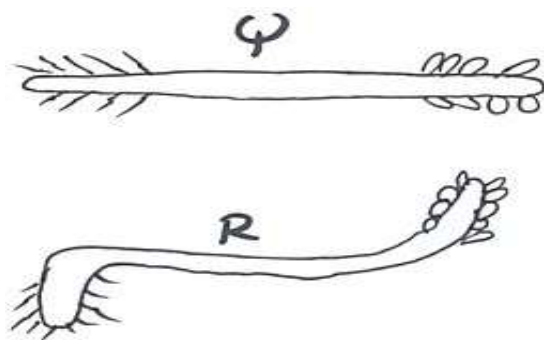


FORM FOUR CLUSTER KCSE MODEL1

BIOLOGY PAPER 1 QUESTIONS

1. A student was seen collecting some insects with a pair of forceps and putting them in a specimen bottle.
 - a) State why this student was using forceps. (1 mark)
.....
.....
 - b) Name the branch of Biology that deals with the study of insects. (1 mark)
.....
.....
2. Arachnids and crustaceans belong to the same phylum:
 - a) Name the phylum. (1 mark)
.....
.....
 - b) State two characteristics that make them to be classified in the same phylum stated in (a) above. (2mrks)
.....
.....
3. State two physiological processes that are brought about by the application of Giberrellic acid on plants.
.....
.....
.....
4. a) Name an enzyme in red blood cells that speeds up the dissolving of carbon (IV) oxide to form carbonic acid. (1 mark)
.....
.....
.....
.....
 - b) Explain why athletes practice in high altitude areas. (2marks)
.....
.....
.....
5. An experiment was carried out to investigate certain aspects of a response. A seedling was placed on a horizontal position as shown in figure Q and after 24hrs the seedling appeared as shown in figure R.



a) Name the type of response exhibited. (1 mark)

.....

.....

b) Explain the downward curvature of the root. (2marks)

.....

.....

.....

6. A student added equal amounts of blood to equal volumes of salt solutions of different concentrations. She observed and counted the number of red blood cells at the start of the experiment and at the end. The results are as tabulated below.

Set up	Concentration of salt	No. of cells	
		At start	After 30 min
A	0.1Mol.	500	500
B	0.01mol	500	250

Account for the results in; Set up A (1 mark)

.....

.....

Set up B (2marks)

.....

.....

.....

7. a) In a field study, a form three student observed acacia moths and wood peckers on an acacia tree. Construct a pyramid of numbers using organisms above. (2marks)
- b) State two effects of oil spillage in a lake. (2marks)

.....

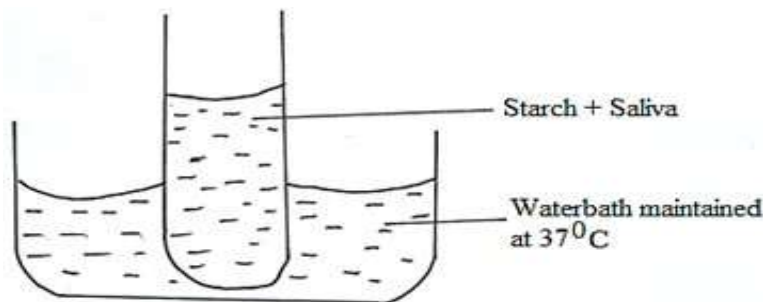
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8. Explain the meaning of the Genetically Modified Organisms. (1 mark)

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.....

