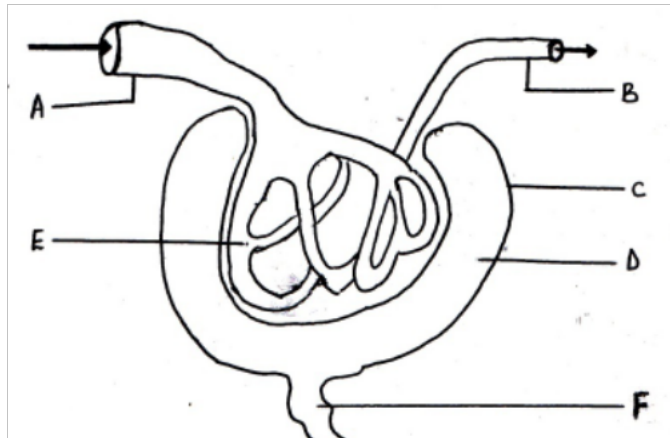


S.4 BIOLOGY

1.



(a) What is the name given to the excretory unit?

.....

(b) Name the parts labeled;

A :

B :

C :

D :

F :

c. What is the importance of the diameter of vessels A and B

.....

.....

.....

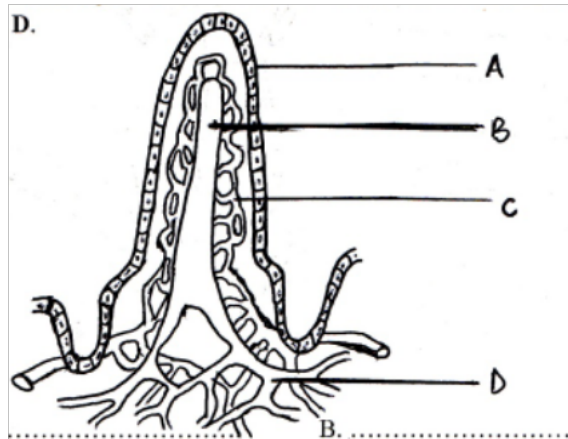
d) state the difference in the composition of blood in vessel A and B

.....

.....

.....

2. (a) The diagram in the figure below shows the structure of a villus. Label parts marked **A** to **D**.



A:..... B.
D. D.

- (b) What food substances enter;

(i) A :.....
(ii) D:

- (c) State two factors which make a villus an effective absorbing structure.

(i)
.....
(ii)
.....

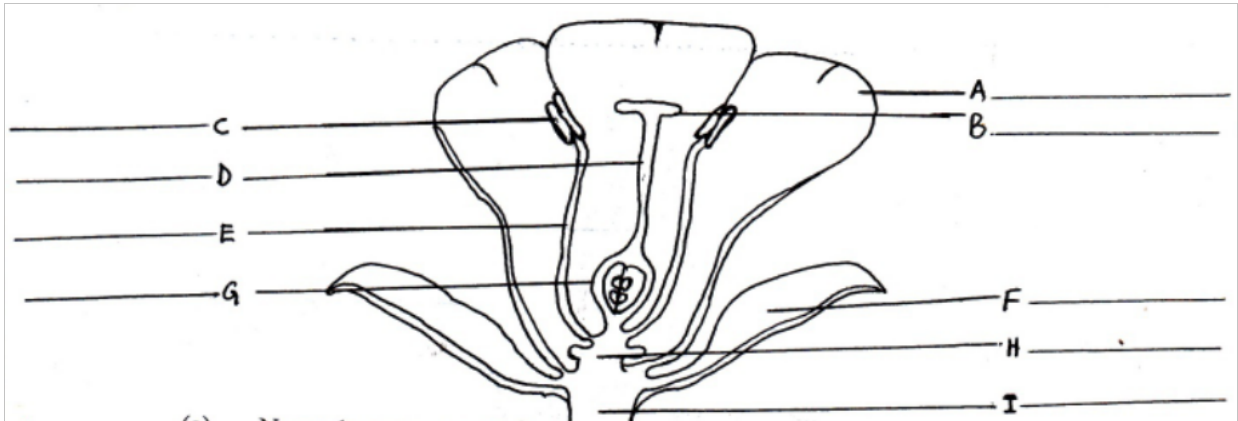
- (d) How does the absorbed food in **D** reach the general circulation?

.....
.....

- (e) State **two** nutrients that are absorbed in the gut before reaching the villus.

(i)
(ii)

3.



- (a) Name the parts **A** to **J** on the diagram.
 (b) What happens to the following parts after fertilization?

- (i) Ovule
 (ii) Ovary
 (iii) Integument
 (iv) Stigma
 (v) Egg cell nucleus

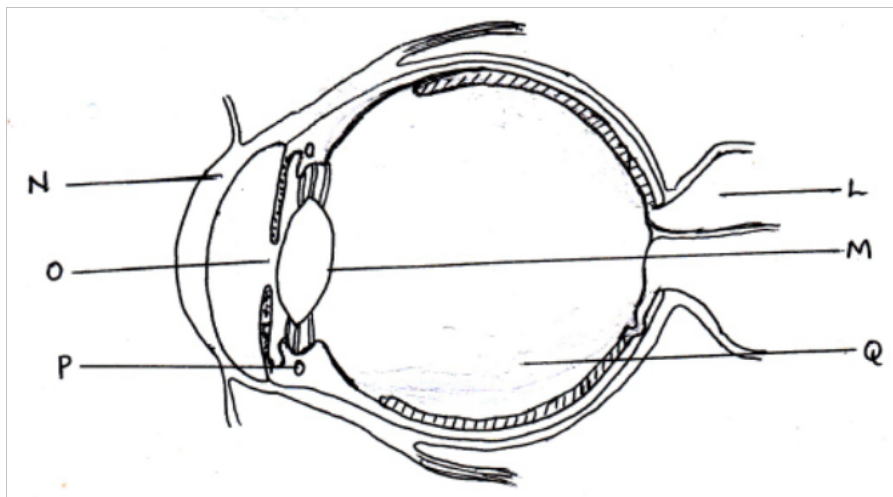
c) How are insect pollinated flowers adapted for pollination

.....

d) State any four differences between sexual reproductions in man and sexual reproduction in a flowering plant.

