NAME: _____ ADM NO. _____

SCHOOL _____ DATE _____

231/2
BIOLOGY
PAPER TWO
FORM FOUR
MARCH/APRIL -2013
TIME: 2 HOURS.

ELDORET EAST INTER SCHOOLS TEST-2013

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

FORM FOUR.

INSTRUCTIONS TO CANDIDATE

- *In section A, Answer ALL questions in the spaces provided after each question*
- *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	Candidates Score
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	
	Total Score	80	

This paper consists of 8 printed pages.
Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no question is missing.

1. In an experiment, equal volume of blood were incubated for one hour with different salt concentration. After incubation the number of red blood cells in each set up was determined. The result are as shown in the table below.

Set up	Salt concentration percent	Number of red blood cells after incubation.
A	0.9	All normal
B	0.5	Fewer than normal
C	0.3	None

a) Account for the result in set up A. (2 marks)

_____

_____

b) In what way would you expect the cells in set up to differ from those in set up A? (1mark)

_____

c) What observation would you expect to make with regard to the number of red blood cells if the experiment was repeated with a salt solution of 1.4 % (2 marks)

_____

_____

d) What process head to the observations made in B and C. (1 mark)

B_____

C_____

e) State **two** roles of the process mentioned in d above in plants. (2 marks)

_____

_____

2 a) Name **two** types of digestion that takes place in the mouth. (2 marks)

_____

_____

b) List **two** functions of hydrochloric acid in digestion. (2 marks)

_____

_____

c) What is the role of the liver in digestion. (2 marks)

_____

_____

d) Explain the following terms

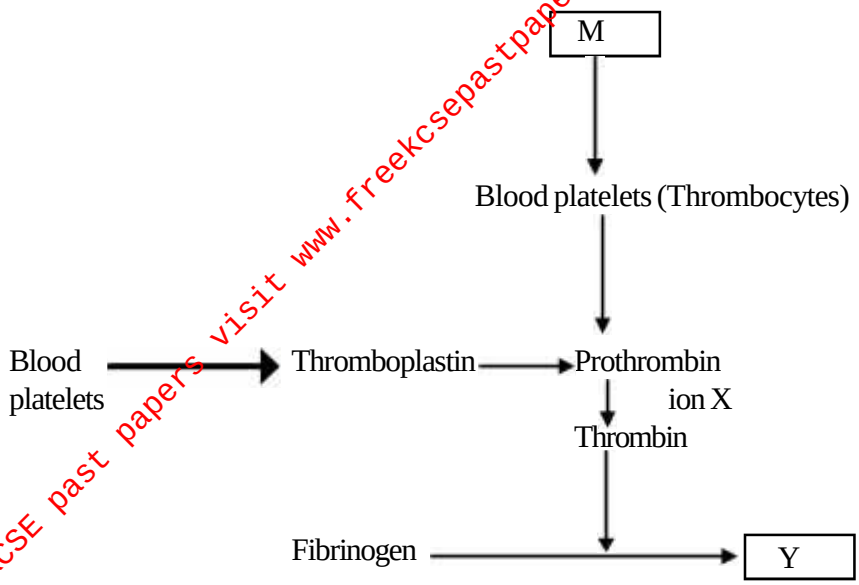
a) Peristalsis (1 mark)

_____

b) Assimilation (1 mark)

_____

3. The diagram below is a summary of blood clotting mechanism in man



a) Name substrate M Y and ion X. (3 marks)

M_____

Y_____

Ion X_____

b) What is the significance of the process shown above? (2 marks)

_____

c) What other structure in the body can produce thromboplastin? (1 mark)

_____

d) How can low blood volume be normalized? (1 mark)

_____

e) Explain why blood rarely clots inside blood vessels. (1 mark)

_____

4 a) Explain how each of the following factors affect living organisms within an ecosystem.

i) Predators. (2 marks)

_____

_____

ii) Light. (2 marks)

_____

_____

iii) Competition. (2 marks)

_____

_____

b) Explain the role of each of the following features on Xerophytes.

i) Succulent stems and leaves (1 mark)

_____

ii) Short life cycle (1 mark)

5 a) What is gene linkage (1 mark)

b) Haemoglobin is a sex linked trait

i) If a normal woman but carrier for haemophilia marries a normal man, work out the phenotypes of the offspring using a genetic cross. (4marks)

