NAME: ..... INDEX NO: .....

SCHOOL: ..... DATE : .....

CANDIDATE'S SIGNATURE:.....

231/1
BIOLOGY
PAPER 1
JULY / AUGUST 2016
TIME: 2 HOURS

2016

FORM 3

BIOLOGY
PAPER 1
TIME: 2 HOURS

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INSTRUCTIONS TO CANDIDATES:

(a) *Write your **Name, School** and **Index Number** in the spaces provided above.*
(b) ***Sign** and write the **date** of examination in the spaces provided.*
(c) *Answer **ALL** questions in the spaces provided.*
(d) *Wrong spelling especially of technical terms will be penalized.*
(e) *Additional pages must **not** be inserted.*
(f) *Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.*

FOR EXAMINER'S USE ONLY

QUESTION	MAX. SCORE	CANDIDATE'S SCORE
1 – 27	80	

1. (a) What is meant by the term species? (2mks)

.....

.....

.....

(b) Write the following names correctly: bidens pilosa. (1mk)

.....

2. State the functions of the following parts of a light microscope:

(i) Coarse adjustment knob. (1mk)

.....

(ii) Using a microscope, a student counted 55 cells across a field of view whose diameter was 6000mm. Calculate the average length of the cells. (2mks)

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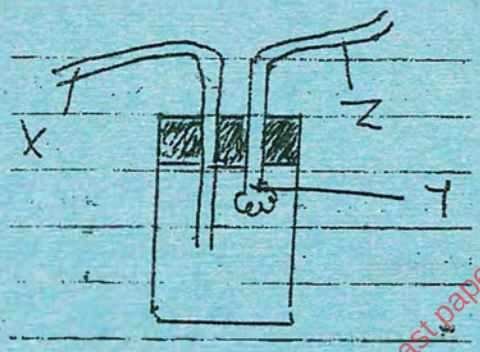
3. The diagram below shows a biological tool.



(a) Identify the tool. (1mk)

.....

(b) Suggest the function of Y. (1mk)

.....

(c) Give **one** function in which the tool is used for: (1mk)

.....

4. A potato cylinder 40mm long was immersed in a concentrated solution of sugar for 30 minutes. It was removed and dried between blotting paper and the length measured.

(a) Comment on the:

(i) Length of the cylinder. (1mk)

.....

.....

(ii) Texture of the cylinder. (1mk)

.....

.....

(b) Explain the observation in (a) above. (2mks)

.....

.....

5. The equation shows certain metabolic reaction that takes place in the cells.

$C_6H_{12}O_{16} + 6O_2 \longrightarrow 6CO_2 + 6H_2O \quad \Delta H = +2880kJ$

(a) Identify the metabolic reaction given. (1mk)

.....

(b) Where does the reaction take place? (1mk)

.....

(c) Work out the respiratory quotient of the metabolic reaction above? (1mk)

6. State the importance of the process of photosynthesis to man. (2mks)

.....

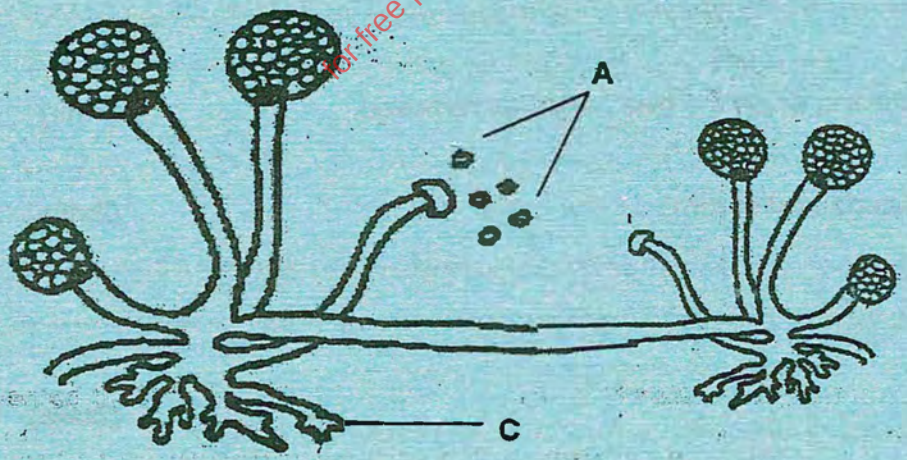
.....

