NAME_____ INDEX NO_____

SCH. NO_____ CLASS_____

2314/1
BIOLOGY
PAPER 1 (THEORY)

JULY 2013
TIME 2 HRS.

ALLIANCE HIGH SCHOOL
TRIAL EXAMINATIONS 2013

Instructions to Candidates

a) Write your name and index number in the spaces provided above.

b) Answer **ALL** the questions in the spaces provided.

For examiners use only

Question	Maximum score	Candidates score
1- 28		

1. Give one term that stands for the following description. (2 mks)

   i) The study of cells of organisms. _____

   ii) The study of fossil records _____

2. Name the compound formed when carbon (iv) oxide combines with haemoglobin (1 mk)

   _____

3. Give two reasons why the photosynthetic theory is not considered a satisfactory explanation for opening and closing of stomata. (2 mks)

   _____
   _____
   _____
   _____

4. What is the significance of a hump in some desert mammals e.g. camel? (2 mks)

   _____
   _____

5. Name the blood vessels that supply blood to
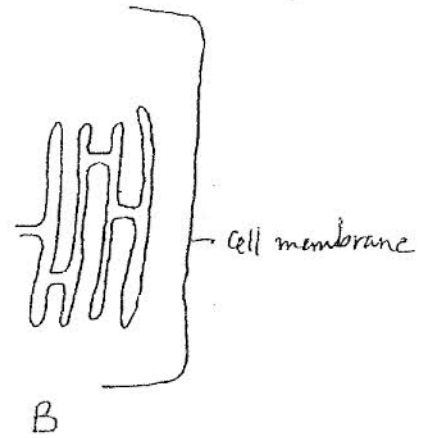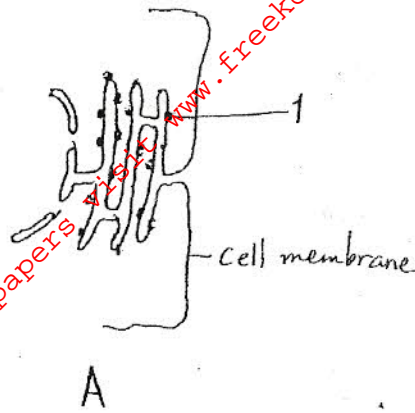
   i) Liver _____

   ii) Alimentary canal _____

   iii) Heart Muscles _____

   (3 mks)

6.   The following are two organelles within a cell that deal with transport of substances.

Name substances transported in organells

i)   A _____   (1 mk)

     B _____   (1 mk)

ii)   State the function of structure labeled 1 in organelle A.   (1 mk)

     _____

7.   Name one organell that is
a)   Present in animal cell but absent in plant cell.   (1 mk)

     _____

b)   Present in plant cell but absent in animal cell.   (1 mk)

     _____

8.   State **Two** main structural differences between phagocytes and lymphocytes.   (2 mks)

     _____

     _____

     _____

     _____

9. Insects have openings called spiracles by which gaseous exchange takes place. Give two ways by which insects manage to prevent excessive water loss through these openings? (2 mks)

_____

_____

_____

10. What is the significance of a counter – flow system in the gaseous exchange mechanism of a bony fish? (2 mks)

_____

_____

_____

11. The diagram below shows part of a nephron.
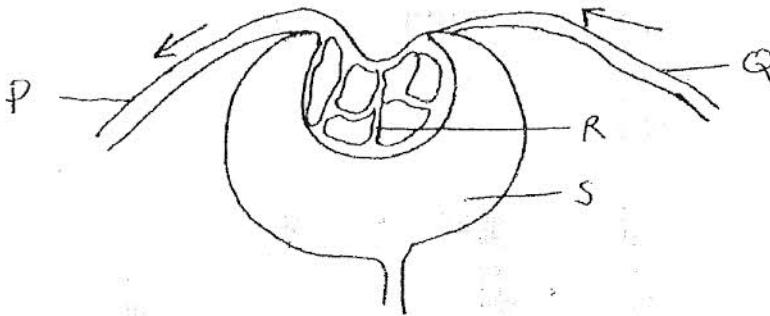
a) Name the part labeled P._____ (1 mk)
b) Name the substances found in structure labeled S (1 mk)

_____

c) State the structural difference between P and Q. (1 mk)

_____

_____

_____

d) In one word give the function of structure R. (1 mk)

_____

4

12. State two main roles of aerenchyma tissue in hydrophytes. (2 mks)

_____

_____

13. Name the organism that causes each of the following diseases. (3 mks)

    a) Amoebic dysentery _____

    b) Typhoid _____

    c) Cholera _____

14. a) State the main significance of mitosis and meiosis. (2 mks)

    Mitosis _____

    _____

    Meiosis _____

    _____

    b) Name the process of
      i) Cytoplasm division _____ (1 mk)
      ii) Nuclear division. _____ (1 mk)

15. What is HIV and DNA in full? (2 mks)
    HIV

    _____

    DNA _____

16. A researcher mated fruit flies with red eyes. He looked at the eye colour of 1568 offspring and found that 392 had brown eyes and the other 1176 had Red eyes. Let letter R represent the gene for eye colour.

    a) What are the likely genotype of the parents? (2 mks)

b) Predict the outcome of a cross between the red – eyed flies. (4 mks)

c) What was the genotypic ratio of the offspring? (1 mk)

_____

_____

d) State how you can identify the genotype of the red – eyed fly (1 mk)

_____

_____

17. To estimate the population size of mosquitoes in Ondiri Village in Kiambu County. Kenya, medical Research Institute researchers caught 400 mosquitoes which they marked and released. After 24 hours 200 mosquitoes were caught out of which 80 had the marks.