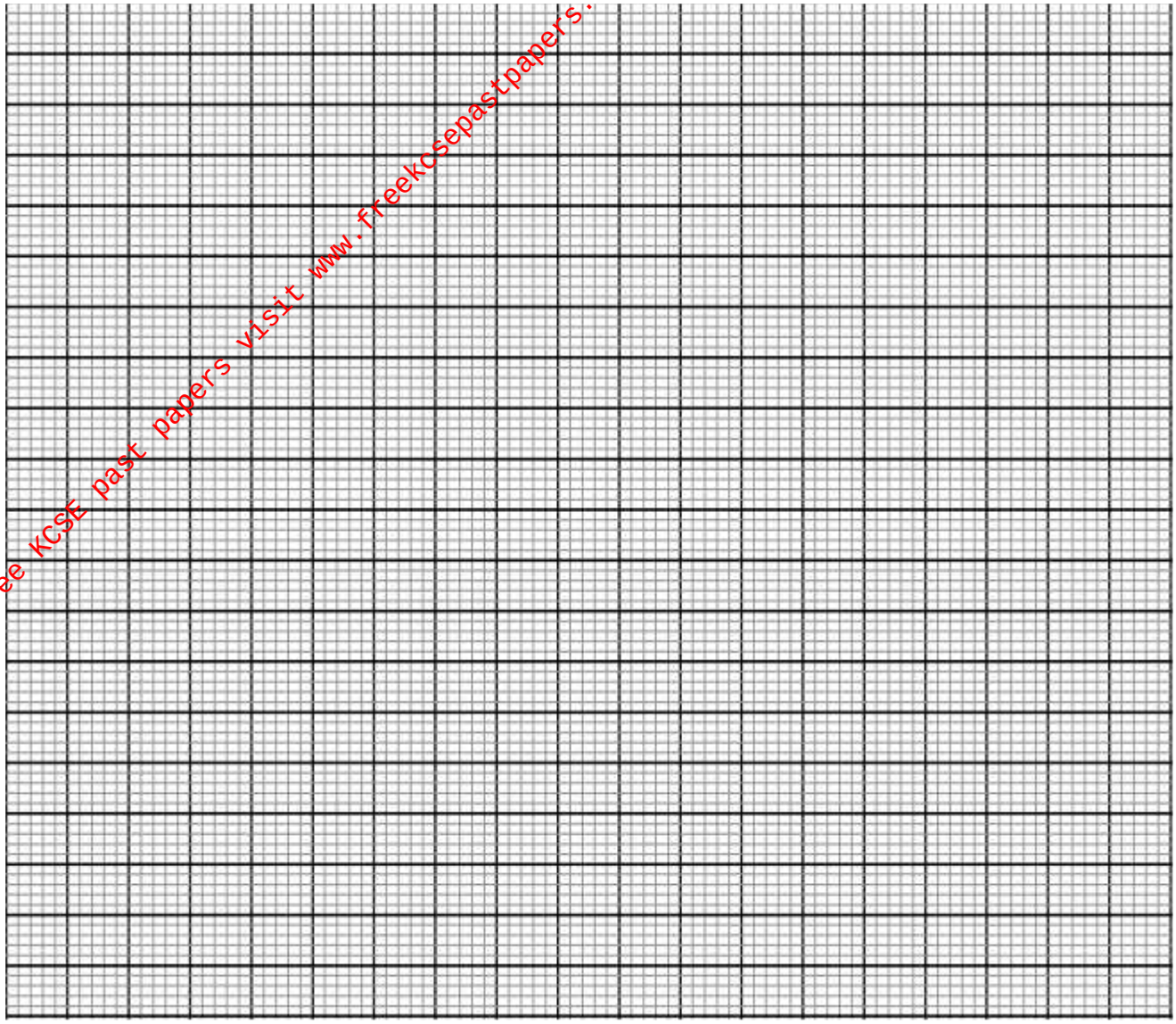
c) Why is haemophilia more common defect in males than in females. (1 mark)

d) Other than haemophilia state any other sex linked defect in man. (1 mark)

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 for fourteen days. The result are as tabulated below.

Time in (days)	**Dry weight (mg)**		
	Endosperm	**Embryo**	**Total**
0	47	5	52
2	44	5	49
4	39	8	47
6	22	17	39
8	10	28	38
10	4	35	39
12	2	42	44
14	2	44	46

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



b) What was the average dry weight of embryo on day 2? (1 mark)

_____

c) Account for the shape of the curve for

i) Embryo from day 2 to day 12 (2 marks)

_____

_____

ii) Total dry weight (gm) from day 0 to day 14. (3 marks)

_____

_____

d) After how long was the dry weight of

i) Endosperm 30 g? (1 mark)

_____

ii) Embryo 35? (1 mark)

_____

e) Explain the role of water in seed germination. (3 marks)

f) Other than water what **two** environmental factors are required for seed germination? (2 marks)

7 a) What is the significance of transpiration to plants. (4 marks)

b) Explain how various environmental factors increase the rate of transpiration. (16 marks)

8 a) Describe how urea is formed. (5 marks)

b) Describe the path followed by urea until it is eliminated from the body. (15 marks)