

NAME: _____ CLASS: _____

INDEX NO: _____ DATE: _____

231/1

BIOLOGY P1

THEORY

JULY 2014

TIME: 2 HOURS

ALLIANCE HIGH SCHOOL
TRIAL EXAMINATIONS
BIOLOGY PAPER 1
JULY 2014
2 HOURS

INSTRUCTIONS:

1. Write your name, class and admission number in the space provided above
2. Write the date of the examination in the space provided above.
3. Answer all questions in the spaces provided.

For Examiner's Use Only.

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE.
1 - 33		

TURN OVER
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1. A motor vehicle like an animal can take in oxygen, burn fuel to release energy and carbon (IV) oxide gas. Name two characteristics of an animal that can distinguish it from a motor vehicle. (2 mks)

2. State two precautions during collection of live specimens for study in the laboratory. (2 mks)

3. Classify man into the following taxa (3 mks)

Class _____

Order _____

Family _____

4. The scientific name for the African Kale is *Brassica carinata*. Which taxonomic group does the name *Brassica* refer to? (1 mk)

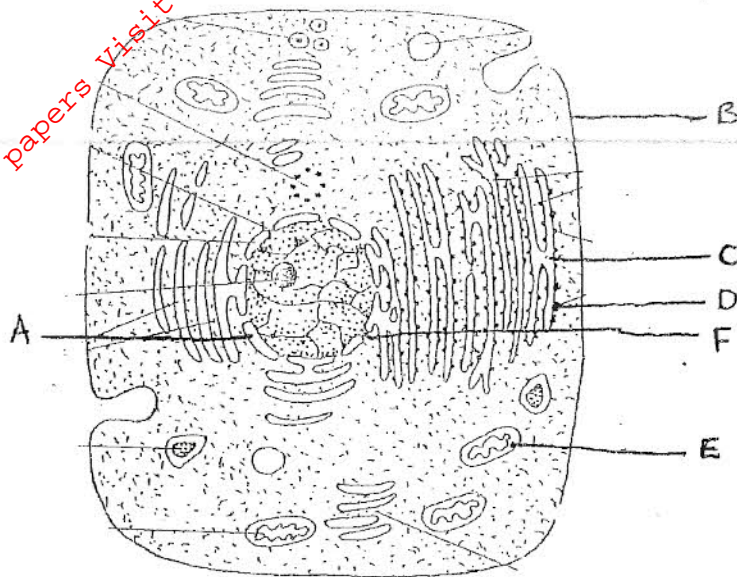
5. State the function of the following parts of a light microscope.

a) Coarse Adjustment Knob. (1 mk)

b) Revolving nose-piece. (1 mk)

6. What main functional advantage does a light microscope have over an electron microscope? (1 mk)

7. The diagram below shows a generalized animal cell as seen under an electron microscope. Study it and answer the questions that follow



- a) Name the parts labeled D, and E. (2 mks)
- D _____
- E _____
- b) State the function of the structures labeled. (2 mks)
- i) D _____
- ii) F _____
8. State 3 functions of a cell wall in plants. (3 mks)

9. The figures 1 and 2 are cells obtained from two different living organisms. Study them and answer the questions that follow.

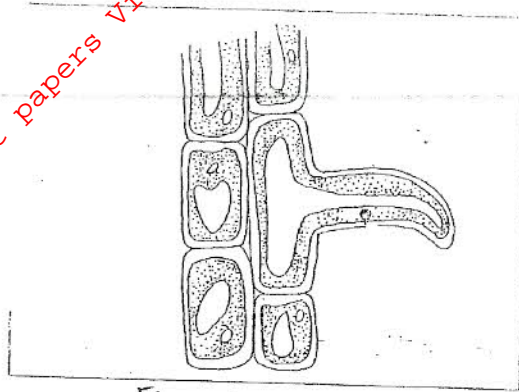


Figure 1.