Sexual reproduction in man	Sexual reproduction in a flowering plant

4.



In the diagram above, name the parts **L** to **Q**.

L :

M :

N :

O :

P :

Q :

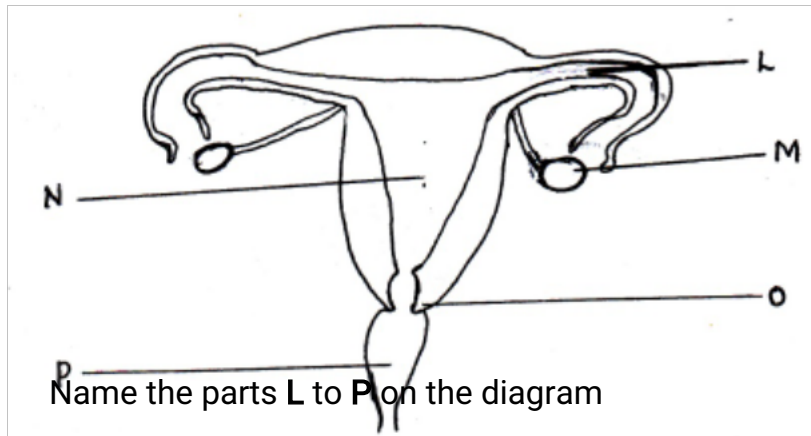
(b) What are the functions of parts **N** and **Q**?

O :

Q :

(c) What happens to the shape of the eye – lens when a person turns his eyes from looking at a page in a book to look at an aeroplane in the sky?

5.



(a) Name the parts **L** to **P** on the diagram

L:

M:

N:

O:

P:

(b) State any **two** functions of **N**.

(i)

(ii)

(c) In what two ways are parts **L** and **N** adapted to their functions?

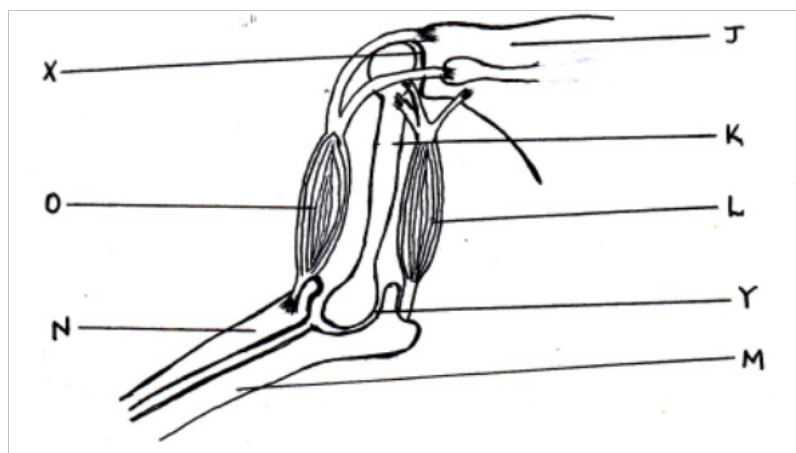
L (i)

(ii)

N (i)

(ii)

(d) The diagram below shows the internal structure of a human arm.



(i) Name the parts labeled;

J:..... M:.....

K: N:

L: O:.....

(ii) Name the type of joint that exists at **X** .

.....

(iii) Describe how structures **L** and **O** bring about movement of the arm at joint **Y**.

.....

.....

.....

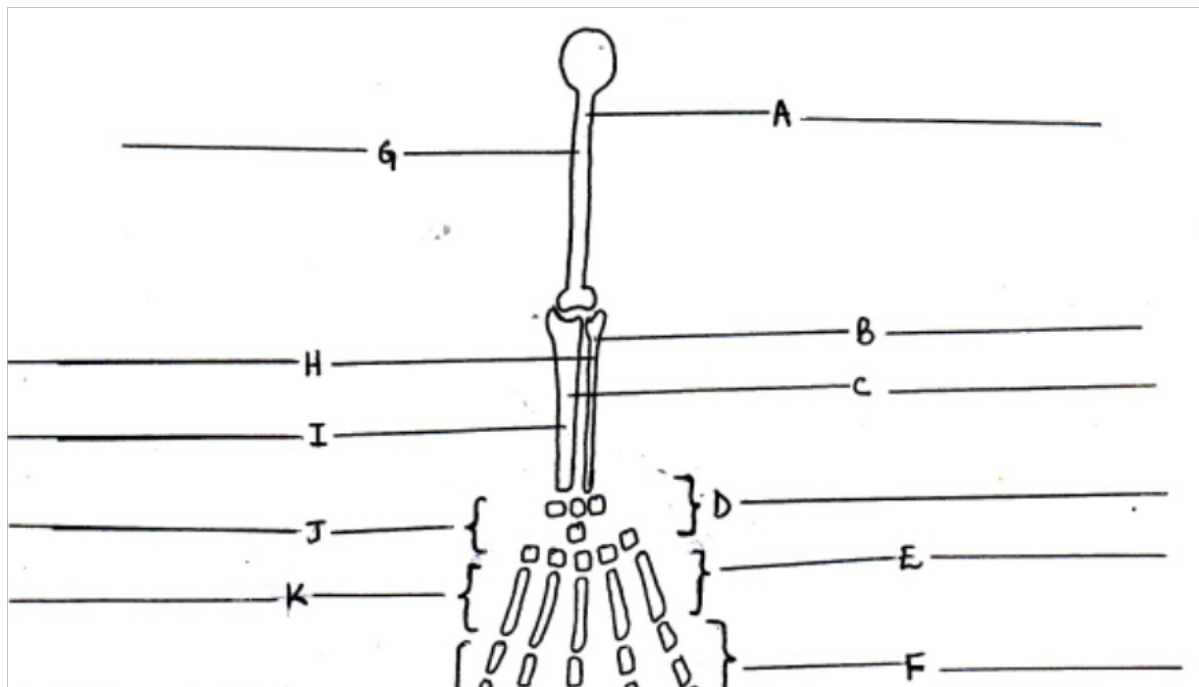
.....

