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**KENYA NATIONAL EXAMINATION COUNCIL  
REVISION MOCK EXAMS 2016  
TOP NATIONAL SCHOOLS**

**KENYA HIGH SCHOOL  
BIOLOGY THEORY  
PAPER 2**

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**KENYA HIGH SCHOOL KCSE TRIAL  
AND PRACTICE EXAM 2016  
Paper 2**

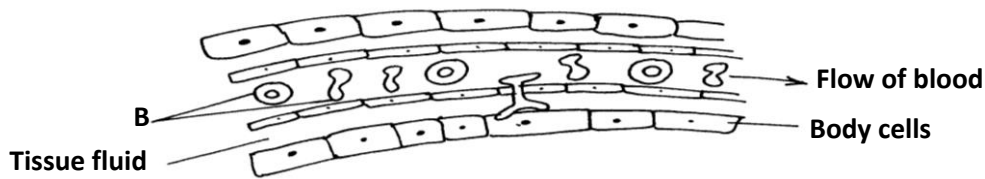
1. (a) State the role of the following parts of a light microscope. (2mks)  
(i) Diaphragm  
(ii) Revolving nosepiece
- (b) During preparation of temporary slides, the following procedures are carried out, state the importance of each.  
(i) Staining (2mks)  
(ii) Cutting very thin sections
- (c) Name the cell organelle that: (2mks)  
(i) Forms secretory vesicles  
(ii) forms site of protein synthesis
- (d) Name the tissue that carry out the following functions in plants: (2mks)  
(i) Filling the spaces between other tissues.  
(ii) Manufacture of food substances.
2. (a) Describe the following chromosomal mutations. (2mks)  
(i) Inversion  
(ii) Deletion.
- (b) In humans, the disease phenylketonuria is inherited through a recessive gene. A phenotypically normal couple produced one normal child and one phenylketonuric child.  
(i) Using a symbol **A** for normal gene and **a** for phenylketonuric gene, write down the genotypes of the parents. (2mks)  
(ii) Work out the possible genotype of the normal child. (3mks)
- (c) What is meant by genetic engineering? (1mk)
3. The diagram below shows the structure of a flower.



- (a) To what family does the flower belong? (1mk)
- (b) (i) Suggest the agent of pollination of the flower. (1mk)  
Give reasons for your answer in (b) (i) above. (2mks)
- (c) Name the parts of the flower that develops into each of the following (2mks)  
(i) Seed coat  
(ii) seed
- (d) Pregnancy will continue normally even if the ovaries of an expectant mother are removed after 4 months. Explain. (2mks)
4. (a) Distinguish between single circulatory and double circulatory system. (2mks)

(b) A person of blood group **O** requires a transfusion. Name the blood group (s) of the possible donor. (1mk)

The diagram shows the exchange site between circulatory system and body cells.



(i) Name the blood cells labelled **B**. (1mk)

(ii) State the difference between blood and tissue fluid. (2mks)

(d) State **two** environmental factors that cause a decrease in rate of transpiration in leaves. (2mks)

5. (a) What are the analogous structures as used in evolution? (1mk)

(b) How do disease causing micro-organisms become resistant to drugs. (3mks)

(c) The diagram below represents a bone of a mammal.



(i) Identify the bone. (1mk)

(ii) Name the bone that articulates at the point labelled **F**. (1mk)

(iii) Explain **two** adaptations of the bone identified in (i) above. (2mks)

