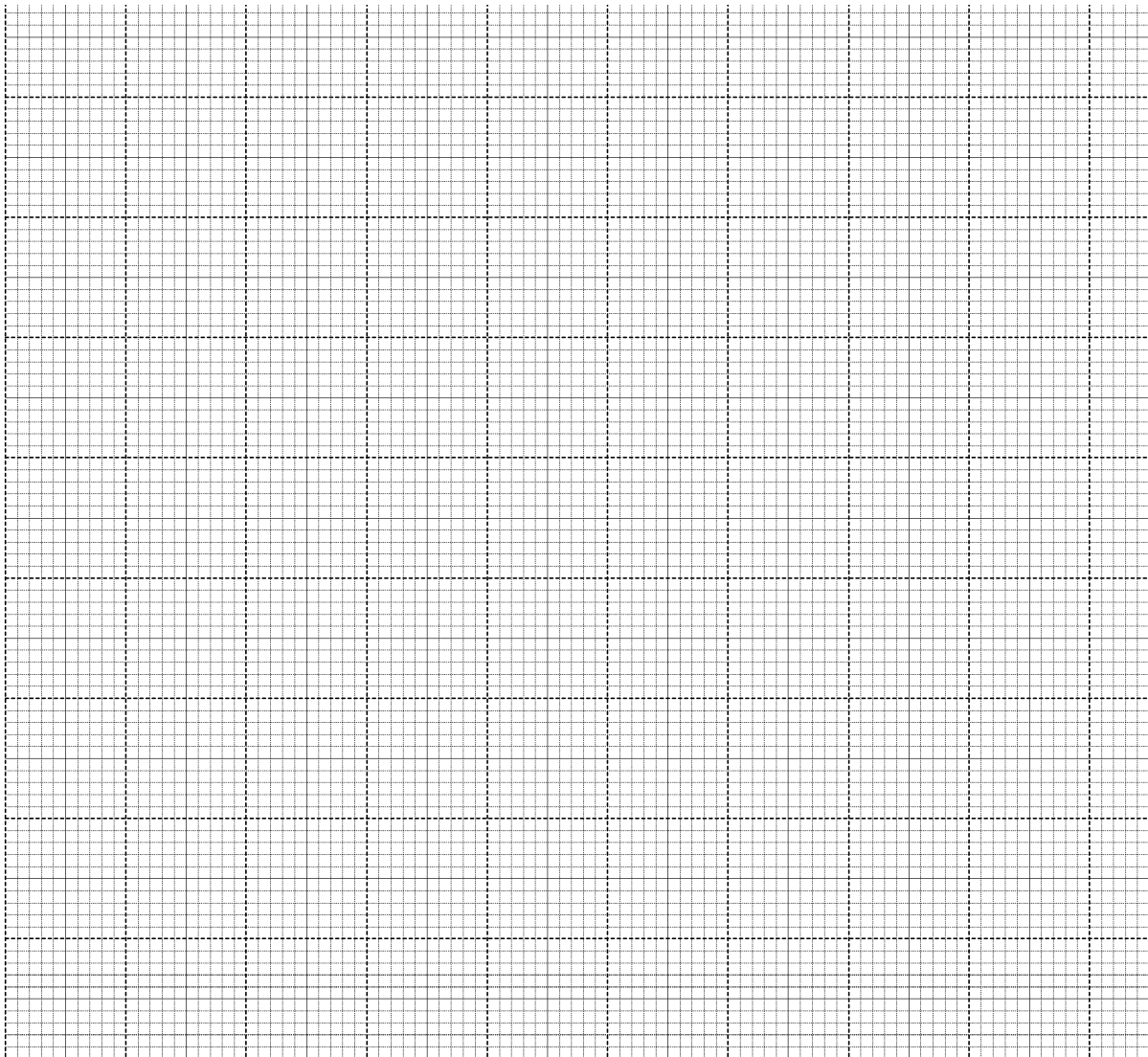
SECTION B (40 MARKS)

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

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

Age (Years)	Average body mass for boys (kg)	Average body mass for 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	30.5
14	37.0	35.5
16	44.0	43.0
18	46.9	52.5
20	48.5	55.0

- a) On the same axis draw a graph of the average body mass of the girls and boys against age. (7mks)



b) From the graph determine the:

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

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

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(iii) Account for the change in mass of girls during the age stated in (ii) above. (2mks)

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c) Compare the trend observed in the curves for both boys and girls. (2mks)

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

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e) (i) Apart from the diet, mention three other factors that affect the rate of growth in both boys and girls. (3mks)

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(ii) Suggest two other parameters, other than average mass, which can be used to estimate rate of growth in humans. (2mks)

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