

NAME INDEX NUMBER

CANDIDATE's SIGNATURE

DATE

231/2

BIOLOGY

PAPER 2 (THEORY)

JULY/AUGUST 2016

TIME: 2 HOURS

KERICHO WEST JOINT EVALUATION EXAMINATION
KENYA CERTIFICATE OF SECONDARY EDUCATION (K.C.S.E)

BIOLOGY

Paper 2

(Theory)

July/August 2016

Time: 2 hours

INSTRUCTIONS TO CANDIDATES

- Write your name and index number in the spaces provided above.
- Sign and write the date of the examinations 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.

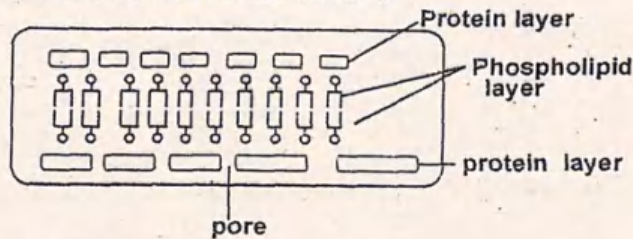
FOR EXAMINER'S USE ONLY

Section	Question	Maximum Score	Candidate's Score
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
	6	20	
		20	
	8	20	
TOTAL SCORE		80	

SECTION A (40 MARKS)

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

1. The diagram below shows a structure in cells.



a) i) Identify the structure. (1 mark)

ii) Give a reason for your answer. (1 mark)

b) State the main function of this structure in cells. (1 mark)

c) State one property of the structure. (1 mark)

d) What effect will each of the following have on the function of the structure. Explain. (2 marks)

i) Subjecting it to temperatures of 40°.

ii) Contact with dilute hydrochloric acid. (2 marks)

2. a) State the role of each of the following in homeostasis; (2 marks)

i) Insulin

ii) Aldosterone

b) Distinguish between each of the following terms Diabetes mellitus and Diabetes insipidus. (2 marks)

- c) The table below shows a description of sizes of glomeruli and renal tubules of two animals that are adapted to living in different environments.

	Animal X	Animal Y
Glomeruli	large and many	small and few
Renal tubules	Short	Long and coiled

- i) Name the likely habit in which animal X lives? (1 mark)
- ii) Give a reason for your answer in (c) (i) above. (1 mark)

- d) State the main nitrogenous waste produced by animal Y. Explain your answer. (2 marks)

3. a) What is sex linkage in genetics. (1 mark)

b) Haemophilia is a sex-linked disorder in human it is caused by a recessive gene (h) present in X-chromosomes. A normal man marries a female carrier female.

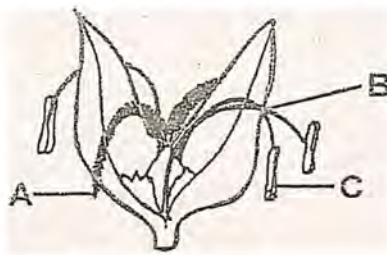
- i) What would be the genotypes of the parents in this marriage. (2 marks)

- ii) What would be the genotypes of the offsprings in the marriage. Show your workings; (4 marks)

- iii) From the offspring obtained in 3b(ii) above give the ratio of completely normal children to haemophiliac children? (1 mark)

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4. Study the diagram below and answer the questions that follow;



a) Name each of the parts labelled (3 marks)

A B.....

C.....

b) State the function of each of the parts marked (2 marks)

A

C

c) i) Identify the agent of pollination for this particular flower. (1 mark)

ii) Give reasons for your answer. (2 marks)

5. a) Explain the mechanism of stomatal opening. (4 marks)

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b) Describe how oxygen in the alveolus reaches the red blood cells. (4 marks)

