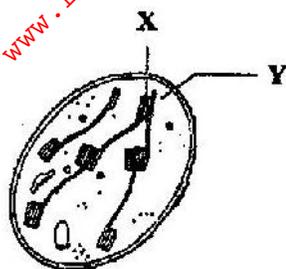
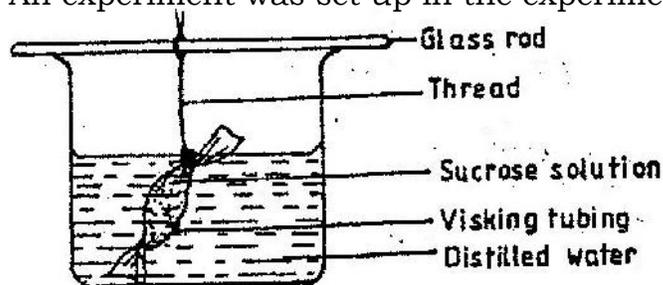


**BIOLOGY PAPER 231/1 K.C.SE 2006
QUESTIONS.**

1. a) State the functions of cristae in mitochondria.
b) The diagram below represents a cell organelle.



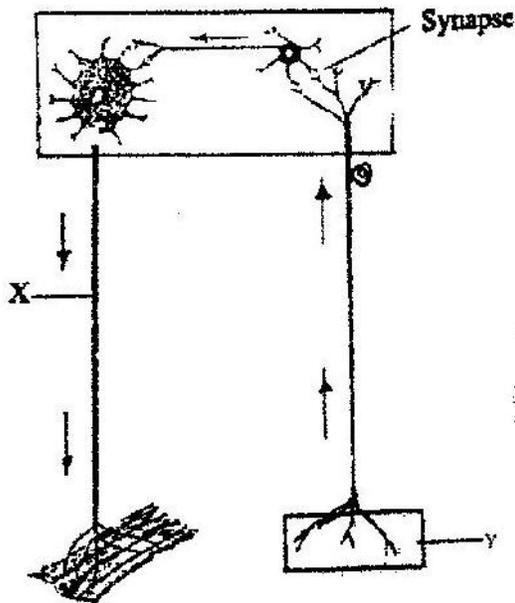
- (i) Name the part labeled Y. (1mk)
(ii) State the functions of the part labeled X. (1mk)
2. Name the part of the flower that develops into
a) Seed
b) Fruit (1mk)
3. a) Name two tissues in plants which are thickened with lignin. (2mks)
b) How is support attained herbaceous plants? (1mks)
4. a) Name the fluid that is produced by sebaceous glands. (1mk)
b) What is the role of sweat in human skin? (2mks)
5. State two ways in which floating leaves of aquatic plants are adapted to gaseous exchange. (2mks)
6. a) State three characteristics of Monera that are not found in other kingdoms. (3mks)
b) Name the class to which a termite belongs (1mk)
7. a) Name one defect of circulatory system in humans. (1mk)
b) state three functions of blood other than transport. (3mks)
8. State the role of vitamin C in humans. (2mks)
9. a) State two processes which occur during anaphase of mitosis. (2mks)
b) What is significance of meiosis? (2mks)
10. State the important of tactic response among some members of kingdom protista. (1mks)
11. State the role of insulin in human body. (1mks)
12. An experiment was set up in the experiment as show below.



The set up was left for 30 minutes.

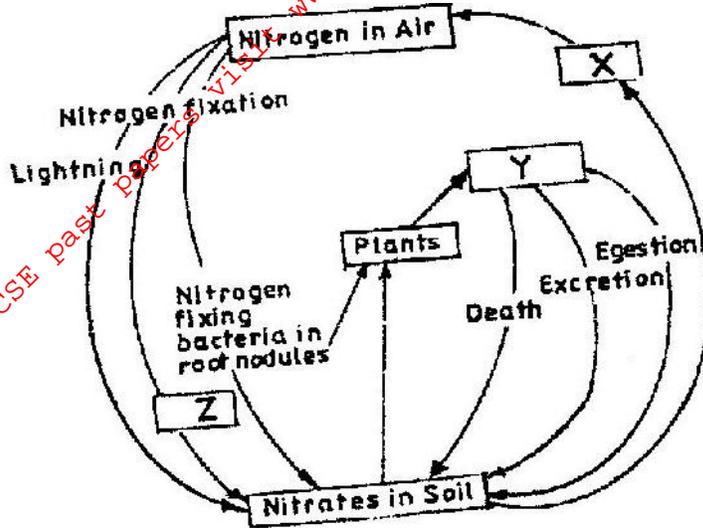
- a) State the expected results. (1mk)
b) Explain your answer in (a) above (3mks)
13. a) In what form is energy stored in muscles (1mk)
b) State the economic important of anaerobic respiration in plants. (2mks)
14. a) Distinguish between epigeal and hypogeal germination. (1,mk)

