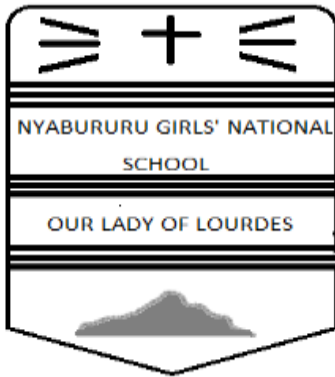


Name Adm No..... Class..... No..... Sign.....



FORM 4 BIOLOGY 231/1
(Theory)
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.
- Answer all the questions in the spaces provided.
- All workings must be clearly shown where necessary.

FOR EXAMINER'S USE ONLY

QUESTION	MAX. SCORE	CANDIDATE'S SCORE
1 – 25	80	

Candidates should check the question paper to ensure that all the pages are printed as indicated and no questions are missing.

1. Outline the functions of the following hormones in man.

(i) Secretin (1mk)

.....

(ii) Cholecystokinin (1mk)

.....

2. State the function of the following in man.

(a) Sodium (1mk)

.....

(b) Sulphur (1mk)

(c) Name the vitamin which plays an important role in the formation of blood cells.

..... (1mk)

3. Name the three parts that makes up the breathing system in insects. (3mks)

(i)

(ii)

(iii)

4. State one function for each of the following: (2mks)

(i) Cerebellum

.....

(ii) Medulla oblongata

.....

5. What is the function of the following structure in the human reproductive organ?

(i) Fallopian tubes (1mk)

.....

(ii) Epididymis (1mk)

.....

(iii) Scrotal sac (1mk)

.....

6. State one survival value for each of the following in plants.

(i) Thigmotropism in stems (1mk)

.....

(ii) Geotropism in roots (1mk)

.....

7. State two ideas proposed by Lamark in his theory of evolution. (2mks)

(i)

(ii)

8. An electron microscope has a much greater resolving power than a light microscope.

Explain the meaning of the term resolving power. (1mk)

.....

.....

9. The diagram below illustrates a process in a given species of organism.

(a) Name the organism (1mk)

.....

(b) Suggest the kingdom to which the organism belong giving one reason. (2mks)

Kingdom.....

Reason

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

.....

10. (a) Distinguish between a test cross and back cross as used in genetics. (2mks)

.....
.....

(b) Write the sequence of messenger RNA (m RNA) that would be coded from the DNA strand shown below. (1mk)

C – A – T – G – A – A – G – T

11. Explain how the rate of transpiration is affected by the following factors:-

(a) Size of leaf (1mk)

.....

(b) The relative humidity (1mk)

.....

(c) Sunken stomata (1mk)

.....

12. The diagram below shows the stages in mitotic cell division.

(a) Name the stages A and B. (2mks)

A

B

(b) What is the significance of mitosis in living organisms? (2mks)

.....
.....

13. (a) Name two structures for gaseous exchange in aquatic plants. (2mks)

(i)

(ii)

(b) How are the gills filaments adapted for gaseous exchange? (3mks)

.....
.....
.....
.....

14. (a) Name the fluid that is produced by sebaceous glands. (1mk)

.....

(b) State two roles of the fluid stated above. (2mks)

.....
.....

(c) State the role of each of the following plant excretory products. (2mks)

(i) Tannin

(ii) Papain

15. Name the method by which excess water is excreted from plants leaf surface in liquid form. (1mk)

.....

16. The diagram below shows a pollen tube as it develops down the style.

(a) Name the parts labeled M and N. (2mks)

M

N

(b) State the function of the part labeled M. (1mk)

.....

(c) Distinguish between Protandry and protogyny (2mks)

.....

.....

.....

.....

17. (a) Name the end products from light stage reaction that are used in dark stage reaction. (2mks)

(b) Name the structural units of lipids. (1mk)

(c) State two important functions of lipids in living organisms. (2mks)

18. (a) State the function of tricuspid valves of a mammalian heart. (1mk)

(b) Explain why the heart muscles are said to be myogenic. (1mk)

(c) Name the blood vessels that supply blood to:

(i) Head (1mk)

(ii) Legs (1mk)

19. Using a microscope, a student counted 30 cells across the field of view whose diameter was 6000 .Calculate the average length of the cell. (Show your working) (2mks)

20. Name the type of skeleton that makes up the body of each of the following animals.

(a) Locust (1mk)

(b) Bird (1mk)

21. Name the organism that:

(a) (i) Causes malaria (1mk)

(ii) Transmits malaria (1mk)

(b) State two control measures of malaria. (2mks)

.....
.....

22. An individual is of blood group B positive.

(a) Name the antigens present in the blood group. (2mks)

.....
.....

(b) Give a reason why the individual cannot receive blood from a blood group A donor. (2mks)

.....
.....

23. The diagram below illustrates a response by a certain plant.

(a) Name the type of response. (1mk)

.....

(b) Explain how the response illustrated above occurs. (3mks)

.....
.....
.....
.....
.....
.....
.....

(c) Give one importance of the above response. (1mk)

.....

24. Name three type of chromosomal mutation. (3mks)

- (i)
- (ii)
- (iii)

25. Give four reasons why water is significant in seed germination. (4mks)

- (i)
- (ii)
- (iii)
- (iv)