KENYA NATIONAL EXAMINATION COUNCIL
REVISION MOCK EXAMS 2016
TOP NATIONAL SCHOOLS

STRATHMORE SCHOOL

BIOLOGY THEORY

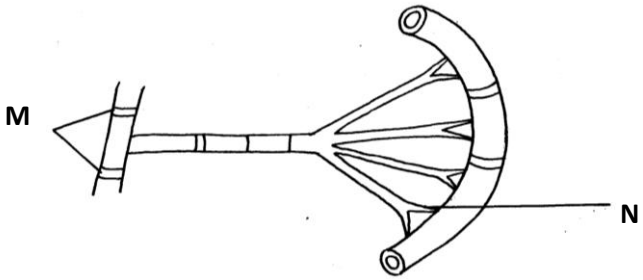
PAPER 2

SCHOOLS NET KENYA
Osiligi House, Opposite KCB, Ground Floor
Off Magadi Road, Ongata Rongai | Tel: 0711 88 22 27
E-mail:infosnkenya@gmail.com | Website: www.schoolsnetkenya.com

STRATHMORE SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

Paper 2

1. The diagram below represents part of a cockroach gaseous exchange system.

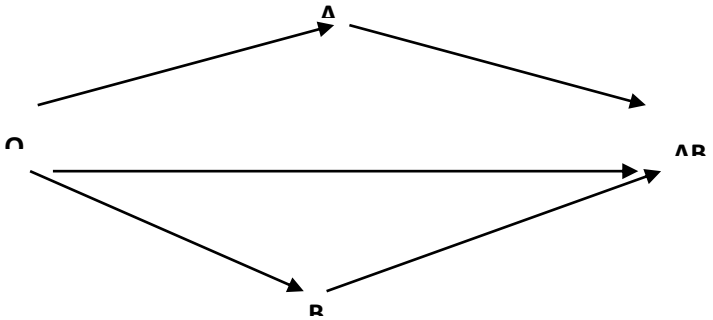


a) State the function of the part labelled **M** (1 mark)

b) Suggest how the part M is adapted to the gaseous exchange function (3 marks)

c) How does the movement of oxygen in an insect and mammals from atmosphere to the tissue of its body differ (4marks)

2. The following chart below shows blood transfusion pathway



a) What **five** conclusions can you draw from the flow chart (5marks)

b) Why is the knowledge of blood groups necessary before blood transfusion? (1 mark)

c) A part from knowledge of blood groups, state two precautions that must be observed during blood transfusion (2 marks)

3. The genetic disorder haemophilia is due to a recessive sex linked gene. A man who is haemophiliac married a woman who is a carrier for the condition.

a) Using letter (H) to represent normal condition and (h) to represent haemophiliac condition.

i) What is the genotype of the man and the woman? (2 marks)

Man

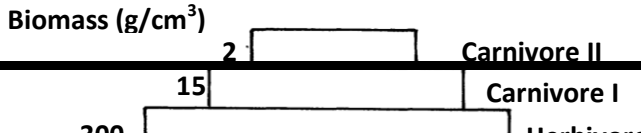
woman

ii) Work out across between the man and the woman (3marks)

b) What is the chances that both the first and the second sons will be haemophiliac? (2 marks)

c) Haemophilia is most common in the males than females humans. Explain. (1 mark)

4. The diagram below shows different groups of organisms and their biomass.



a) Define the term biomass (2 marks)

b) Account for the decrease in biomass in the successive group of organisms (3 marks)

c) Describe how energy from the sun is made available for carnivore II (3 marks)

5. Cell of a certain herbaceous plant were found to have an average diameter of 2.5μm the cells were put in varying concentrations of salt solutions. The average diameter of the cells in each solution was determined and the results were recorder as shown in the table below.

