END OF TERM 2

FORM THREE

BIOLOGY PAPER 1

NAME:……..CLASS:……ADM:……

1. State **three** ways in which protein are important to plant.
   (3marks)

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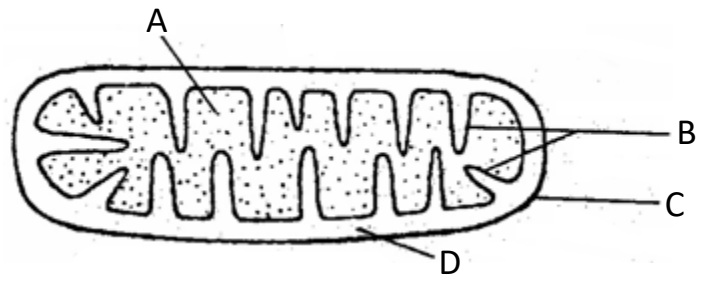
2. The diagram **below** represents a cell organelle.



(a) Identify the organelle. (1 mark)

(b) Name the part labeled **B**. (1 mark)

……..

(c) State the function of part labeled **A**. (1 mark)

……..

3. Define **binominal nomenclature**.
   (1marks)

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4. Name any **two** problems that animal species overcome by their dispersion. (2marks)

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5. Explain why tropical forests do not have undergrowth (2marks)

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6. How is blood pressure generated and maintained in a vein? (2marks)

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7. What is the function of catalase? (2marks)

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8. (a) State the important of cross-pollination to flowering plants. (1mark)

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(b) How is self-pollination a disadvantage to flowering plants? (1mark)

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9. What is the role of light energy in autotrophic nutrition in spermatophyte? (2 marks)

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10. How is fur important to desert animal, other than in the regulation of their body temperature?

(1mark)

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11. What are the functions of named product of white blood cells? (3 marks)

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12. Explain three adaptations of cardiac muscles to their function. (3 marks)

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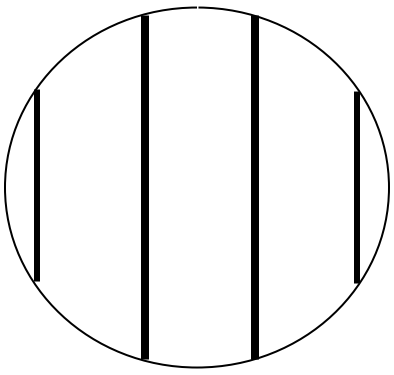
13. A form one student trying to estimate the size of onion cells observed the following on the microscope's field of view.



(a) Define the term resolving power. (1 mark)

(b) If the student counted 20 cells across the field of view calculate the size of one cell in micrometers. (2 marks)

14. What is **tidal volume** in ventilation in man? (1mark)

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15. Define peristalsis and state its importance in the nutrition of mammals. (2 marks)

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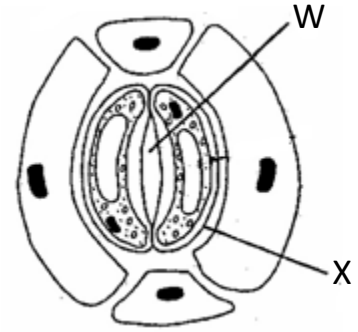
16. The diagram **below** shows part of plant tissue.



(a) Name cell labeled **X** and part labeled **W**. (2 marks)

X

W

17. Why is the liver part of the digestive system? (2 marks)

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18. State the importance of cytoplasmic filaments in sieve tube elements. (1 mark)

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19. State any two characteristics of populations. (2marks)

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20. Describe any **two** functions of mitosis? (2 marks)

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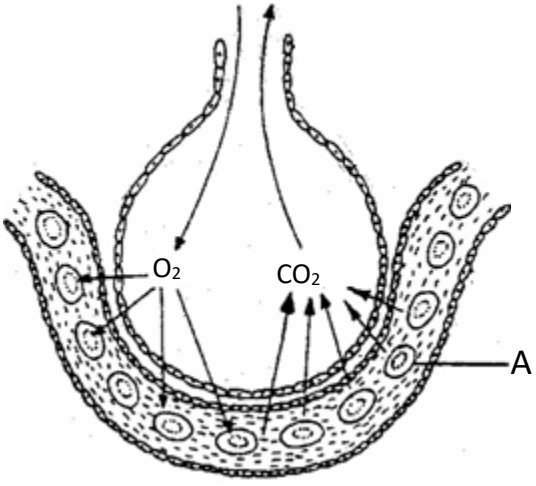
21. The diagram **below** shows the exchange of gases in alveolus.