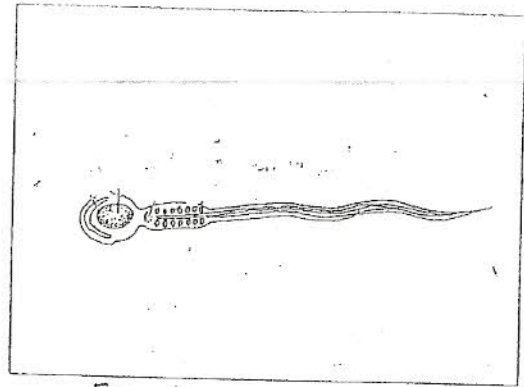


Figure 2.

State one adaptations of cells in Figures 1 and 2 to their functions. (2 mks)

Figure 1 _____

Figure 2 _____

10. a) Distinguish between a tissue and an organ (2 mks)

Tissue _____

Organ _____

- b) Name the tissue that

- i) Lines and protects internal and external surfaces. (1 mk)

ii) Consists of special thin walled irregularly shaped cells that are for storage and packaging in plants. (1 mk)

11. Why is Osmosis referred to as a special type of diffusion? (1 mk)

12. The following is the dental formula of a certain animal.

$$i \frac{0}{4} \quad C \frac{0}{0} \quad pm \frac{3}{3} \quad m \frac{2}{3} = 30$$

Identify with a reason the mode of feeding of the animal (2 mks)
Mode of feeding _____

Reason _____

13. State two importance of mastication of food. (2 mks)

14. a) name two salts in bile that aid in emulsification of fats. (2 mks)

c) In what way does sex of individuals determine their energy requirements?(1 mk)

15. State one similarity and one difference between collenchyma and sclerenchyma cells.

(2 mks)

	Collenchyma	Sclerenchyma
Similarity		
Difference		

16. What is the main difference between the phloem tissues of the sub divisions Gymnospermaphyta and Angiospermaphyta?

(1 mk)

17. a) State two ways in which the protection of the heart against mechanical injury is achieved during a heart beat.

(2 mks)

- b) State the cause of arteriosclerosis.

(1 mk)

18. What is the function of thromboplastin in the blood clotting process?

(1 mk)

19. During an allergic reaction the blood vessels may dilate leading to very low blood pressure that may cause death. What name is given to this condition?

(1 mk)

20. In what way does the starch-sugar inter conversion theory differ from the photosynthetic theory in explaining the mechanism of opening and closing of stomata? (2 mks)

21. State three adaptations of the skin of a frog to gaseous exchange. (3 mks)

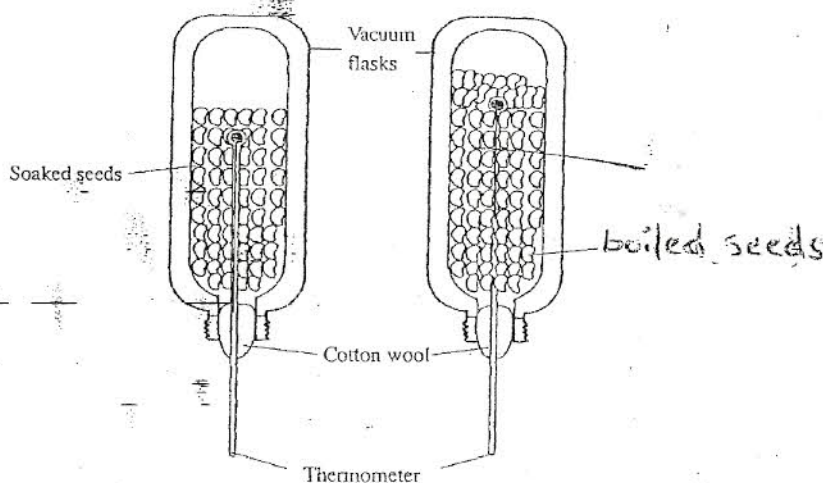
b) State what happens to the internal intercostal muscles in man during exhalation. (1 mk)

22. Name the causative agent of whooping cough in humans. (1 mk)

23. a) Write an equation to represent anaerobic respiration in a muscle tissue. (1 mk)

b) State two reasons why fats are not the main respiratory substrates in humans. (2 mks)

24. A student set up the following apparatus using soaked bean seeds and boiled bean seeds to investigate a certain biological phenomenon.



a) State the observation after 24 hours?