Concentration of salt solution %	Diameter of cells. μ m
1	5.0
5	4.0
10	3.0
15	2.0

a) From the results above, determine the cell sap concentration (1 mark)

b) Give an explanation for the average diameter of the cells placed in the following salt concentration compared to the normal diameter of the cells.

i) 1 % salt solution (3 marks)

ii) 15 % salt solution (3 marks)

Give the term used to describe salt solution whose concentration is the same as cell sap. (1 mark)

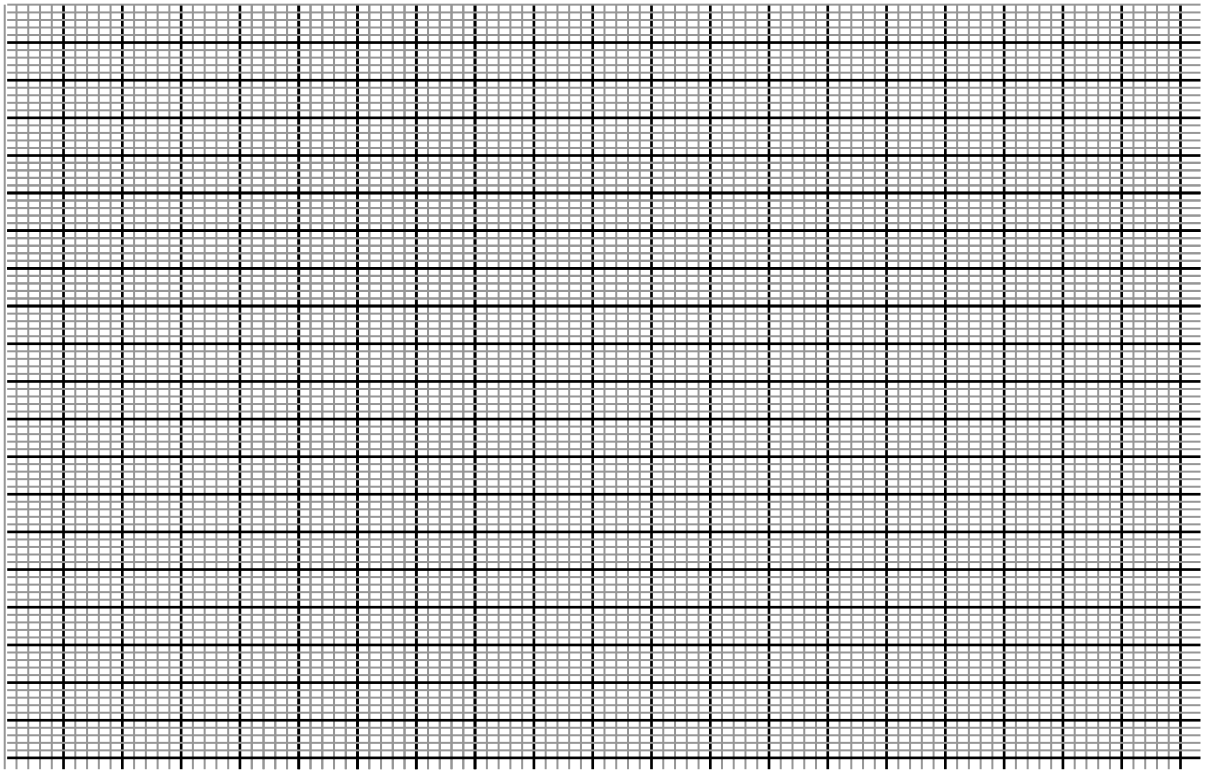
SECTION B (40 .MARKS)

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

6. In the experiment, the population growth of yeast cells in a Petri dish was determined over a period of 75 minutes. The results below were obtained.

Time in minutes	Number of yeast cells
0	4
5	6
10	8
15	10
25	30
30	50
35	80
40	120
45	140
50	150
55	160
65	166
75	166

a) Using a suitable scale, plot a graph of number of cells against time in minutes (6 marks)



b) Name the type of the curve you have drawn above (1 mark)

c) Determine the number of yeast cells after 37 minutes (1 mark)

d) After how long was the population of yeast cells 144? (1 mark)

e) Work out the rate of cell division between 32 minute and 42 minute (2 marks)

f) Account for the shape of graph between 45^{th} minute and 60^{th} minute (3 marks)

g) In a field study to estimate the population of grasshoppers in the school field of 4 km^2, 60 grasshoppers were caught using sweep nets, marked with red paint and released back to the field. The following day students went back with their sweep nets and caught 100 grasshoppers, in which 20 were found to be already marked.

i) Calculate the population size of grasshoppers in the field (2 marks)

ii) Calculate the population density of the grasshoppers in the field (2 marks)

iii) What factors would maintain the population of grasshoppers and yeast cells at the carrying capacity. (2 marks)

7. Describe the various evidences to support organic evolution (20 marks)

8. a) Describe how the heart beat is controlled and maintained (10 marks)

b) Describe the structure and function of thrombocytes (10 marks)