NOVA PIONEER

SCHOOLS FOR INNOVATORS & LEADERS

Biology Form 3 End of Term Assessment

Paper 1

Term 2, 2020

DATE:

MARKS: 80

2 hours

Name: _____

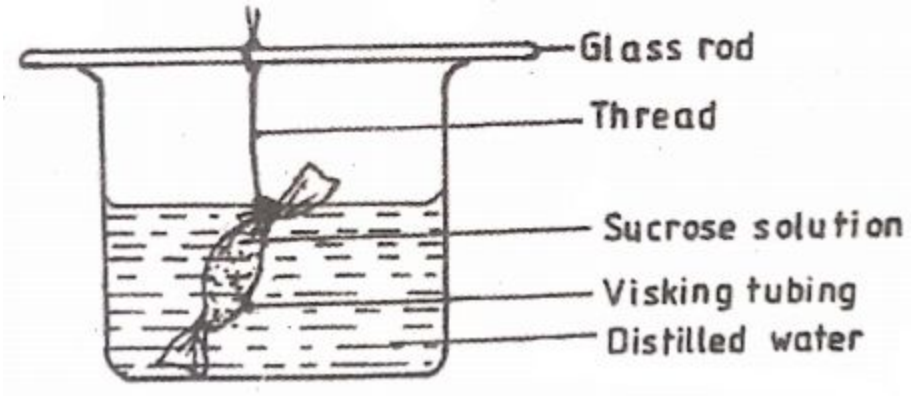
Total Score: _____/80 = _____ %

Stream #: _____ House: _____

Directions:

1. Read all questions carefully.
2. Attempt to answer all questions completely.
3. Review your answers before turning in your exam.

1. State the importance of each of the following in living organisms:
    a. Nutrition (1 mark)
    b. Excretion (1 mark)
2. Using a microscope, a student counted 55 cells across a field of view whose diameter was 6000µm.calculate the average length of cells. Show your working. (2 marks)
3. State two advantages of using a coverslip when preparing a specimen for observation under a light microscope. (2 marks)
4. How is the low power objective lens manipulated to focus a specimen for observation under a light microscope? (2 marks)
5. 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)
6. The table provided shows the concentration of sodium and iodine in seawater and cell sap of a plant.

	Sodium ion concentration	Iodide ion concentration
Seawater	250	35
Cell sap	100	550

    a. Name the process through which the plant cells take up sodium ions. (1 mark)
    b. Give a reason for your answer in (a) (i) above. (1 mark)
    c. If the plant was sprayed with a chemical that inhibits respiration:
        i. Which of the two ions uptake will be affected? (1 mark)
        ii. Give a reason for your answer in (b) (i) above. (1 mark)
7. a. State the role of light in the process of photosynthesis. (1 mark)
    b. Name one end product of the dark reaction in photosynthesis. (1 mark)
8. How is the epidermis of a leaf of a green plant adapted to its functions? (2 marks)
9. Explain how the following factors affect the rate of photosynthesis
    a. The concentration of carbon (iv)oxide. (1 mark)
    b. Light intensity. (1 mark)

10. An experiment was carried out to investigate the rate of the reaction shown below.

Sucrose → Fructose + Glucose

For the products fructose and glucose to be formed, it was found that substance K was to be added and the temperature maintained at 37. When another substance L was added, the reaction slowed down and eventually stopped.

a. Suggest the identity of substance K and L. (2 marks)

b. Other than temperature state three ways by which the rate of reaction could be increased. (3 marks)

c. Explain how substance L slowed down the reaction. (2 marks)

11. State two functions of muscles found in the alimentary canal of mammals. (2 marks)

12. The following is the dental formula of a certain mammal:

$$i\frac{0}{3}\,c\frac{0}{1}\,pm\frac{3}{3}\,m\frac{3}{3}$$

a. State the likely mode of feeding for the mammal. (1 mark)

b. Give a reason for your answer in (a) above. (1 mark)

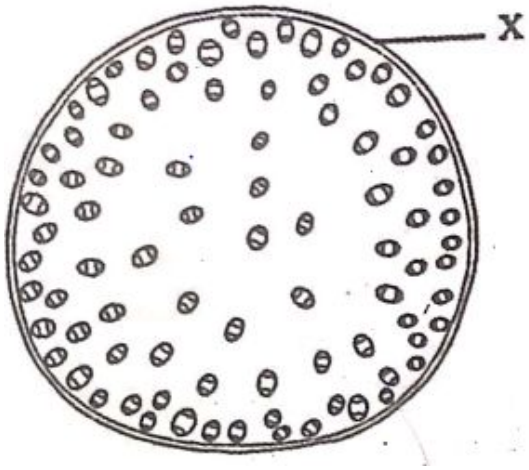
13. How is a human stomach adapted to

a. Protein digestion? (2 marks)

b. Churning? (2 marks)

14. What happens to the glucose synthesized during photosynthesis? (2 marks)

15. The diagram below shows a transverse section of a plant organ.



a. Name the plant organ from which the section was obtained. (1 mark)

b. Name the class to which the plant organ was obtained. (1 mark)

c. Give a reason for your answer in (b) above. (1 mark)

d. Name the part labelled X. (1 mark)

16. a. State three structural differences between arteries and veins in mammals. (3 marks)

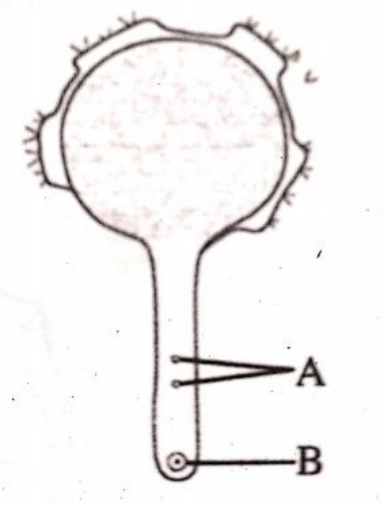
b. Name a disease that causes thickening and hardening of arteries. (1 mark)

17. State the advantage of possessing blood group AB. (1 mark)

18. Why are gills in fish highly vascularized? (1 mark)

19. Name two structures for gaseous exchange in aquatic plants. (2 marks)

20. What's the effect of contraction of the diaphragm muscles during breathing in mammals? (3 marks)
21. a. Give two reasons why accumulation of lactic acid during vigorous exercise leads to an increase in heartbeat. (2 marks)
    b. State two ways in which anaerobic respiration in applied in industries. (2 marks)
22. Write an equation that summarizes the process of aerobic respiration. (1 mark)
23. State one use of each of the following excretory products of plants:
    a. Colchicine. (1 mark)
    b. Papain.
    (1 mark)
24. Explain why plants do not require specialized excretory organs. (4 marks)
25. What's the meaning of the terms:
    a. Homeostasis. (1 mark)
    b. Osmoregulation. (1 mark)
26. Name the hormones involved in regulating glucose level in blood. (2 marks)
27. State three characteristics of the class Crustacea. (3 marks)
28. a. Name the bacteria found in root nodules of leguminous plants (1 mark)
    b. What is the role of the bacteria named in (a) above? (1 mark)
29. State four characteristics of fruit dispersed by animals. (4 marks)
30. The diagram below illustrates a growing pollen tube.



    a. Name the part labelled B. (1 mark)
    b. Explain the role of the parts labelled A. (2 marks)

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