### **SECTION B (40 MARKS)**

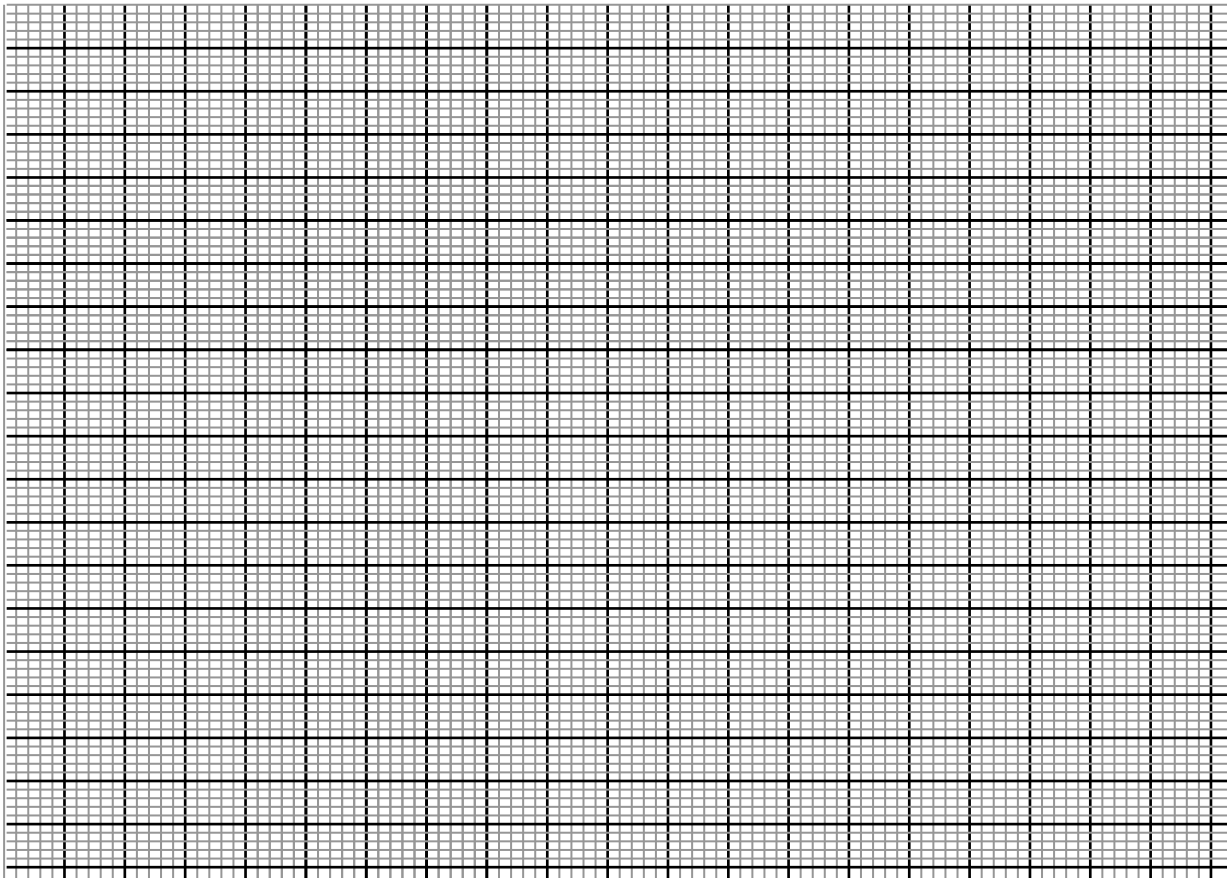
**Answer all question 6 (compulsory) and either question 7 and 8 in the spaces provided after**

**question 8.**

6. (a) An experiment was carried out to investigate the population of a certain micro-organism. Two Petri-dishes were used. Into the petridish labelled **M**, 60cm<sup>3</sup> of a culture medium was placed while 30cm<sup>3</sup> of the same culture medium was placed in Petri-dish labelled **N** equal numbers of micro organisms were introduced in both Petri dishes. The set ups were then incubated at 35<sup>0</sup>C. The number of micro-organisms in each was determined at irregular intervals for a period of 60 hours. The results were as shows in the table below.

Relative number of microorganisms	<b>M</b>	40	40	180	280	1200	1720	1600	1840	1560	600
	<b>N</b>	40	40	120	200	680	560	560	600	600	400
Time in hours		0	5	10	15	23	30	35	42	45	60

(i) On the same axes, draw the graphs of relative number of microorganisms against time on the grid provided. (7mks)



(ii) After how many hours was the difference between the two populations greatest? (1mk)

(iii) Work out difference between the two populations at 50 hours. (2mks)

(iv) With a reason state the effect on the population of microorganisms in petridish **M** if the temperature was raised to 60°C after 20hours. (2mks)

(v) Account for the shape of the curve for population in petridish **N** between 46 hours and 59 hours. (3mks)

(b) Explain how the osmotic pressure of the mammalian blood is maintained constant. (5mks)

7. Explain how the mammalian eye is adapted to its functions (20mks)

8. Explain how abiotic factors affect plants. (20mks)