(iv) What substance is likely to accumulate in **L** and **O** due to anaerobic respiration?

.....

.....

6. Study the diagram below and answer the questions that follow;



(a) Figure **A – F** represent the arm, while G – L represent the leg.
Label the parts A – L taking into the above considerations

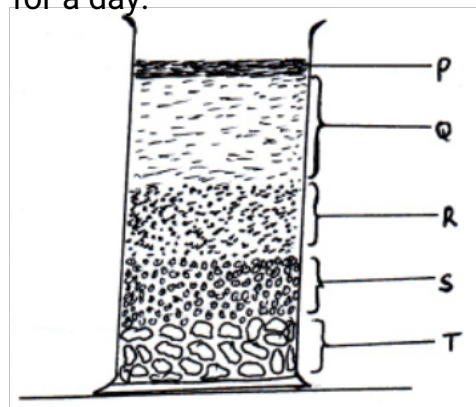
(b) What general name can be given to figure above?

.....

(c) Of what importance is the above structure to the study of science?

.....

7. The figure below represents soil which was shaken up in water and left to settle in a jar for a day.



(a) Label **P – T**

P :

Q :

R :

S :

T :

(b) Give the composition of **P**.

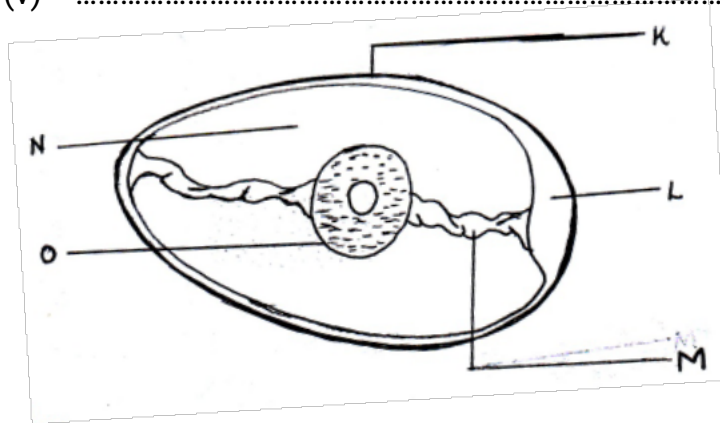
.....

(c) Name the type of soil that is richer in **S** and **T** than in **Q** and **R**.

(d) State **five** ways in which forests help in soil conservation.

- (i)
- (ii)
- (iii)
- (iv)
- (v)

8.



The drawing above represents a bird's egg. Label parts **K – O**.

- (a) K :
- L :
- M :
- N :
- O :

(b) State the functions of each of the parts labeled.

- K :
- L :
- M :
- N :
- O :



9.

The diagram above represents a system in the body;

(a) Which system is it?

.....

(b) Name **A – F**.

A :

B :

C :

D :

E :

F :

(c) Name examples of exocrine glands.

(i)

(ii)

(iii)

(iv)

(d) Which substance is secreted by part **D**?

.....

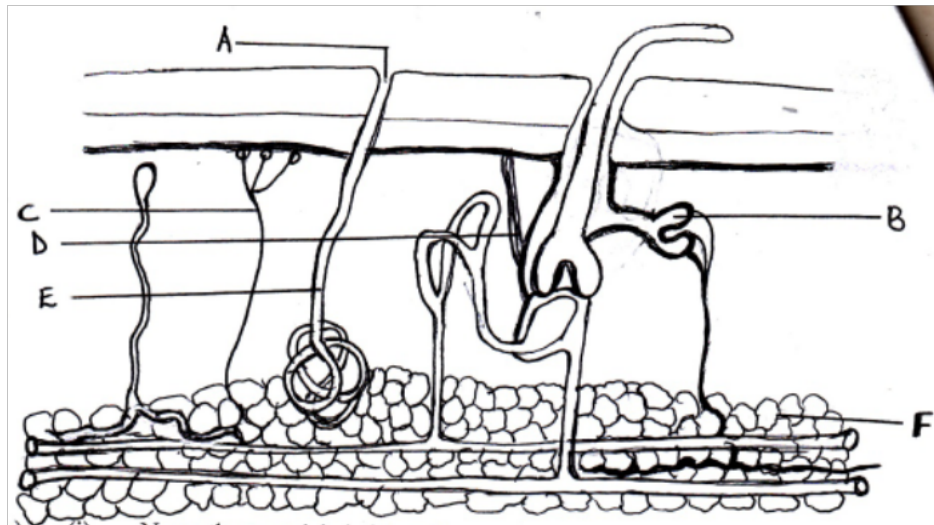
(e) What is the role of the substance secreted above?

.....

.....

.....

10.



(a) (i) Name the parts labeled **A** to **F**.

A :
 B :
 C :
 D :
 E :
 F :

(ii) State the function of each of the parts labeled **A**, **B**, **D** and **F**.

A :
 B :
 D :
 F :

(b) Using any one observable feature on the diagram, suggest the type of temperature condition the skin is responding to. State the observable feature as a reason for your answer.