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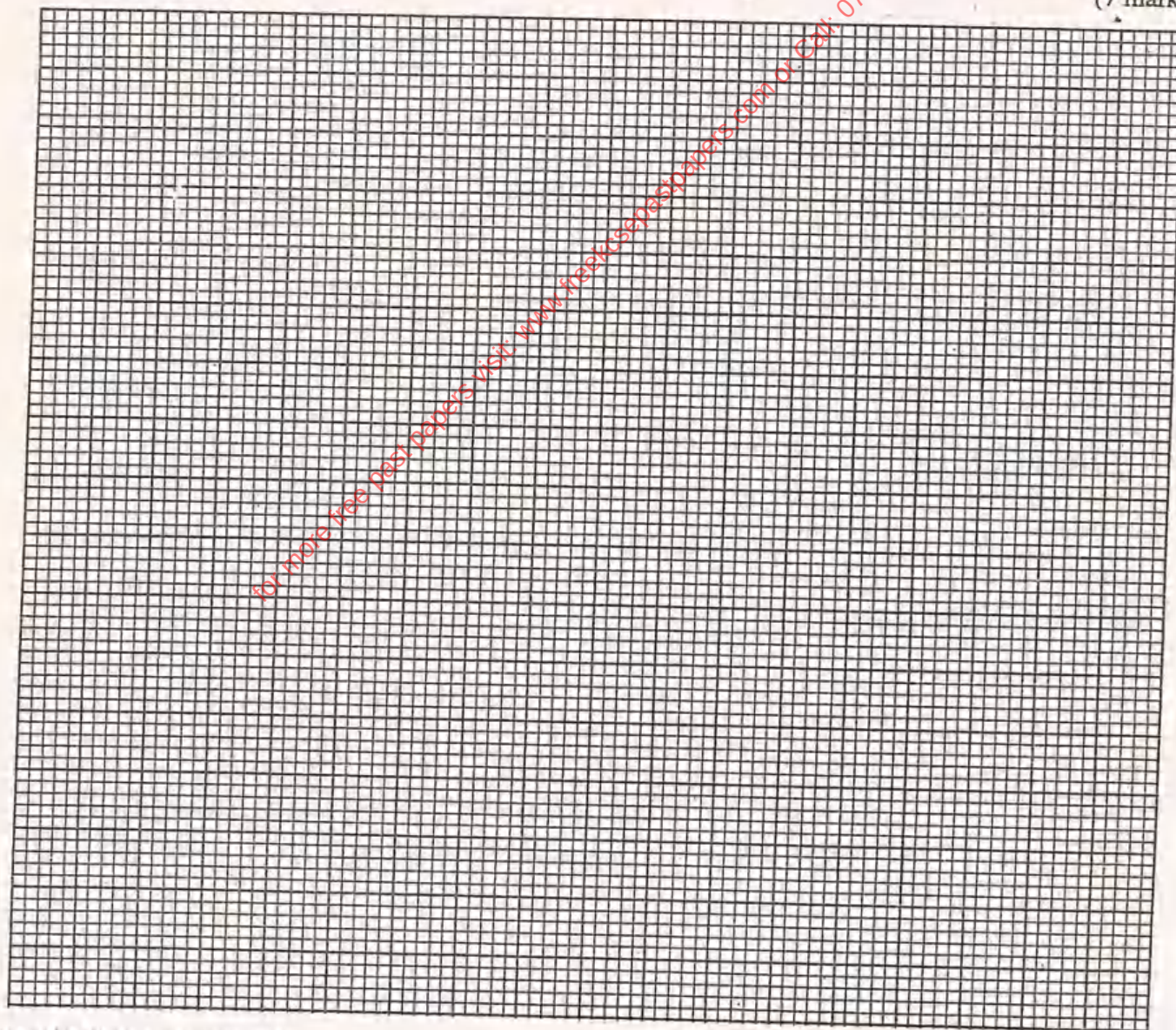
SECTION B (40 MARKS)

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

6. During germination and growth of a cereal, the dry weight of endosperm, the embryo and total dry weight were determined at two day intervals. The results are shown in the table below.

Time after planting (days)	Dry weight of endosperm (Mg)	Dry weight of embryo (Mg)	Total dry weight (Mg)
0	43	2	45
2	40	2	42
4	33	7	40
6	20	17	37
8	10	25	35
10	6	33	39

- a) Using the same axes, draw graphs of dry weight of endosperm, embryo and the total dry weight against time. (7 marks)



b) What is the total dry weight on day 5? (1 mark)

c) Account for;
i) Decrease in dry weight of endosperm from 0 to 10. (2 marks)

ii) Increase in dry weight of embryo from day 0 to 10. (2 marks)

iii) Decrease in the total dry weight from 0 to day 8. (2 marks)

iv) Increase in total dry weight after day 8. (1 mark)

d) State the factors that causes seed dormancy;
i) Within a seed (2 marks)

ii) Outside the seed (1 mark)

e) Give two characteristics of meristematic cells. (2 marks)

Describe the function of the various parts of the human eye. (20 marks)

a) Describe forces which contributes towards the transport of water and mineral salts in plants. (12 marks)

b) Explain the adaptation of the xylem vessels to transport of water in plants. (8 marks)

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