(1 mk)

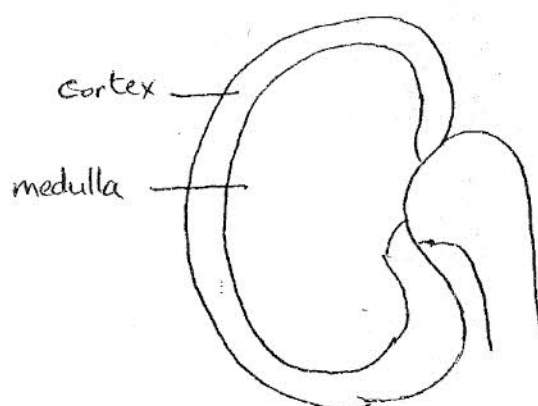
b) Account for the observation made after 24 hours?

(2 mks)

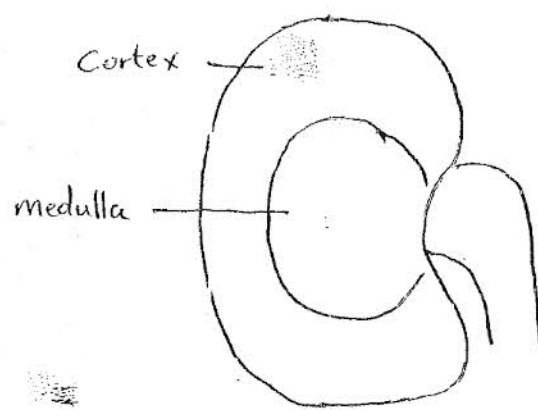
c) What major improvement would you suggest the student ought to have made for his results to be reliable?

(1 mk)

25. The following diagrams show a section through the cortex and medulla of two kidneys obtained from different mammals.



mammal A



mammal B

a) Which mammal stays in a desert? Explain.

(2 mks)

26. State the difference between habitat and ecological niche. (2 mks)

27. a) State two functions of aerenchyma tissue in hydrophytes (2 mks)

b) Name one method you would use to estimate the population of elephants in Tsavo National Park. (1 mk)

28. a) How do the following prevent self-pollination in flowering plants?

i) protandry (1 mk)

ii) heterostyly (1 mk)

b) Name the type of placentation found in a pawpaw. (1 mk)

29. a) State 2 roles of the placenta in human reproduction. (2 mks)

b) State two functions of Follicle stimulating Hormone in female reproduction. (2 mks)

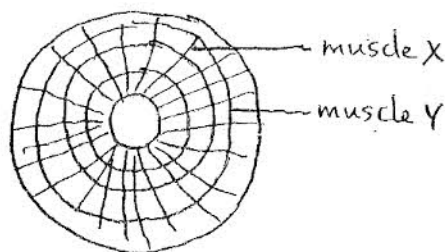
30. a) State the role of Juvenile Hormone in insect metamorphosis. (1 mk)

b) Name a hormone that induces parthenocarpy in plants. (1 mk)

31. a) State the main difference between chemical evolution and organic evolution. (2 mks)

c) State the main weakness of Larmack's Theory in explaining the mechanism of evolution. (1 mk)

32. The diagram below shows the iris of a mammalian eye.



What happens to muscle Y and X when the eye looks at an object in bright light? (2 mks)

Muscle Y

Muscle X

33. a) There are more male sufferers of colour blindness than females. Explain. (3 mks)

- b) Distinguish between gene mutation and chromosome mutation. (2 mks)

END
J.W.A.
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