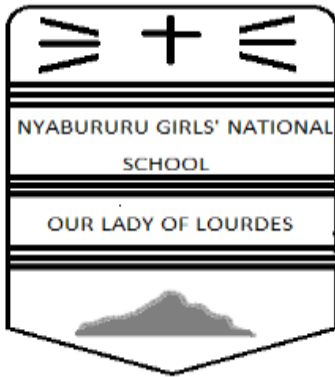


Name Adm No..... Class..... No..... Sign



**FORM 4 BIOLOGY PAPER 2
JULY SERIES 2017
TIME: 2 HOURS**

<i>Date done</i>	
<i>Invigilator</i>	
<i>Date returned</i>	
<i>Date revised</i>	

Instructions

- Write your name, class and class number in the spaces provided.
- This paper consists of two sections: Section A and B.
- Answer all questions in section A then answer question 6 in section B and either question 7 or 8 in the spaces provided.

FOR EXAMINER'S USE ONLY

SECTION	QUESTION	MAX. SCORE	CANDIDATE'S SCORE
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	
	TOTAL	80	

SECTION A (40 MARKS)

NameAdm No..... Class..... No..... Sign

1. (a) Define sex linked gene. (1mk)

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- (b) Haemophilia is a genetic disease which is transmitted through a recessive gene that is sex linked. A woman who is a carrier for the haemophilia gene married a normal man. Using a punnet square, work out the phenotypic ratio of the offspring. (5mks)

2. The diagram below represents some gaseous exchange structures in humans.

- (a) Name the parts: (2mks)

NameAdm No..... Class..... No..... Sign

B.....

D

(b) Give reasons to suggest whether it exhibits epigeal or hypogeal germination. (2mks)

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(c) Explain how the following environmental conditions are necessary in germination.

(i) Oxygen (2mks)

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(ii) Water (2mks)

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3. The diagram below shows part of a kidney. Use it to answer the questions that follow.

(a) (i) Name the part labeled 4. (1mks)

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(ii) What process occurs in the part (1) above? (1mk)

NameAdm No..... Class..... No..... Sign

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(b) Explain what happens to the concentration of sodium ions between part 1 and 2. (2mks)

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(c) What would happen to the functioning of portion 3 in the absence of anti-diuretic hormone (ADH)? (1mk)

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(d) What is homeostasis? (1mk)

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(e) Name two disorders that affect the kidney. (2mks)

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4. The diagram below represents a food web in a certain ecosystem.

(a) Name the organism. (1mk)

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(b) Suggest giving one reason the kingdom to which the organism belong. (1mk)

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(c) Identify the process that is taking place. (1mk)

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(d) State four economic importance of organisms found in the kingdom mentioned in (b) above. (2mks)

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5. (a) Explain how oxygen affects the rate of respiration. (2mks)

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(b) Write word equations to summarize the following processes.

(i) Anaerobic respiration of glucose in animals. (1mk)

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(ii) In which part of the cell does the process written in (i) above occur? (1mk)

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(c) Name two industrial application of anaerobic respiration. (2mks)

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(d) Differentiate between aerobic respiration and anaerobic respiration. (2mks)