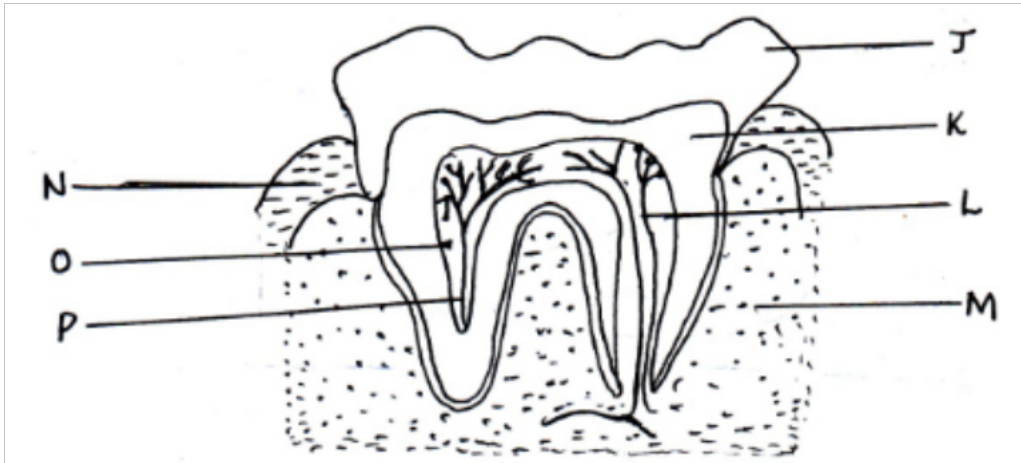
Temperature condition

.....

Observable feature

.....

11.



The above structure shows a human tooth.

(a) Which type of tooth is it?

.....

(b) Label parts **J – P**

J :

K :

L :

M :

N :

O :

P :

(c) Give the function of the above structure in man.

.....

.....

(d) How is the above tooth adapted to function mentioned in (c) above?

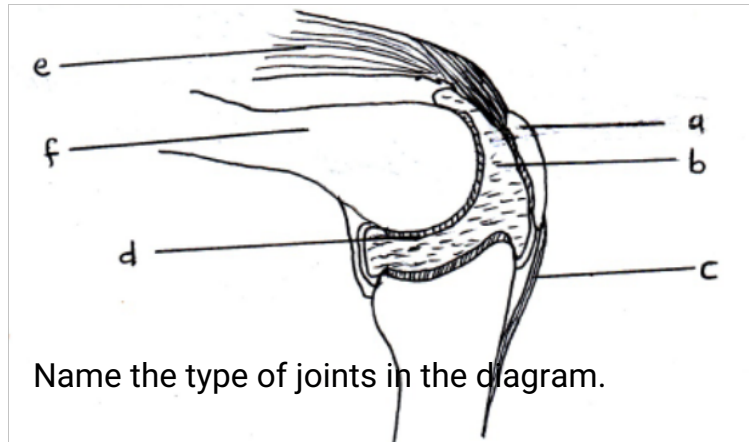
.....

.....

(e) State ways by which the person can ensure possession of good health teeth.

.....

12. Study the figure and answer the questions that follow:-



(a) Name the type of joints in the diagram.

(b) Label the points **a** to **f** on the diagram.

(c) Give the functions of ;

(i) b :

(ii) d :

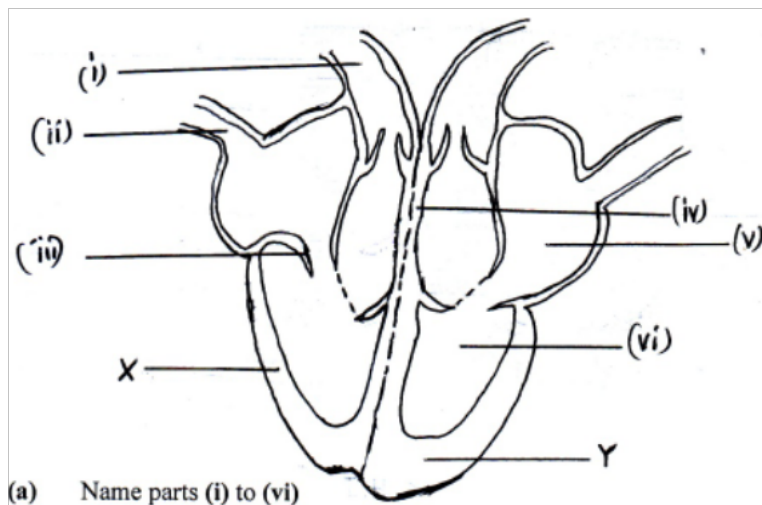
(iii) e :

(d) Name two parts of the body where such a joint is found.

(i)

(ii)

13. The figure below shows the vertical section of a mammalian heart.



(a) Name parts (i) to (vi)

(a) Name parts (i) to (vi)

- (i)
- (ii)
- (iii)
- (iv)
- (v)
- (vi)

(b) What is the function of the structure labeled?

.....
.....