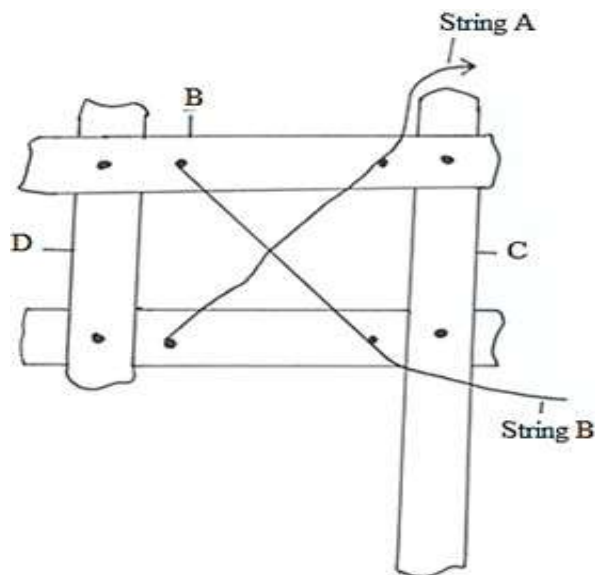
9. In a class experiment a group of students set up the apparatus as shown below to investigate an aspect of digestion.



After 45 minutes the students carried out a starch test. Explain the results obtained after 45 minutes.

.....
.....

10. The diagram below represents a model of the mammalian ribcage with movable joints



a) For a real ribcage what is represented by the parts labelled:

C..... (1 mark)

D..... (1 mark)

b) What happens to the model if string A is pulled in the direction indicated by the arrow on the diagram

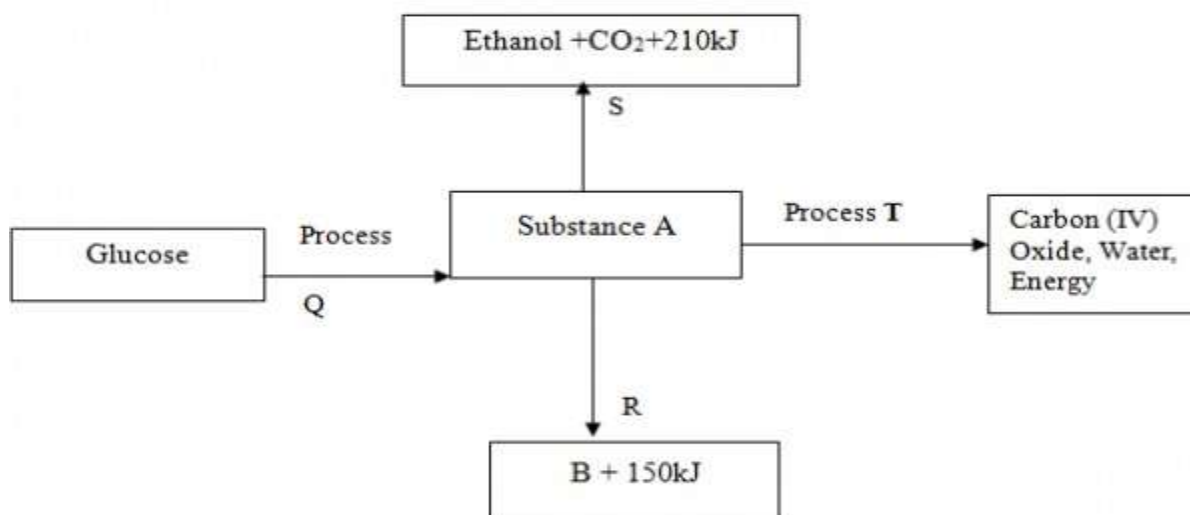
..... (1 mark)

11. Describe what happens to the products light stage of photosynthesis.

12. Interphase is not a division stage in mitosis and meiosis. Give three activities that occur during this stage.

13. Briefly explain two methods applied by non woody plants for support.

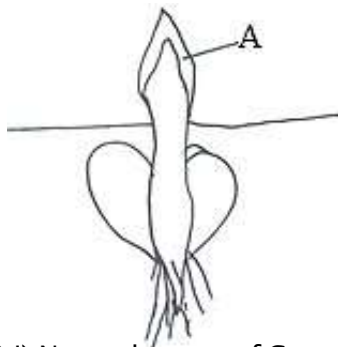
14. Below is diagram of a simple respiratory pathway.