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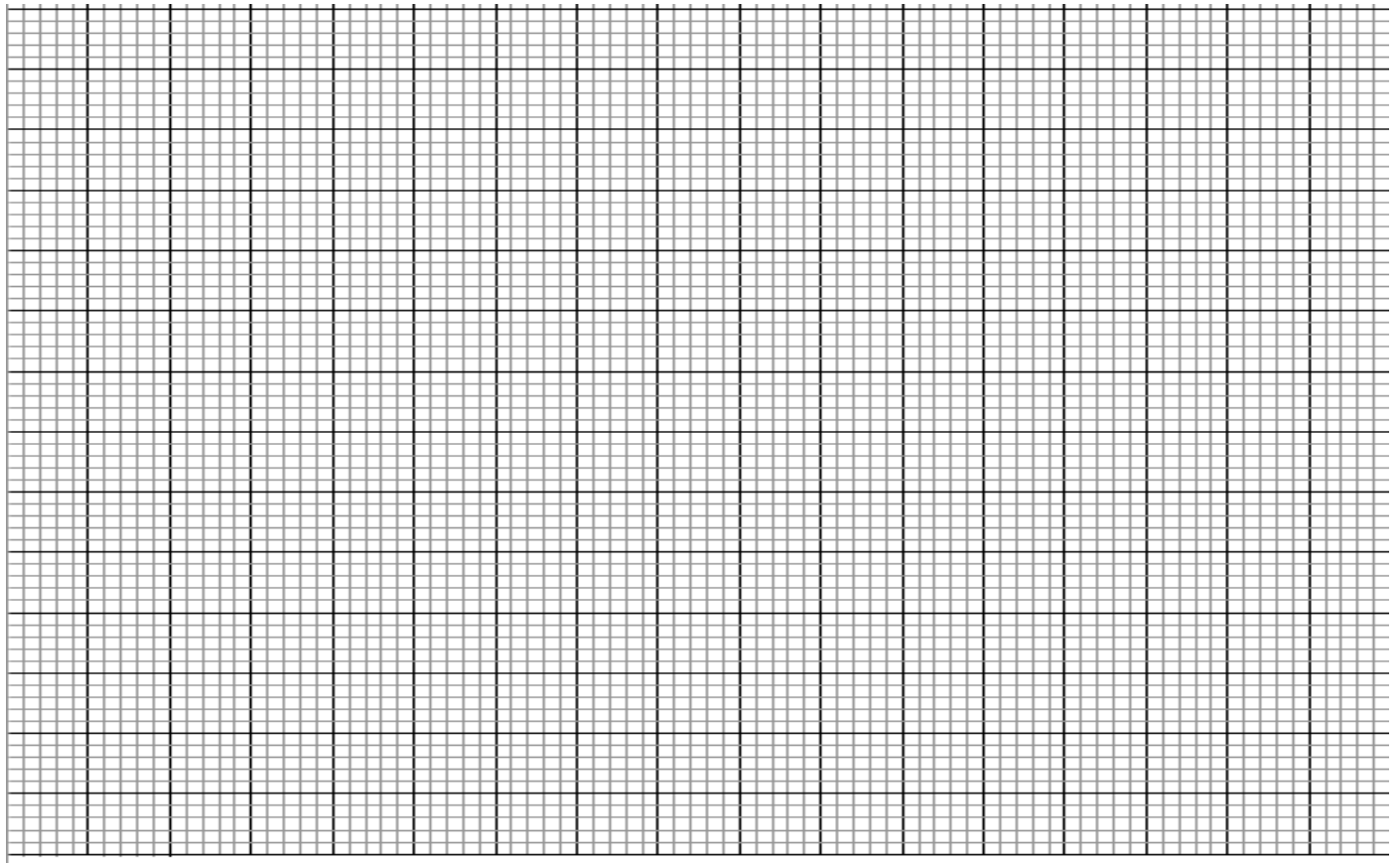
SECTION B

Answer question 6 (compulsory) then either question 7 or 8 in the spaces provided.

6. The table below shows how the quantities of sweat and urine vary with external temperature.

External temperature (°C)	Urine (cm³/hour)	Sweat (cm³/hour)
0	100	5
5	90	6
10	80	10
15	70	20
20	60	30
25	50	60
30	40	120
35	30	160

- (i) On the grid provided plot graph of the quantities of urine and sweat produced against external temperature. (7mks)



(ii) What temperature were the amounts of sweat and urine produced equal? (1mk)

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(iii) Account for the shape of the graphs for :-

(a) Amount of urine produced. (3mks)

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(b) Amount of sweat produced. (3mks)

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(iv) State two ways in which the skin lowers body temperature (2mks)

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(v) State the advantages of having constant body temperature in mammals. (2mks)

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(vi) Distinguish between excretion and secretion. (2mks)

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7. (a) Describe how the various parts of the eye are adapted to their functions. (10mks)

(b) Discuss how fruits and seeds are adapted to their various methods of dispersal. (18mks)

8. (a) Discuss the evidence of organic evolution. (10mks)

(b) Explain the structural factors that affect the rate of transpiration. (10mks)