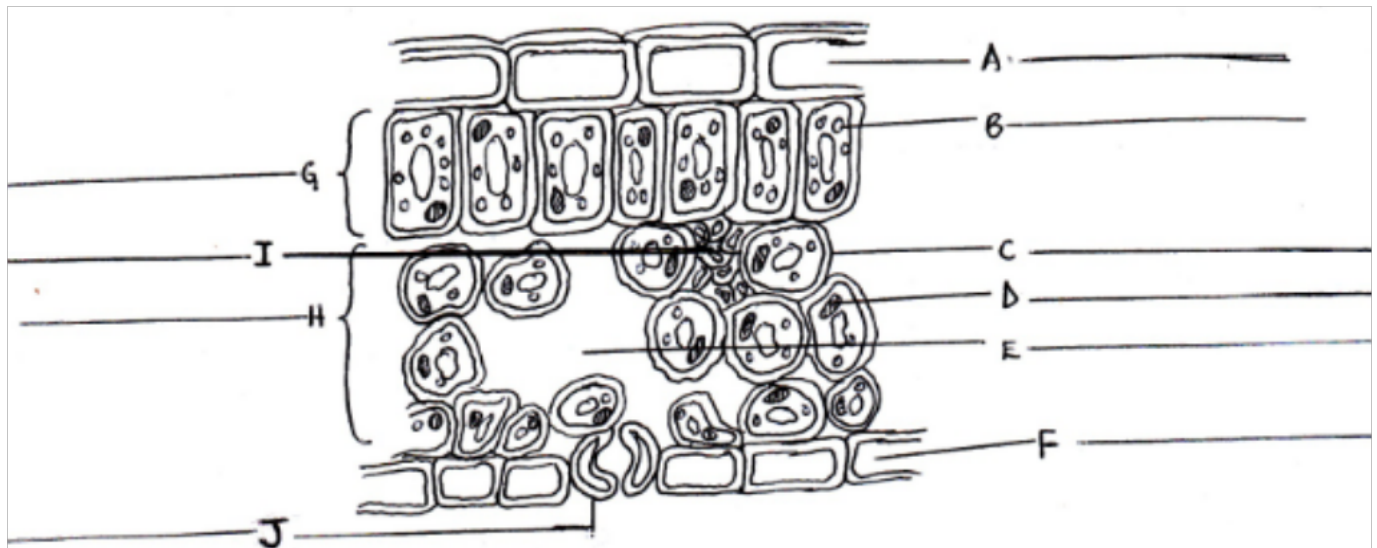
(c) Which side of the heart contains de – oxygenated blood?

.....

(d) Explain why wall Y is thicker than wall X.

.....
.....
.....
.....

14. The diagram below shows a cross – section of a leaf.

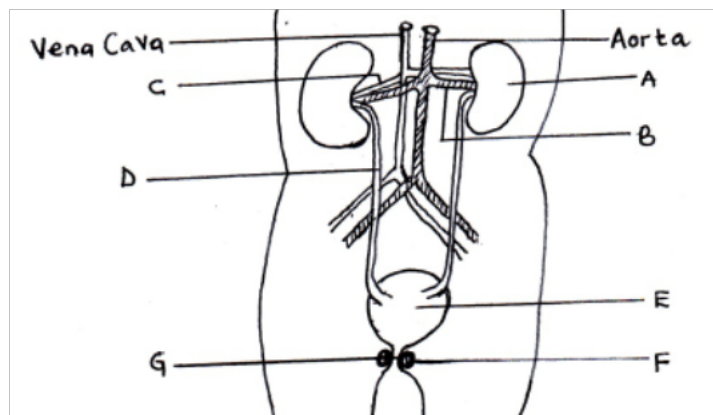


a) Name parts labeled **A, B, C, D, E, F, J, G, H, I**

b) Give differences between layer G and H

c) Basing on the observable features from the drawing above how is the leaf adapted to performing its function

15. (a) Name the parts A – F in the diagram below



(b) Briefly explain why concentration of Urea in **B** is less than in **C**.

.....
.....

(c) What is the function of E?

.....
.....

(d) A sample of urine was found to contain sugar.

(i) Suggest the type of sugar likely to be contained in the Urine sample.

.....
 (ii) What hormone is likely to be deficient in the person from whom the urine sample was taken?

.....

(iii) What disease is this person likely to be suffering?

.....

(e) Another individual was found to be passing a lot of urine but without sugar

complaining of thirst most of the time.

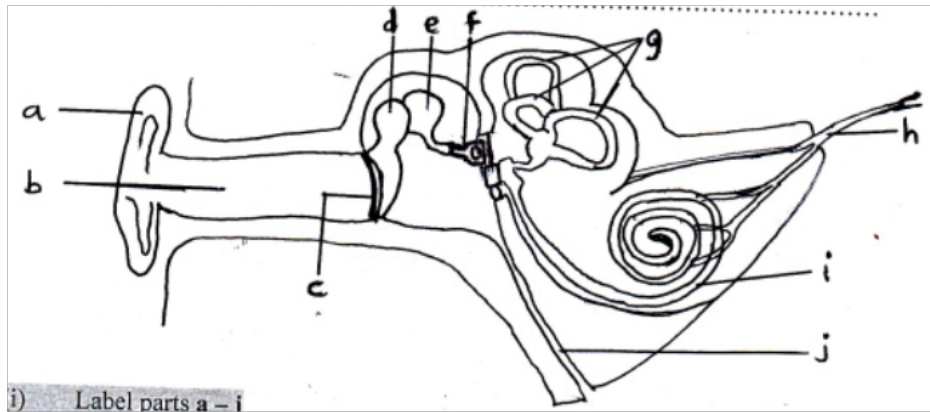
(i) Suggest the hormone that is deficient in this individual.

.....

(ii) Name the gland that produces the hormone referred to in (e) (i) above.

.....

16.



(i) Label parts a – j

- (a)
- (b)
- (c)
- (d)
- (e)
- (f)
- (g)

- (h)
- (i)
- (j)

(ii) What is the use of the structure above?

.....

.....

(iii) What collective name is given to parts **d**, **e** and **f**?

.....

(iv) What is the role of part **g**, **h**, **j**?

g :

.....