- b) Why is oxygen necessary in the germination of seeds? (2mks)
15. Explain continental drift as an evidence of evolution. (3mks)
16. What is the importance of the following in an ecosystem? (2mks)
- Decomposers
 - Predation
17. a) Distinguish between the terms homodont and heterodont. (1mk)
- b) What is the function of carnassial teeth? (1mk)
- c) A certain animal has no incisors, no canines, 6 premolars and 6 Molars in its upper jaw. In the lower jaw there are 6 incisors, 2 canines, 6 Premolars and six molars.
- Write its dental formula.
18. a) State two functions of bile juice in the digestion of food. (2mks)
- b) How does substrate concentration affect the rate of enzyme action? (1mk)
19. a) Explain how the following prevent self pollination. (1mk)
- Protogyny
 - Self-sterility.
- b) Give three advantages of cross pollination. (3mks)
20. a) What name is given to response to contact with surface exhibited by tendrils and climbing stems in plants?
- b) State three biological importance of tropisms in plants.
21. The diagram below represents a reflex arc in human.



- Name the parts labeled X and Y
 - Name the substance that is responsible for the transmission of an impulse across the synapse. (1mks)
22. a) State the function of ciliary muscles in the human eye. (1mk)
- b) State two functional differences between the rods and cones in the human eye. (2mks)
23. State the function of each of the following parts of human ear. (4mks)
- Ear ossicles
 - Cochlea
 - Semi circular canals

- d) Eustachian tube.
24. State four ways in which respiratory surfaces are suited to their function. (4mks)
25. a) A dog weighing 15.2kg requires 216kj while a mouse weighing 50g requires 2736kj per day. Explain. (2mks)
26. The chart below represents a simplified nitrogen cycle.



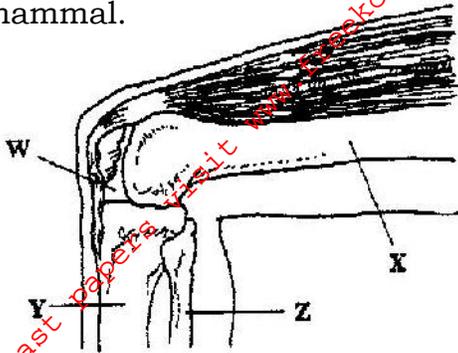
What is represented by X, Y, and Z?

27. Name the end products of the light stage in photosynthesis.

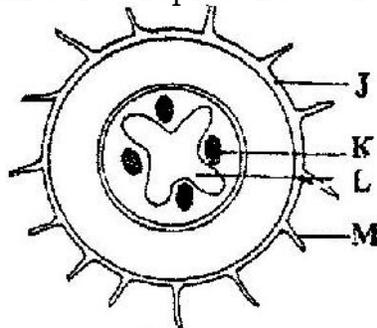
BIOLOGY PAPER 231/2 K.C.S.E 2006

QUESTIONS

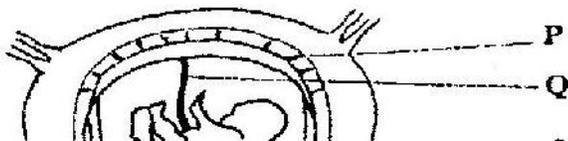
1. The diagram below represents bones at a joint found in the hind limb of a mammal.



- a) Name the bones labeled XY and Z (3mks)
- b) i) Name the substance found in the place labeled W. (1mk)
 ii) State the function of the substance named in (b) (i) above. (1mk)
- c) Name the structure that joins the bones together at the joint. (1mk)
- d) State the differences between ball and socket joint and the one illustrated in the diagram above. (1mk)
- e) Name the structure at the elbow that performs the same function as the same function as the patella. (1mk)
2. a) Name two disorder in human caused by gene mutation. (2mks)
 b) Describe the following chromosomal mutations. (2mks)
 a. Inversion
 b. Translocation.
- c) In mice the allele for black fur is dominant to the allele for brown fur. What percentage offspring would have brown fur form across between heterozygous black mice? Show your working. Use letter B to represent the allele for black colour. (4mks)
3. a) Distinguish between pyramid of numbers and pyramid of biomass. (2mks)
 b) Give three reasons for loss of energy from one trophic level to another in the food chain. (3mks)
4. The diagram below represents a traverse section through a plant organ



- A. From which plant organ was the section obtained? (1 mk)
 B. Give two reasons for your answer in (a) above. (2mks)
 C. Name the parts labeled J, K and L. (3mks)
 D. State two functions of the part labeled M. (2mks)
5. The diagram below represents human foetus in a uterus.



- a) Name the part labeled S. (1mk)
- b) i) Name the types of blood vessels found in the structure labeled Q. (2mks)
 ii) State the differences in composition of blood found in the vessels named in (b)(i) above. (2mks)
- c) Name two features that enable the structure labeled P carry out its function. (2mks)
- d) State the role of the part labeled R (1mk)

SECTION B

Answer question 6 (compulsory) in the spaces provided and either question 7 or 8 in the spaces provided and either question 8.

6. An experiment was carried out to investigate the effect of hormones on growth of lateral buds of three pea plants

The shoots were treated as follows:

Shoot A – Apical bud was removed.

Shoot B – Apical bud was removed and gibberellic acid placed on the cut shoot.

Shoot C – Apical bud was left intact.

The length of the branches developing from lateral buds were determined at regular intervals.