(a) State how the alveoli are adapted to their function. (3 marks)

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(b) Name the cell labeled **A**. (1 mark)

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22. What are the external conditions needed, by root hair cells, for the uptake of mineral salts ions from the soil? (2 marks)

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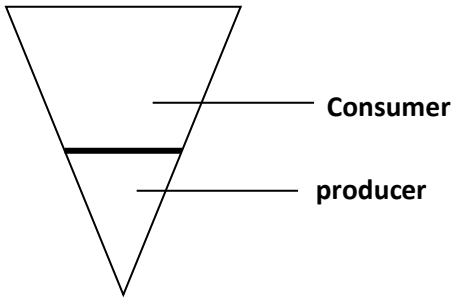
23. The diagram below represents a pyramid of biomass derived from a certain ecosystem



(a) Suggest the type of ecosystem from which the pyramid was derived (1mk)

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(b)State the significance of short food chains in an ecosystem (1mk)

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……

24. Suggest two reasons for the appearance of glucose in the urine of a man. (2 marks)

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25. (a) State the source Carbon (IV) oxide in aquatic ecosystems. (2 marks)

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(b) State the importance of Carbon (IV) oxide to aquatic ecosystems. (2 marks)

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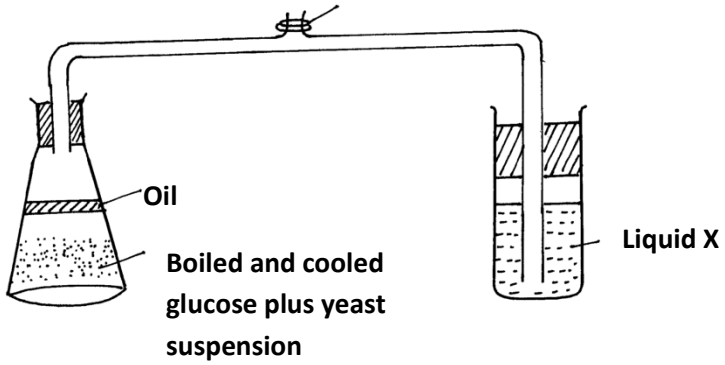
26. The set up below shows apparatus to demonstrate a certain biological process



(a) What biological process was being investigated in the experiment (1mk)

……

(b)Write down a word equation that represents the reaction above (1mk)

……

(c) In the above set up, why was it important to boil and cool glucose before adding yeast? (1mk)

27. What is the homeostatic importance of cuticles of leaves? (2marks)

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28. Outline two functions of parenchyma cells in herbaceous plants. (2 marks)

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29. What is the important of diffusion to red blood cells? (2marks)

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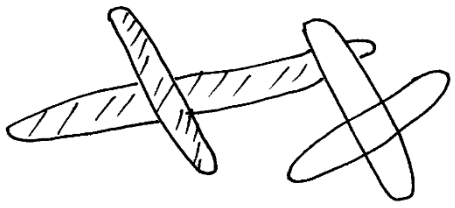
30. The diagrams below show a pair of homologous chromosomes. Study them and answer the questions that follow.



(i)State the phenomenon shown above (1mk)

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(ii) What is the genetic significance of the phenomenon above? (2mks)

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……..