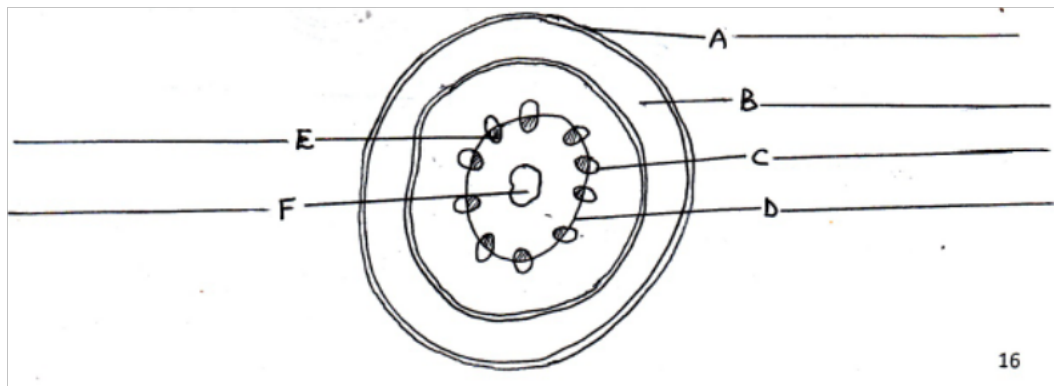
h :

.....

j :

.....

17. The figure below shows a cross – section of a young dicotyledonous stem.



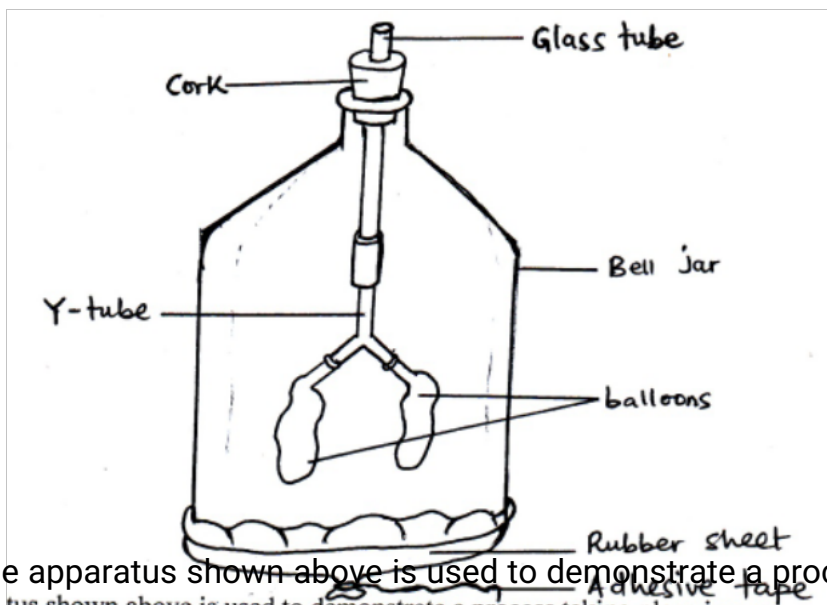
- (a) Name the parts labeled **A to F** on the drawing.
- (b) State the functions of parts labeled **B**, **C** and **E**

B :

C :

E :

18.



The apparatus shown above is used to demonstrate a process taking place in man.

(a) Identify the process.

.....

(b) What do the following structures represent in man?

(i) Balloon

.....

(ii) Glass tube

.....

(iii) Bell jar

.....

(iv) Sheet of rubber

.....

(c) If the sheet of rubber is pulled down by means of adhesive tape;

(i) State what is observed.

.....

.....

(ii) Give a reason for your answer

.....

.....

.....

(d) What process in mans is represented in (c) above?

.....

(e) Give any **one** way in which the apparatus does not exactly represent the one in man.

.....

.....

19. An ecologist carried out a survey to estimate the number of organisms in a certain lake. The results were as follows:

Organisms	Estimated number
Microscopic plants	43,500
Small fish	1200
Mosquito larva	4,100
Crocodiles	12
Large fish	80

(a) Which of the above organisms are;

(i) Producers

.....

(ii) Primary consumers

.....

(iii) Tertiary consumers

.....

(b) Define the following terms as used in ecology.

(i) Ecosystem

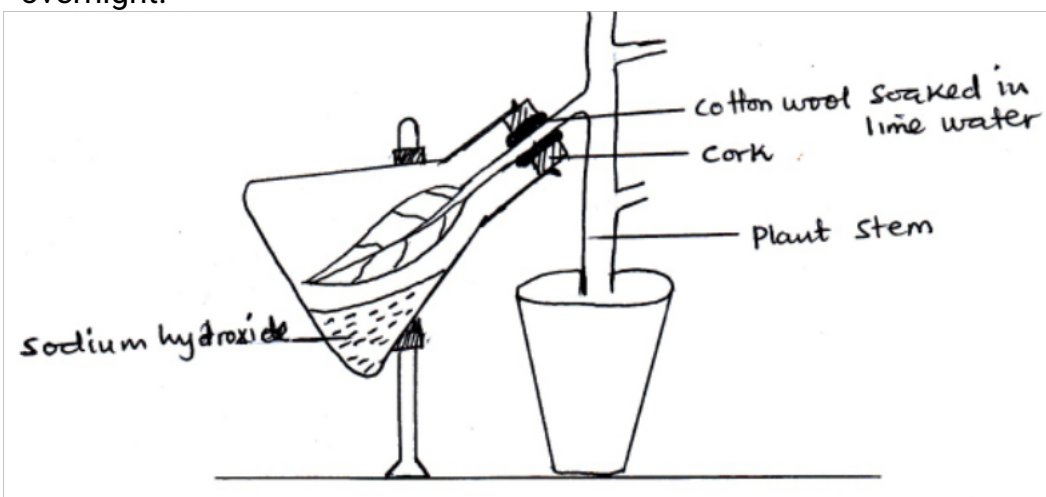
.....
.....

(ii) Habitat

.....
.....

(c) Draw a suitable food web to show the flow of energy

20. The figure below is an experimental set up to investigate the conditions for photosynthesis. The plant is in light but had previously been kept in the dark overnight.



(a) Which condition is being investigated?

.....
.....

(b) Give a reason;

(i) Why it was necessary to keep the plant in the dark overnight?

.....
.....
.....
.....

(ii) Why the leaf was left attached to the plant?

