NAME……INDEX NO……CLASS ……....

Date……Sign …….

231/2
BIOLOGY
PAPER 2 (THEORY)
MAY 2014
2 HOURS

KABARAK-SACHO-SUNSHINE JET EXAMINATION - 2014

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

INSTRUCTIONS

1. This paper consists of two sections A and B. Answer **All** the questions in section A in the spaces provided.
2. In section B answer questions 6 (**Compulsory**) and either Questions 7 or 8 in the spaces provided.

FOR EXAMINER'S USE ONLY

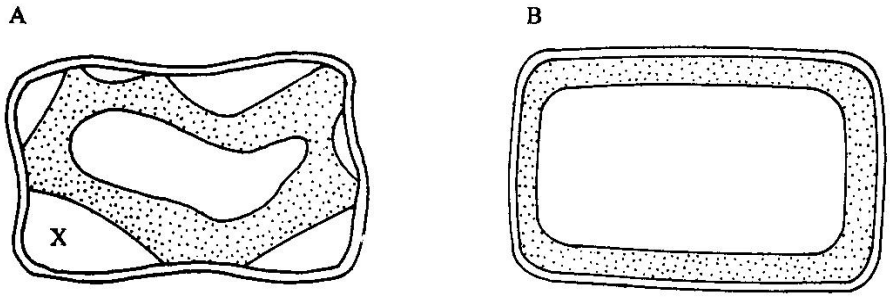
SECTION	QUESTION	MAXIMUM SCORE	CANDIDIATE'S SCORE
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	
TOTAL SCORE		**80**	

This paper consists of 8 printed pages. Candidates should check carefully to ascertain that all the 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 after each question.

1. The diagrams below represent two plant cells A and B placed in two different solutions. Study the diagrams and answer questions that follow:



a) Identify the nature of solution into which each cell was placed. (2marks)

A ……

B ……

b) Name the physiological process responsible for the observed results. (1mark)

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c) Give the correct biological term used to describe cell A. (1mark)

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d) Describe what would happen if a red blood cell was placed in the solution in which cell B was placed. (2 marks)

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e) Explain why freshwater amoeba do not burst when placed in distilled water.(2 marks)

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2. a) What is meant by the term linked genes? (1mark)

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b). Haemophilia is a genetic condition transmitted through a recessive gene linked to **X** chromosome. The normal gene may be represented by $\mathbf{X^H}$**.**

i) What is the genotype of a haemophilic female? (1mark)

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ii) A woman who is a carrier for the haemophilia gene marries a normal man. Work out the phenotypic ratio for their offspring. (4marks)

iii) Haemophilia is more common in males than in females. Explain this phenomenon. (2marks)

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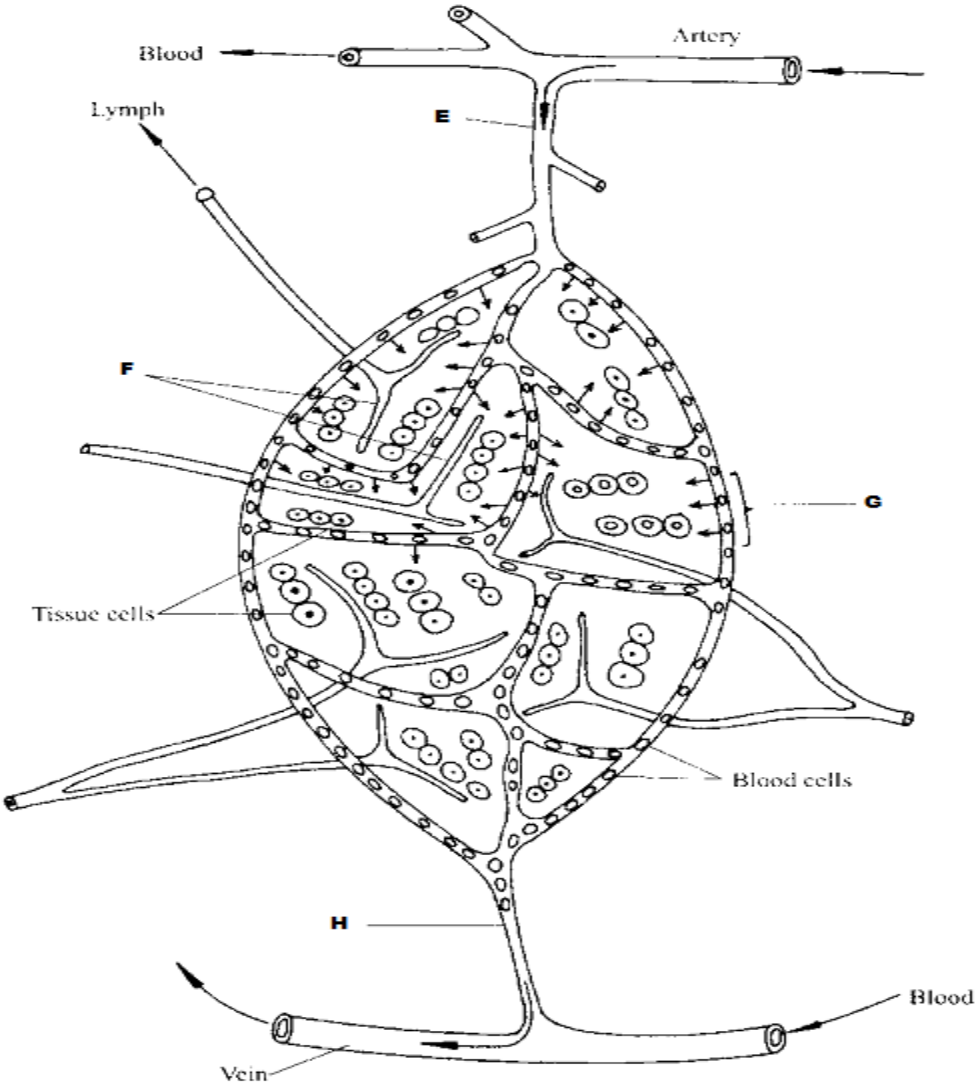
3. Study the diagram below and answer questions that follow.



