NAME _____ INDEX NO. _____

SCHOOL _____ SIGNATURE _____

DATE _____

231/1
BIOLOGY
(THEORY)
PAPER 1
JULY, 2017
TIME: 2 HOURS

KITUI COUNTY MOCK

END OF TERM II FORM FOUR EXAMINATION, 2017

Kenya Certificate of Secondary Education (K.C.S.E)

231/1
BIOLOGY
(THEORY)
PAPER 1
TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the spaces provided above.
2. Sign and write the date in the spaces provided above.
3. Answer **ALL** the questions in the spaces provided.
4. Additional pages **MUST** not be inserted.
5. Candidates may be penalized for false information and even wrong spellings of technical terms.
6. This paper consists of **7** printed pages.
7. Candidates should check to ensure that all pages are printed as indicated and no questions are missing.

FOR OFFICIAL USE ONLY

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1 - 31	80	

1. Motor vehicles move, use energy and produce carbon (IV) oxide and water. Similar characteristics occur in living organisms yet motor vehicles are not classified as living. Explain. (3 marks)

_____

_____

_____

_____

2. State **one** use for each of the following apparatus in the study of living organisms.

   a) Pooter (1 mark)

   _____

   b) Pitfall trap (1 mark)

   _____

3. State the functions of the following cell organelles:

   a) Ribosomes (1 mark)

   _____

   b) Lysosomes (1 mark)

   _____

4. State the functions of the following parts of a light microscope.

   a) Fine adjustment knob (1 mark)

   _____

   _____

   b) Stage (1 mark)

   _____

   _____

5. Why is it recommended to keep the stage of the microscope dry? (1 mark)

   _____

   _____

   _____

6. Using a microscope, a student counted 55 cells across a field of view whose diameter was 6000μm (micrometers). Calculate the average length of the cells. Show your working. (2 marks)

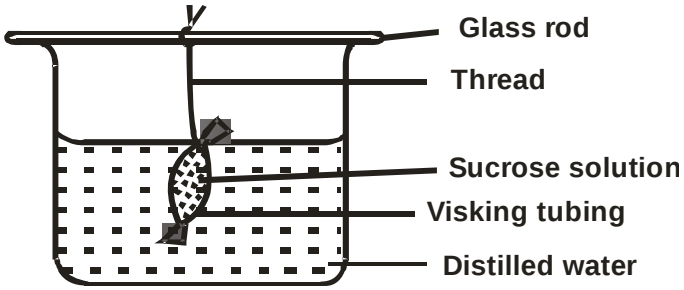
   _____

   _____

   _____

   _____

7. An experiment was set up as shown below.



The set up was left for 30 minutes.

a) State the expected results. (1 mark)

b) Explain your answer in (a) above. (3 marks)

8. a) Distinguish between diffusion and active transport. (2 marks)

b) State **one** role that is played by osmosis in,

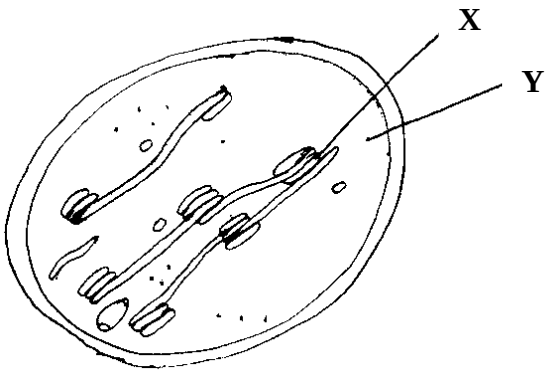
i) Plants (1 mark)

ii) Animals (1 mark)

9. Name **two** mineral elements that are necessary in the synthesis of chlorophyll. (2 marks)

10. a) State the functions of cristae in mitochondria. (1 mark)

b) The diagram below represents a cell organelle.



i) Name the part labelled Y. (1 mark)

ii) State the functions of the part labelled X. (1 mark)

11. Name the end products of the light stage in photosynthesis. (2 marks)

12. a) State the functions of co-factors in cell metabolism. (1 mark)

b) Give **one** example of a metallic co-factor. (1 mark)

13. The action of ptyalin stops at the stomach. Explain. (1 mark)

14. State **two** functions of carbohydrates in the human body. (2 marks)

15. Name the tissues in plants responsible for:

a) Transport of water and mineral slats. (1 mark)

b) Transport of carbohydrates. (1 mark)

c) Primary growth. (1 mark)

16. Explain how the following contribute to the movement of water up the xylem vessels. (2 marks)

a) Cohesion

b) Adhesion

17. a) Name the type of circulatory system found in members of the class insecta. (1 mark)

b) Name the blood vessel that transports blood from:

i) Small intestines to the liver (1 mark)

ii) Lungs to the heart (1 mark)

18. a) Name **one** defect of circulatory system in humans. (1 mark)

b) State **two** ways in which the red blood cells are adapted to their functions. (2 marks)

19. Why would carboxyhaemoglobin lead to death? (2 marks)

20. State **four** ways in which respiratory surfaces are suited to their function. (4 marks)

21. Name the causative agents for the following respiratory diseases.

i) Whooping cough (1 mark)

ii) Pneumonia (1 mark)

22. Name the **three** end products of anaerobic respiration in plants. (3 marks)

23. Give **two** factors that determine the amount of energy a human being requires in a day. (2 marks)

24. Explain what happens when there is oxygen debt in human muscles. (3 marks)

25. a) A person was found to pass out large volumes of dilute urine frequently.

    i) Name the disease the person was suffering from. (1 mark)

    ii) Name the hormone that was deficient. (1 mark)

26. What is the role of sweat in human body? (2 marks)

27. Explain what happens to excess amino acids in the liver of humans. (3 marks)

28. Explain why plants do not require specialized excretory organs. (4 marks)

29. State **three** external differences between chilopoda and diplopoda. (3 marks)

30. a) How are leaves of submerged plants adapted to photosynthesis? (2 marks)

b) Name **two** disorders in human caused by gene mutation. (2 marks)

31. a) State **two** functional differences between the rods and cones in the human eye. (2 marks)

b) State **two** advantage of having an exoskeleton. (1 mark)