- a) Name the process Q and T
 Q.....(1 mark)
 T..... (1 mark)
- b) Which substance is represented by A. (1 mark)

.....

15. The diagram below represents a certain type of germination.



a) i) Name the type of Germination

..... (1 mark)

ii) Give a reason for your answer in (a) above. (1 mark)

.....

b) State the function of the part labelled A. (1 mark)

.....

16. a) What are sex linked genes. (1 mark)

.....

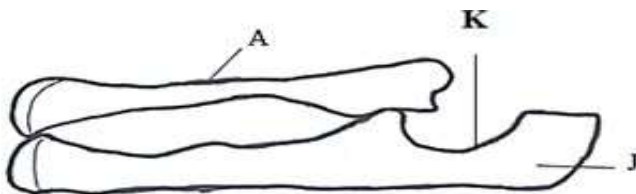
b) Why is it that more men suffer from sex linked disorders as compared to women? (3marks)

.....

17. State the role of mammalian blood in homeostasis.

.....

18. The diagram below represents bones obtained from a mammal.



a) i) Identify the bone labelled A. (1 mark)

.....

ii) Give one function of the structure labelled J. (1 mark)

.....

b) Name the bone that articulate with the bones in the diagram at point K. (1 mark)

.....
.....

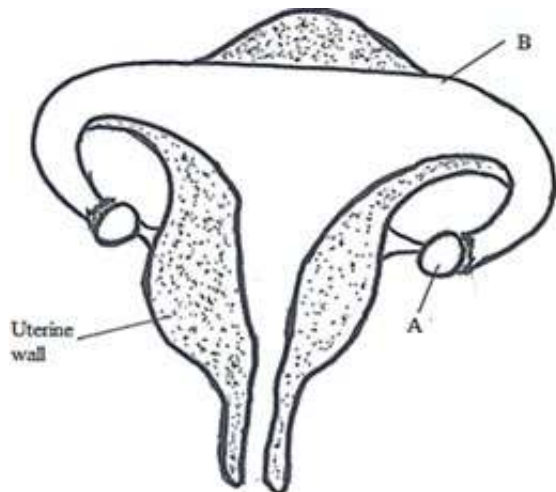
19. a) State the role of m-RNA in a living cell. (1 mark)

.....
.....

b) Given the DNA strand with base sequence A – G- C- T-A work out the base sequence of m-RNA copied from the DNA strand. (1 mark)

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

20. The diagram below represent a reproductive system of a human female.



a) State two functions of the structure labelled A. (2marks)

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

b) How is part B adapted to its function? (1 mark)

.....
.....

21. It was found that during germination of pea seeds 9.3cm^3 of carbon (IV) oxide was produced while 9.1cm^3 of oxygen was used up.

a) Calculate the respiratory quotient of the reaction taking place. (2marks)

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

b) Identify the food being metabolized. (1 mark)

.....
.....

In a prolonged period of drought food was scarce. This made browsers forage in higher branches of trees. In this way giraffes developed long necks. a) This type of long neck trait is referred to? (1 mark)

.....
.....

b) Name the theory outlined above. (1 mark)

.....
.....

c) State the shortcoming of this theory. (1 mark)

.....
.....

22. a) State two destinations in a plant where the end products of photosynthesis are translocated to. (2marks)

.....

b) State one way in which xylem vessels are adapted to their functions. (1 mark)

.....
.....

23. Explain the effect of eating salty food on urine production in a person

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

24. Distinguish between homologous and analogous structures.

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

25. Describe how urea is formed in the human body.

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

26. State the functions of the following organelles;

Centriole..... (1 mark)

Nucleolus..... (1 mark)

27. State one method of excretion in plants.

.....
.....

28. Name the causative agent of

a) Gonorrhoea (1 mark)

.....

b) Pneumonia. (1 mark)

.....

29. A form one student drew a diagram of a beetle measuring 5cm. If the magnification of the drawing was X2, work out the actual length of the beetle

(show your working).

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