.....
.....
.....
.....

(c) What is the purpose of sodium hydroxide in the flask?

.....
.....
.....

(d) How would you test for starch in the leaf after sometime?

.....
.....
.....

21. (a) In the space below, draw and label the structure of the motar neuron.
(show the direction of movement of impulse)

(b) Name **two** other neurons and their functions.

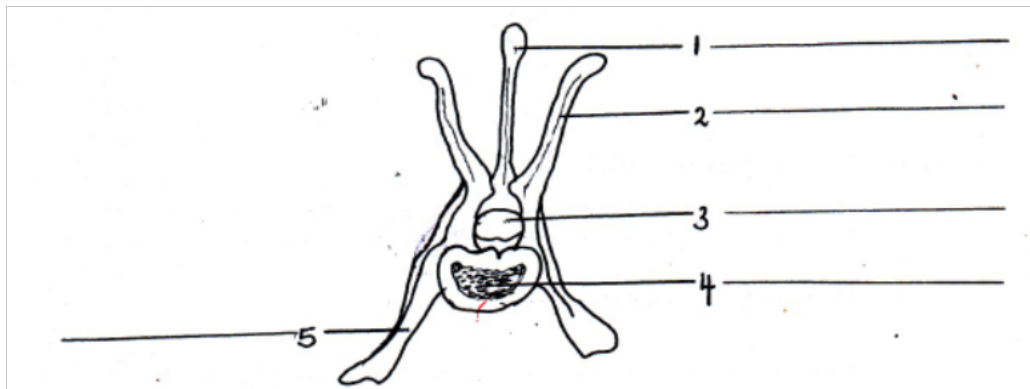
(i)

.....

(ii)

.....

22.



(a) Identify the bone in the structure above.

.....

(b) Name parts; 1 to 5

(c) Give **one** function of the structure above.

.....

.....

(d) Name **four** other types of such bones as the one named in (a).

(i)

(ii)

(iii)

(iv)

23.



(a) Name the muscles labeled

A :

B :

(b) Name the type of joint at **C**.

.....

(c) Name the bones labeled

D₁ : D₂

D₃ : D₄

D₅ : D₆

(d) State the condition of the muscle **A** and **B** for the wing to be in the position.

.....

.....

.....

.....

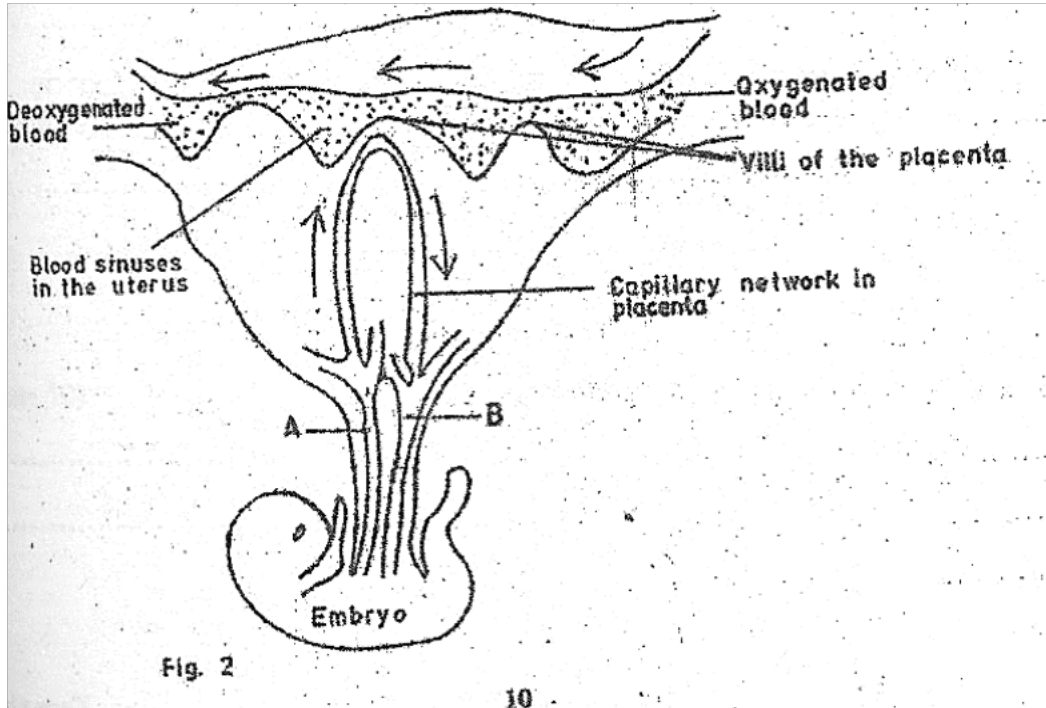
(e) Name the organism to which the above structure belongs;

.....

.....

.....

24. Fig. 2 shows the relationship between blood supply of the embryo, placenta and uterus.



(a) State the functions of the;

(i) Placenta to the embryo
(marks)

(04

.....

.....

.....

.....

.....

(ii) Villi on the placenta

(02 marks)

.....

.....

.....

.....

(b) Give two reasons why the mother's blood does not mix with that of the embryo.

(02 marks)

.....

.....

.....

.....

(c) Give two differences in the composition between the blood in vessels A and B.