31. Account for the thick wall and narrow lumen of an artery. (2marks)

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……

32. How do pathogens that enter the body through the respiratory tract in man prevented from causing diseases? (1mark)

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33. Where does the detoxification of ammonia take place in mammals? (1mark)

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34. Name the processes that take place in the grana of chloroplast. (2marks)

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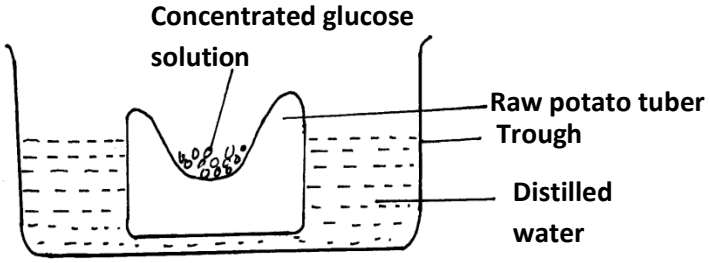
35. The experiment illustrated below was set up to investigate a certain physiological process using a raw tuber



(a) Suggest a possible physiological process that was being investigated (1mk)

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(b) Explain the results obtained in the above experiment after a few hours (2mks)

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(c) State the observations that would have been made if the experiment was repeated using boiled potato (2mks)

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36. Name the causative organism of the following diseases

(i) Malaria (1mk)

……

(ii) Bilharzia (1mk)

……

Name: …….. Adm no …….. Class.....

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BIOLOGY FORM THREE

END OF TERM TWO

TIME: 2 HOURS

JOINT EXAMINATION

INSTRUCTIONS TO CANDIDATES:

- *Answer **ALL** the questions*
- *Answers should be written in the spaces provided*

1. A student observed feeding relationship while on a tour in a coastal Island.

   Eagles feed on small fish, Small fish feed on sea grass, Insect larvae and molluscs feed on sea grass, Insect larvae fed on by small fish, while crabs feed on insect larvae and molluscs.

   a) From the above information, construct a food web.
(3mks)

b) In which trophic level is small fish found.

(1mk)

……..

……..

c) Extract a food chain where the Eagle is a tertiary consumer.

(1mk)

d) Suppose all the crabs were poisoned, what would be the immediate effect in the ecosystem. Give a reason.

(1mk)

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……..

(e) Give a reason why pyramid of biomass is a better representation of energy flow in an

eco system than pyramid of numbers.

(1mk)

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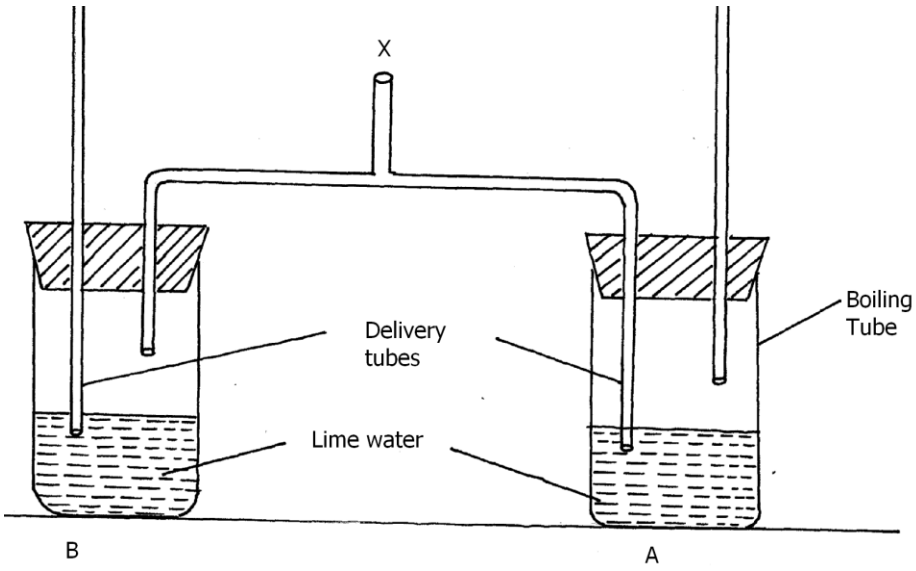
2. An experiment was set up as shown below.



a) A student blew air in and out through point X. Using arrows indicate on the diagram how

air gets in and out of the set up.