7. State the cause and treatment of whooping cough. (2mks)

.....

.....

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



(a) Name the parts labeled A and C. (2mks)

A:.....

C:.....

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(b) What environmental conditions are necessary for the growth of the organism above? (2mks)

.....

(c) State <u>two</u> economic importance of fungi. (2mks)

.....

.....

9. Distinguish between transpiration and Guttation. (2mks)

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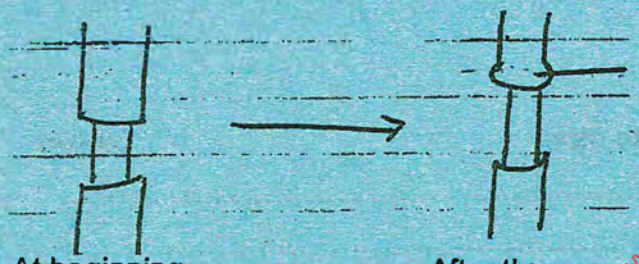
10. A student cut a ring around a tree as shown in the diagram while investigating a certain process. He made an observation after 3 months as shown in the diagram?



At beginning After three months

(i) Name the process he was investigating? (1mk)

.....

(ii) Account for the observation. (2mks)

.....

.....

(iii) Name the tissue that was removed when the tree bark was removed. (1mk)

.....

11. Explain the differences between plasma and serum. (2mks)

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.....

.....

12. (a) Define the term homeostasis? (2mks)

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(b) Give a reason why each of the following is regulated in the body.

(i) Metabolic waste (2mks)

.....

.....

(ii) Temperature (2mks)

.....

.....

13. Name **three** functions of the mammalian kidney. (3mks)

.....

.....

.....

14. Name the kingdom to which each of the following belong:-

(a) Moss (1mk)

.....

(b) Euglena (1mk)

.....

15. (a) What is the role of sodium hydrogen carbonate in the duodenum? (2mks)

.....

.....

(b) What happens to starch in the mouth? (2mks)

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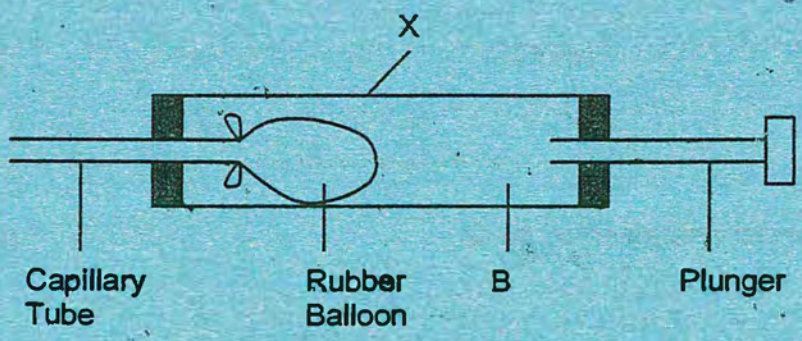
.....

16. Give **two** functions of adipose tissue in the skin. (1mk)

.....

.....

17. The diagram below shows a drawing model to illustrate breathing in mammals. (3mks)



(a) Name the parts of a mammal represented by: (3mks)

(i) Capillary tube:.....

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(ii) Part B:.....

(iii) Rubber balloon:.....

(b) State the observation made when the rubber plug is pushed using plunger to position marked X. (1mk)

.....

.....

18. What is the relationship between a population and a community? (2mks)

.....

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.....

19. Using a named example, explain the meaning of the term Carrying Capacity. (2mks)

.....

.....

20. What deficiency diseases result from lack of the following: (3mks)

(i) Iron:.....

(ii) Iodine:.....