a) Identify the parts labeled E, F and H. (3marks)

E……

F……

H……

b) State the importance of the process represented by G in bodies of living organisms. (2marks)

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c) Compare the composition of blood in vessel E and H. (3 marks)

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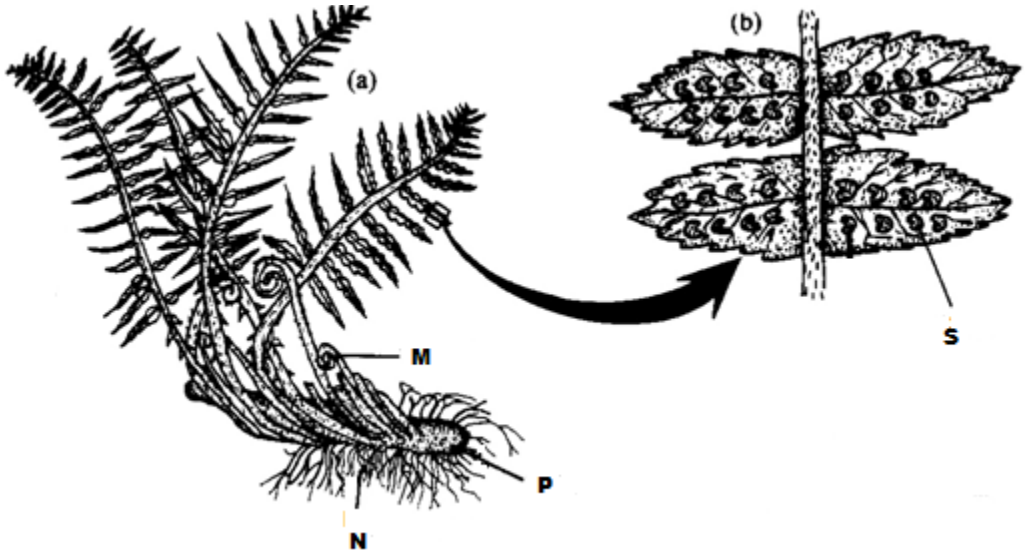
4. Use the figure below to answer questions that follow:



a) Identify the division to which the specimen belongs. (1mark)

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b) Name the parts labeled M, N and P. (3 marks)

M……

N……

P ……..

c) Name the spore producing structures that constitute the part labeled S. (1mark)

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d) Identify three features that distinguish the specimen above from higher plants. (3 marks)

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5. a) Name the plant organs in which meiosis take place. (2 marks)

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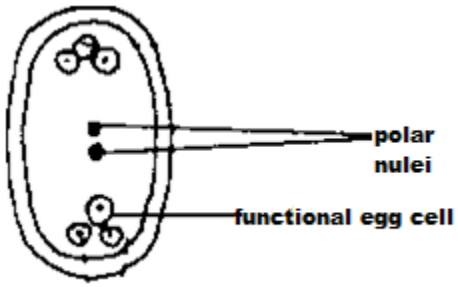
b) Identify the figure below. (1 mark)



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c) Using the diagram, explain the meaning of double fertilization in flowering plants. (1 mark)

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d) What happens to the structure above after fertilization? (1 mark)

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e) State three adaptations of fruits to animal dispersal. (3 marks)