(2mks)

b) (i) In which of the test tube would lime water turn milky first.

(1mk)

……..

……..

(ii) Give a reason.

(1mk)

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……..

(c) What is the effect of lactic acid in the thigh muscles of an athlete after a short fast race.

(2mks)

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(d) Identify the type of muscle in human being where formation and effect of lactic acid is

not felt.

(1mk)

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(e) What is the biological significance of boiling milk /ultra heat treated milk.

(1mk)

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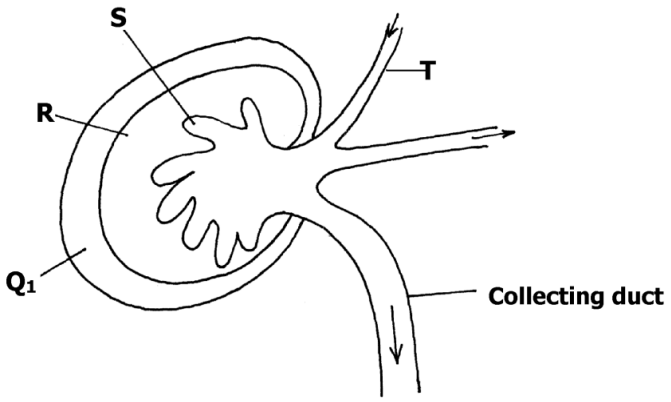
3. The diagram below is a longitudinal section of an organ in mammals



a) Name the organ

(1mk)

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b) Identify the parts R and S

(2mks) ……..

……..

……..

……..

c) i) State two differences in the structure above found in the deserted-rat and fish

(3mks)

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ii) Account for the difference stated above.

(2mks)

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d) Name the gland associated with the secretion of aldorsterone hormone.

(1mk)

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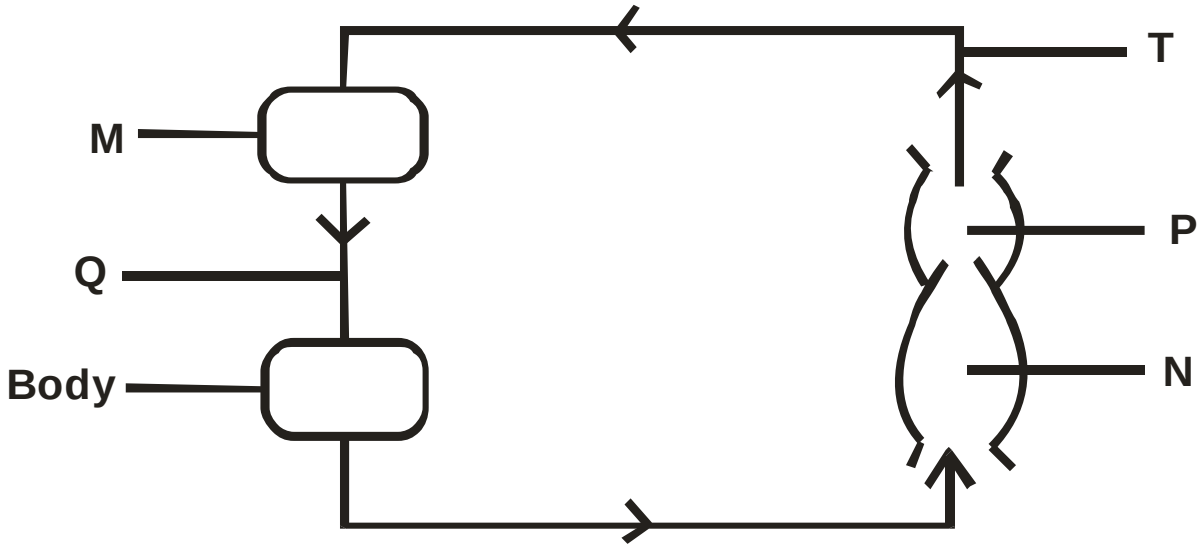
4. The diagram below represents a circulatory system found in a certain class of chordates.



a) Identify the type of circulatory system shown above.

