Name _____ Adm No_____Class_____

ALLIANCE HIGH SCHOOL
END OF TERM THREE EXAMINATIONS
FORM THREE BIOLOGY
Instructions

- Write your name, class and admission number in the spaces provided above.
- Answer ALL questions in the spaces provided.

1. (a) Name two classes of the phylum arthropoda that have cephalothorax (2mks)

_____

_____

(b) Give two characteristics of kingdom fungi (2mks)

_____

_____

_____

2. a) Give one function of the following parts of a microscope; (2mks)

(i) Diaphragm

_____

_____

(ii) Eye piece lens

_____

_____

(b) Distinguish between magnification and resolution of a microscope. (2mks)

(i) Magnification

_____

_____

(ii) Resolution

_____

_____

3. (a) Name the process by which mineral salts are absorbed by plant roots (1mk)

(b) Give one role of osmosis in animals (1mk)

(c) State two ways in which root hairs are adapted to their function (2mks)

4. (a) Give two roles of testes in humans (2mks)

(b)Name two organs that produce progesterone (2mks)

5. (a) Name two mechanisms that prevent self-pollination in flowering plants; (2mks)

(b) What is an entomorphilus flower? (1mk)

(c) Name the type of reproduction whereby the parent organism divides into two daughter cells (1mk)

6. (a) What is the role of contractile vacuole found in aquatic micro-organism (1mk)

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_____

(b) Give two structural modification of nephron in the kidney of desert animals (2mks)

_____

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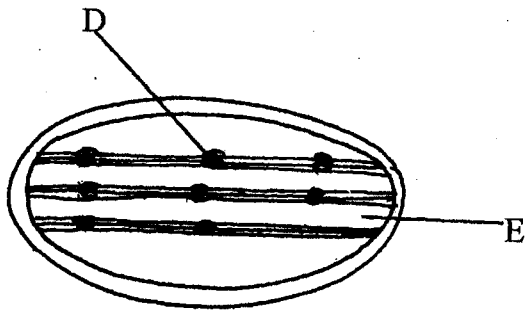
(c) Name the hormone responsible for the reabsorption of water in mammals (1mk)

_____

7. Use the following figure to answer the questions that follow.



(a) What is the role of the above organelle? (1mk)

_____

(b) Give two ways in which the organelle is adapted to its function (2mks)

_____

_____

8. The equation below shows a respiration of a certain food substance

$2C_5H_{98}\ 145O_2 \longrightarrow 102CO_2 + 98H_2O$ + energy

(a) Calculate the respiratory quotient (2mks)

(b) Suggest the possible food substrate that was oxidized. (1mk)

(c) Name the product of anaerobic respiration in plant (1mk)

9. (a) Name **two** gaseous exchange sites in plants (2mks)

(b) Give **two** differences between guard cells and other epidermal cells (2mks)

10. (a) Give a reason why gills of fish are highly vascularized (1mk)

(b) Name **one** respiratory disease in humans (1mk)

11. (a) State **two** ways through which excessive use of pesticides may affect soil fertility (2mks)

(b) Give **two** control measures of schistosomiasis (2mks)

(c) Name the method that would be used to estimate the population of blackjack in a garden. (1mk)

12. (a) Give **two** ways through which HIV/AIDS can be transmitted from mother to child (2mks)

(b) A person of blood group B should not donate blood to a person of blood group A. Explain (2mks)

(c) The Boran cattle are known to be resistant against Trypanosomiasis. Name the type of immunity exhibited by Boran cattle. (1mk)

13. (a) An animal has the dental for formula

$$i\frac{3}{3}\ C\frac{1}{1}\ Pm\frac{4}{4}\ \ m\frac{2}{3}$$

(i) How many teeth does it have in total (1mk)

(ii) What is its mode of feeding? (1mk)

(b) Besides digesting starch, give other two roles of saliva (2mks)

(c) Give the role of vitamin K in the human body (1mk)

14. (a) What is the effect of low temperature on enzyme activity? (1mk)

(b) Name other two factors that may reduce the rate of enzyme activity. (2mks)

15. (a) How do identical twins and fraternal twins arise?