The results obtained are as shown in the table below.

Time in days	Length of branches in millimeters		
	Shoot A	Shoot B	Shoot C
0	3	3	3
2	10	12	3
4	28	48	8
6	50	9	14
8	80	120	20
10	118	152	26

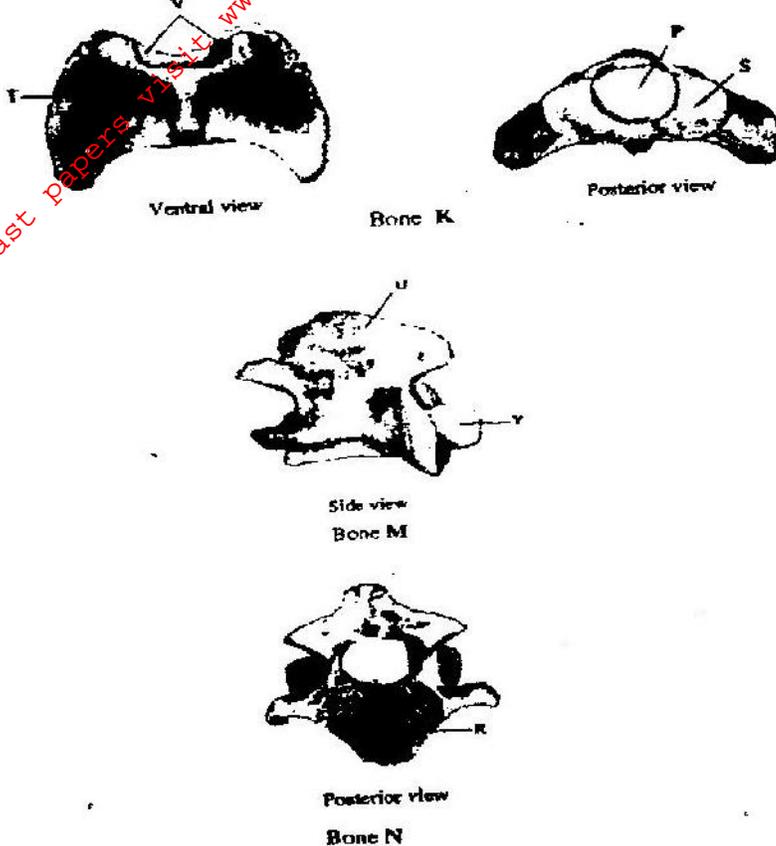
- a) Using the same axes, draw graphs to show the lengths of branches against time. (8mks)
- b) i) What was the length of the branch in shoot B on the 7th day? (1mk)
 ii) What would be the expected length of the branch developing from shoot A on the 11th day? (1mk)
- c) Account for the results Obtained in the experiment (6mks)

- d) Why was shoot C included in the Experiment? (1mk)
- e) What is the importance of gibberellic acid in agriculture? (1mk)
- f) State two physiological processes that are brought about by the application of gibberellic acid on plants. (2mks)
7. Describe how human kidney functions (20mks)
8. Describe how water moves from the soil to the leaves in a tree. (20mks)

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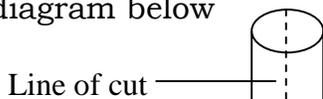
**BIOLOGY PAPER 3 (231/3) 2006
PRACTICAL QUESTIONS**

1. The photographs below are bones obtained from the same region of a mammalian body. Photograph labeled K are different views but same bone while M and N are views of different bones.



- (a) Name the region from which the bones were obtained (1 mark)
- (b) Identify the bones (3 marks)
 K.....
 M.....
 N.....
- (c) State three characteristics feature of the bone in photographs labeled K (3 marks)
- (d) Name the structure that fit in the opening labeled P in the photograph of bone K (2 marks)
- (e) State the functions of the parts labeled S and T in photographs of bone K (2 marks)
- (f) Name the structures that articulate with the parts labeled V in the photographs of bone K (1 mark)
- (g) Name the parts labeled U and Y in the photograph of bone M and R in the photograph of bone N (3 marks)

2. You are provided with two pieces of plant material labeled specimen D. Using a scalpel cut a slit halfway through the middle of each piece shown in the diagram below



Place one piece in the solution labeled L₁ and the other in solution labeled L₂ allow the set up to stand for 30 minutes.

(a) After 30 minutes remove the pieces and press each gently between the fingers

(i) Record your observations

L₁..... (1 mark)

L₂..... (1 mark)

(b) Examine the pieces

i) Record other observations beside those made in (a) (i) above
(3 marks)

ii) Account for the observations in (a) (i) above (5 marks)

iii) Account for the observation in (b) (i) above (2 marks)

3. You are provided with three sets of seedlings labeled A, B and C. Examine them

(a) State the conditions under which each set was grown (3 marks)

(b) State four different between the seedlings in set A and B (4 marks)

(c) (i) Name the phenomenon exhibited by seedling in set B (1 mark)

(ii) Give a reason why plants exhibit the phenomenon named in (c) (i) above
(1 mark)

(d) Name the response exhibited by the seedling in set C (1 mark)

(e) Explain how the response named in (d) above occurred (3 marks)