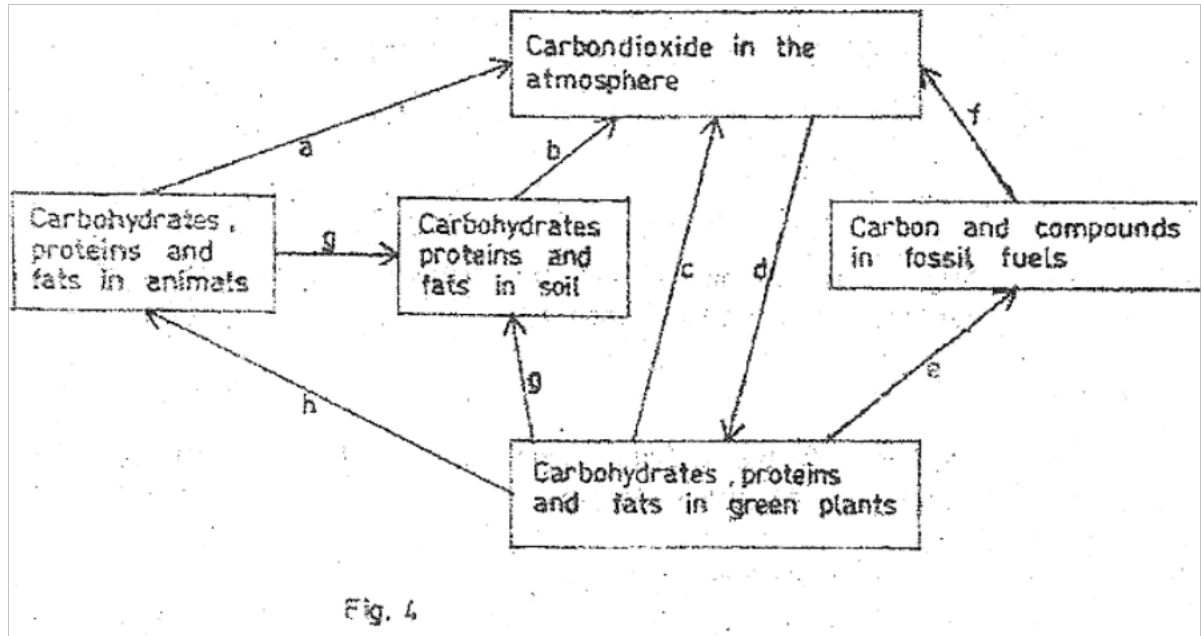
(02 marks)

.....

.....

.....

25. Figure 4 represents the carbon cycle.



(a) Name the processes labeled a, c, f and g (02 marks)

a.

c.

f.

g.

(b) State one physical factor that promotes process b. (01 mark)

.....

(c) Give two uses of process d to animals. (02 marks)

.....

.....

.....

.....

(d) Describe one way in which process e may be harmful. (02 marks)

.....

.....

.....

.....

(e) (i) Suggest one human activity that tends to lower the level of carbon dioxide in the atmosphere. (01 mark)

.....

.....

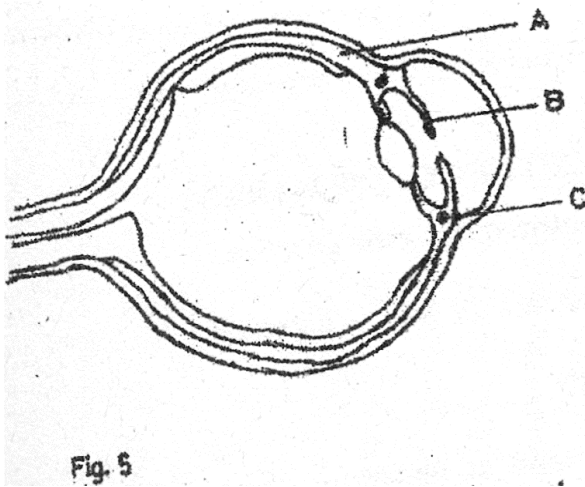
(ii) Explain how the activity suggested in (e)(i) lowers the level of carbon dioxide in the atmosphere. (02 marks)

.....

.....

.....
.....

26. Figure 5 represents a section through a mammalian eye.



(a) Give two functions of structure A to the eye.
marks)

(02

.....
.....
.....
.....

(b) (i) What stimulus does structure B respond to?

(01 mark)

.....

(ii) How does structure B respond to the stimulus stated in (b)(i)?
marks)

(03

.....
.....
.....
.....
.....

- (c) How is part C involved in the change of focus of the eye from a distant object to a near object? (04 marks)

.....

.....

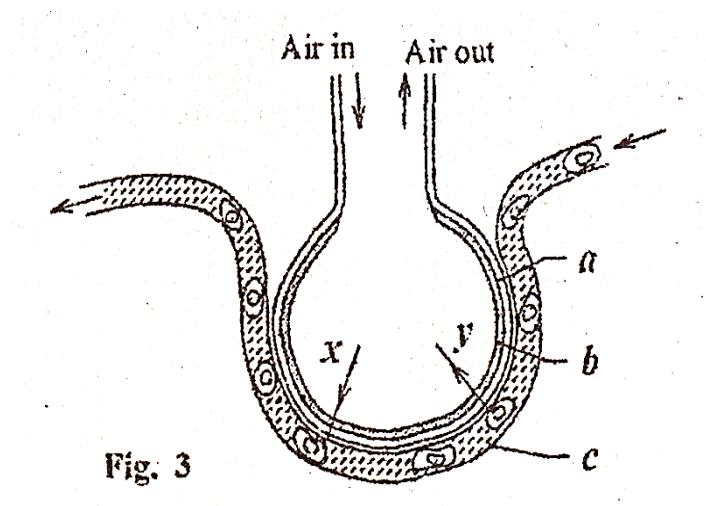
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27. Figure 3 shows a structure in the mammalian lung, study the figure and answer the questions that follow:



- (a) Name the
- (i) Parts labelled a, b, c (1 ½ marks)

a.

b.

c.

(ii) Gases indicated by arrows x and y. (01 mark)

x.

y.

(b) Explain how the features shown in the figure, enable the structure to function efficiently.
(5 ½ marks)

.....

.....

.....

.....

.....

.....

.....

.....

(c) State four differences between the air that goes into the structure and that which goes out of the structure.
(02 marks)

.....

.....

.....

.....

.....

.....