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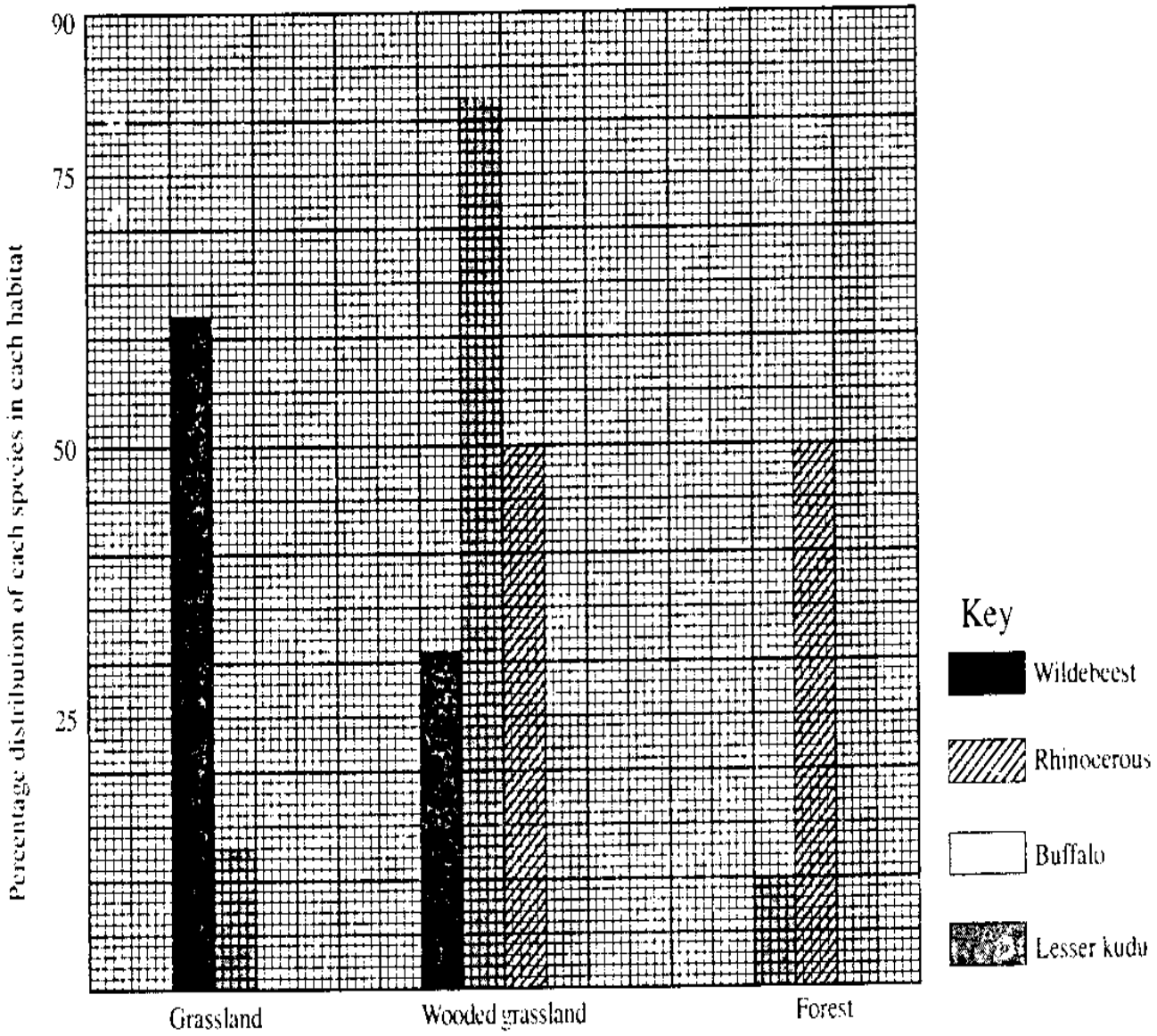
SECTION B (40 MARKS)

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

6. A study was carried out to investigate the distribution of certain mammals in a game reserve with three distinct habitats. The results were as presented in the graph below.



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

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b) Suggest three reasons why all mammalian species were found in the wooded grassland. (3 marks)

c) From the data, suggest the feeding habits of:
   (i) Wildebeest. (3 marks)
   (ii) Lesser kudu. (3 marks)

d) 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. (4 marks)

e) Name three environmental factors that are necessary for growth of vegetation other than rain. (3 marks)

f) For each of the factors, briefly explain its importance. (3 marks)

7. a) Describe how water molecules are absorbed from the soil and moves to the leaves in a tree. (10 marks)

   b) Describe the mechanism of inhalation in human beings. (10 marks)

8. a) Describe adaptations of the reproductive system of a male mammal to its function. (10 marks)

   b) Explain how the following vertebrae are adapted to their function. (10 marks)
      (i) Cervical vertebra.
      (ii) Thoracic vertebra.

ANSWERS:

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