a) Suggest the possible instrument that may have been used to catch eh mosquitoes. (1 mk)

_____

b) Calculate the population size of the mosquitoes in the village. (2 mks)

_____

_____

_____

_____

6

c) What name is given to the method used above to estimate the population of mosquitoes in Ondiri Village? (1 mk)

_____

18. State 3 characteristics of active Transport. (3 mks)

_____

_____

19. State Two functions of smooth muscles along alimentary canal in mammals. (2 mks)

_____

_____

_____

20. a) What is eye accommodation? (1 mk)

_____

(1 mk)
b) Explain how the iris muscle controls the size of the pupil when exposed to dim light. (2 mks)

_____

_____

_____

21. a) State two functions of placenta in a pregnant mammal. (2 mks)

_____

_____

b) Give one function of amniotic fluid during pregnancy. (1 mk)

_____

22. The diagram below represents a side view of a mammalian bone
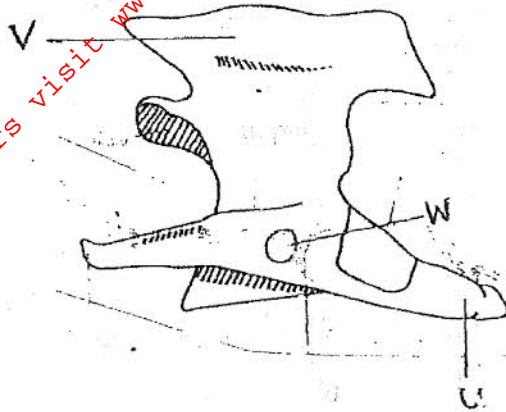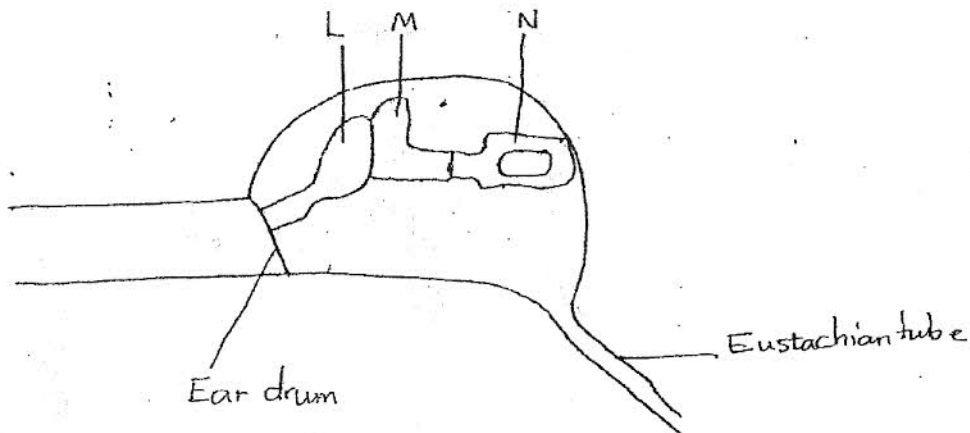

a) Name the parts labeled U and W. (2 mks)

U_____

W_____

b) State the region of the body in which the bone is found. Give a reason (2 mks)

Region_____

_____

Reason_____

_____

23. The diagram below shows part of the mammalian ear.

a)   Name the structures labeled L,M and N   (3 mks)
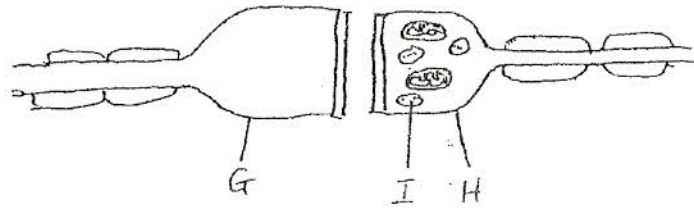
L _____

M _____

N _____

b)   State the function of:

    i)   Ear drum   (1 mk)

_____

_____

    ii)   Eustachian tube   (1 mk)

_____

_____

24.   The diagram below shows a synapse.

a)   i)   On the diagram show using an arrow the direction of impulse transmission. (1 mk)
        ii)   Name structures G and H.   (2 mks)

        G _____

        H _____

b)   State one function of a synapse   (1 mk)

_____

_____

25. The paddles of whales and fins of fish adapt these two organisms to aquatic habitats.
   a) Name the evolutionary process that may have given rise to such similar structures. (1 mk)
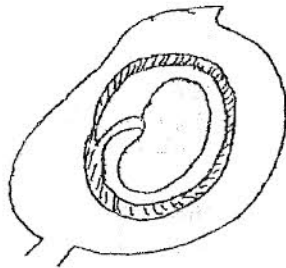
   _____

   b) What name is given to such structures? (1 mk)

   _____

   c) What is the main difference between chemical evolution and organic evolution? (2 mks)

   _____

   _____

   _____

26 a) State the types of placentations shown in the diagrams below. (2 mks)
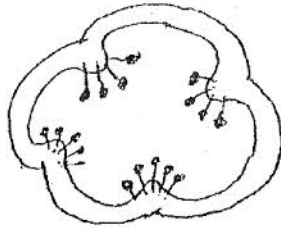
   Placentation _____

   Placentation _____

   b) i) State one structural difference between a fruit and a seed. (1 mk)

   _____

ii) What is a caryopsis? (1 mk)

_____

_____

27. Why are xylem vessels more efficient than tracheids elements in the transport of water in plants? (2 mks)

_____

_____

_____

28. Distinguish between naturally acquired passive immunity and artificially acquired passive immunity. (2 mks)

_____

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