(i) Identical twins (1 mk)

ii) Fraternal twins. (1 mk)

(b) Why is the maternal blood circulatory system not directly connected to the fetal blood circulatory system? (1mk)

16. A solution of sugarcane was boiled with hydrochloric acid; sodium carbonate was added; cooled and Benedict's solution was added then boiled. An orange precipitate was formed.

(a) Why was the solution boiled with hydrochloric acid (1mk)

(b) Why was sodium carbonate added? (1mk)

(c) Name the type of reaction that takes place when simple sugars combine to form complex sugar. (1mk)

17. Study the reaction below:

Hydrogen peroxide $\xrightarrow{X}$ water and oxygen.

(a) Name enzyme X (1 mark)

_____

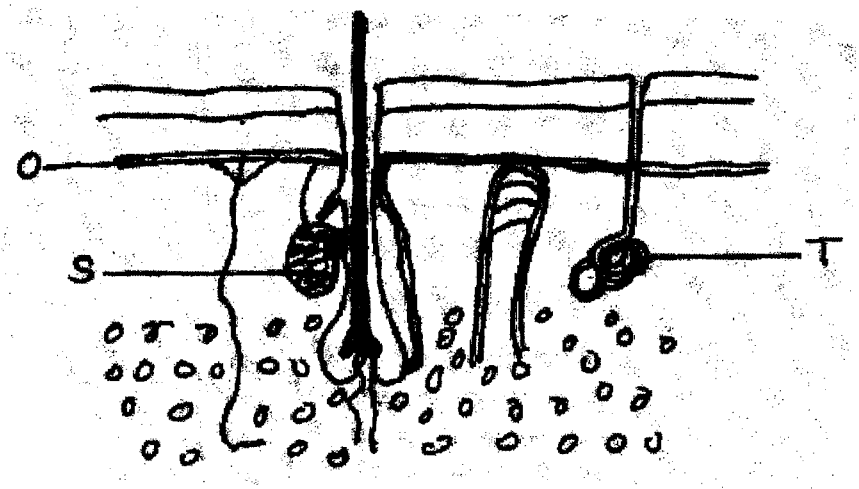
(b)Explain the importance of the above reaction in tissue of living organisms. (1mark)

_____

18. Give a reason why staining is important when preparing specimen for observation by use of light microscope. (1 mark)

_____

19. The diagram shows a cross section of mammalian skin.



(a) Name parts T and S (2marks)

(i) T_____

(ii) S_____

(b) State the function of part labeled S. (1 mark)

_____

_____

20. State **two** processes that occur during anaphase of mitosis. (2 marks)

_____

_____

21.State one significance of meiosis (1 mark)