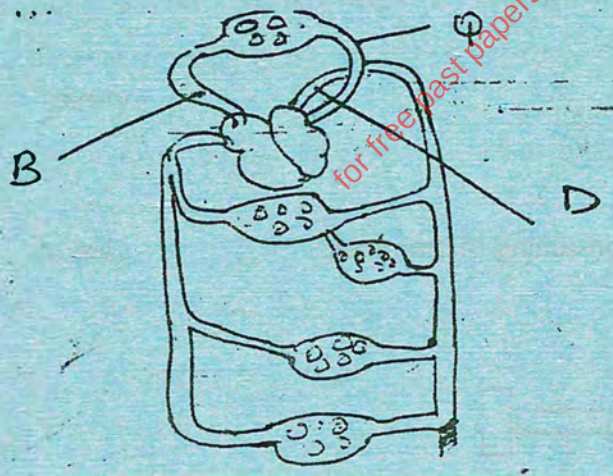
(iii) Vitamin C:.....

21. State the osmoregulatory structure in each of the following:- (2mks)

(i) Amoeba:.....

(ii) Human:.....

22. The diagram below is a systematic diagram of blood flow in humans to illustrate double circulation.



(a) Name the type of circulatory system represented by Q. (1mk)

.....

(b) Name parts:

B:.....

C:.....

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(c) What is single circulation? (1mk)

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23. List **three** abiotic factors. (3mks)

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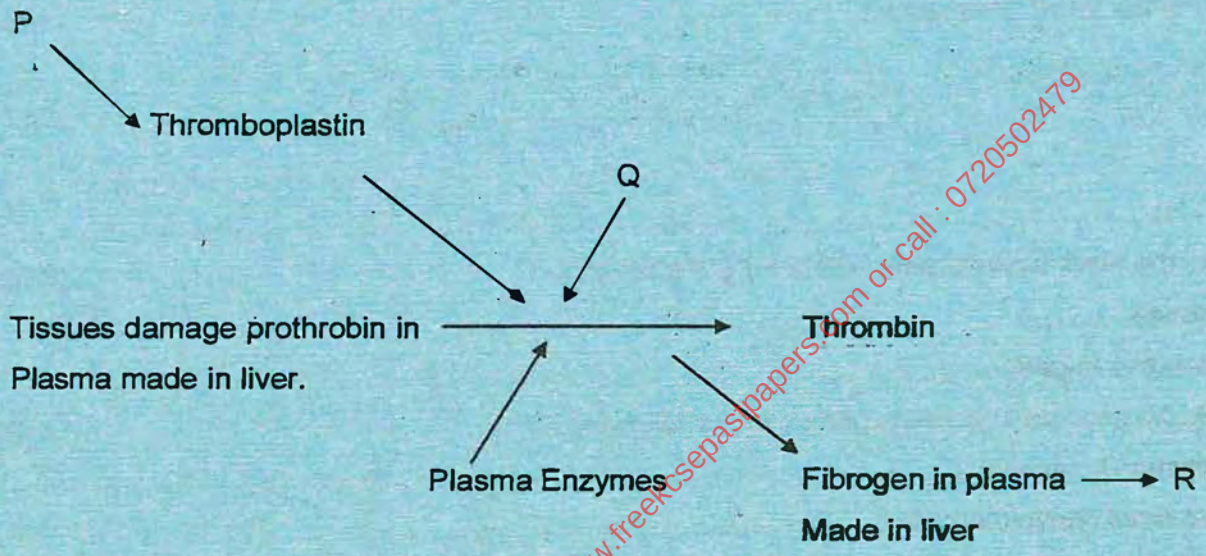
24. The chart below is a summary of blood clotting process in humans.



Identify:-

(a) Cell represented by P. (1mk)

.....

(b) The ions represented by Q. (1mk)

.....

(c) The end product R. (1mk)

.....

(d) Give a reason why blood clotting is important. (1mk)

.....

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25. State **three** differences between chilopoda and diplopoda. (3mks)

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26. Below is formula for an animal's feeding mode.

$1\frac{2}{1}C \quad \frac{0}{0}PM \quad \frac{3}{2}M \quad \frac{3}{3} \quad = \quad 28$

(a) What is the feeding mode of the mammal? (1mk)

.....

(b) State **two** reasons for your answer above. (2mks)

.....

.....

(c) Define the term, "Heterodont." (1mk)

.....

.....

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.....

27. (a) Name the plant tissues responsible for the following:- (2mks)

(i) Growth:.....

(ii) Increase in girth:.....

(b) Name the process that takes places in the following:- (2mks)

(i) Bowman's capsule:.....

(ii) Proximal convoluted tube:.....

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