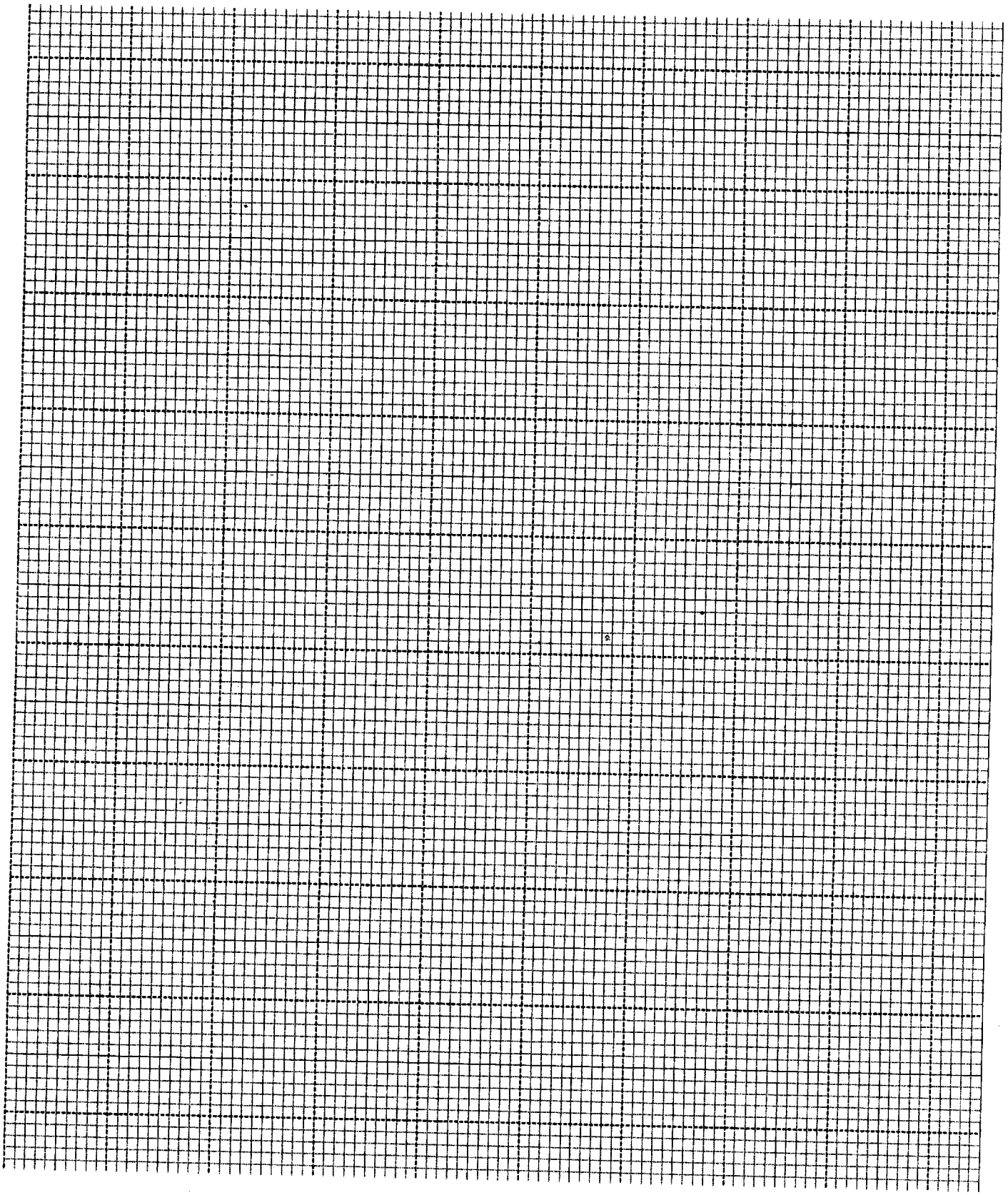
_____

_____

22. In the experiment to determine the effects of ringing on the concentration of sugar in a tree the phloem ring of bark from the stem of a tree was cut and removed. The amount of sugar in grams per $16cm^3$ piece of bark above the ring was measured over a 24 hour period. Sugar was also measured in the bark of a similar stem of a tree which was not ringed. The results are shown in the table below.

Time of the day	Amount of sugar in g/ $6cm^3$ piece of bark	
	Normal stem	Ringed stem
0645	0.78	0.78
0945	0.80	0.91
1245	0.81	1.01
1545	0.80	1.04
1845	0.77	1.00
2145	0.73	0.95
0045	0.65	0.88

(a) Using the same axes, plot a graph of the amount of sugar against time. (6mks)



(b) At what time was the amount of sugar highest in the
(i) Ringed stem (1mk)

(ii) Normal stem (1mk)

(c) How much sugar would be in the ringed stem if it was measured at 0345 hours? (1mk)

(d) Give reason why there was same amounts of sugar in the stems of both trees at 0645hour (2mks)

(e) Account for the shape of the graph for the tree with ringed stem between:
(i) 0645 hours and 1545 hours (3mks)

(ii) 1545 hours and 0045 hours (2mks)

(f) Name the structures in phloem that are involved in the translocation of sugars. (2mks)

(g) Other than sugars name two compounds that are translocated in phloem. (2mks)

23. Briefly discuss the role of hormones in human female reproduction (10mks)