(1mk)

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……..

b) Name **one** class of animals having this type of circulatory system.

(1mk)

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……..

c) Identify parts labelled M, N and P.

(3mks)

M……

N……

P……..

d) What disadvantages is faced by having the types of circulatory system shown above? (2mks)

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e) Between blood vessels Q and T, which one carries oxygenated blood? (1mk)

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5. In an experiment to investigate the rate of reaction indicated by the equation.

$C_{12}H_{22}O_{11} \longrightarrow C_6H_{12}O_6 + C_6H_{12}O_6$

Sucrose Fructose Glucose

It was found out that for products fructose and glucose to form, substance "K" was needed. Temperature was maintained at 37^{o}C.When substance "L" was added, reaction slowed and then

stopped.

a) Suggest identity of the substances

(2mks)

K……

L……

c) Other than temperature, state <u>three</u> factures that increase the rate of reaction. (3mks)

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d) Explain how substance "L" slowed the rate of reaction.

(2mks)

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e) What type of reaction is represented by the equation above?

(1mk)

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SECTION B (40 MARKS)

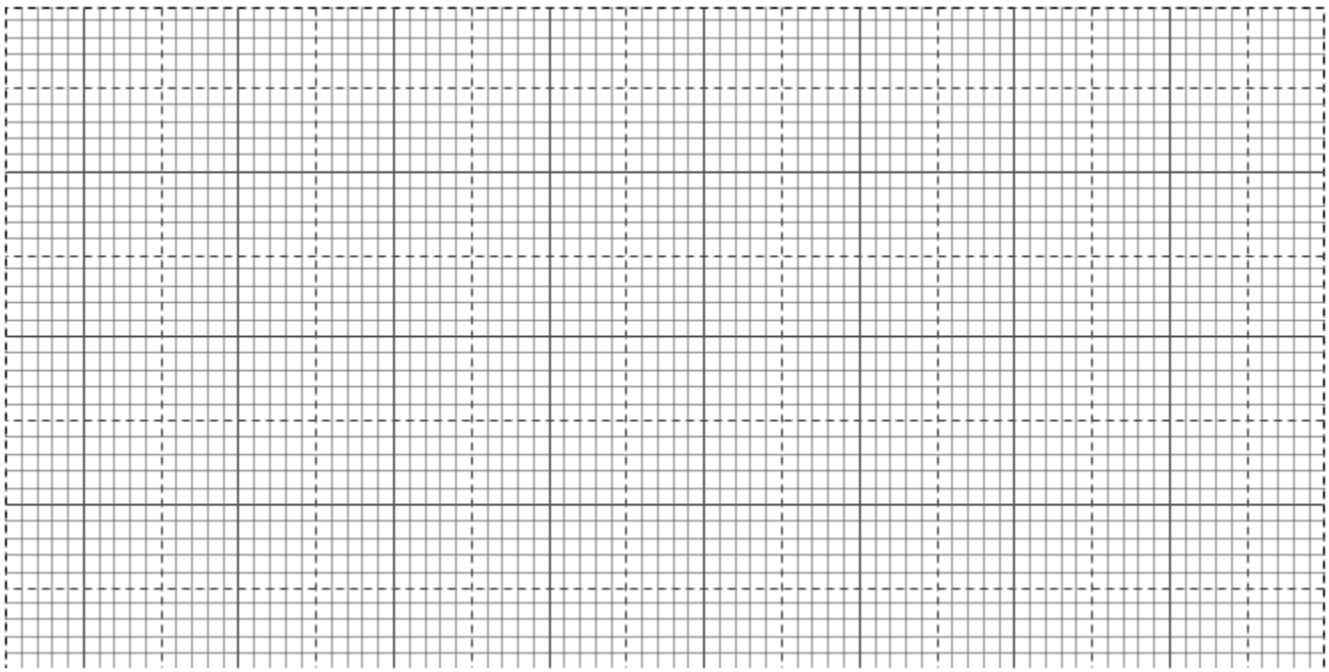
Answer questions 6 (compulsory) and either questions 7 or 8 in the spaces provided questions

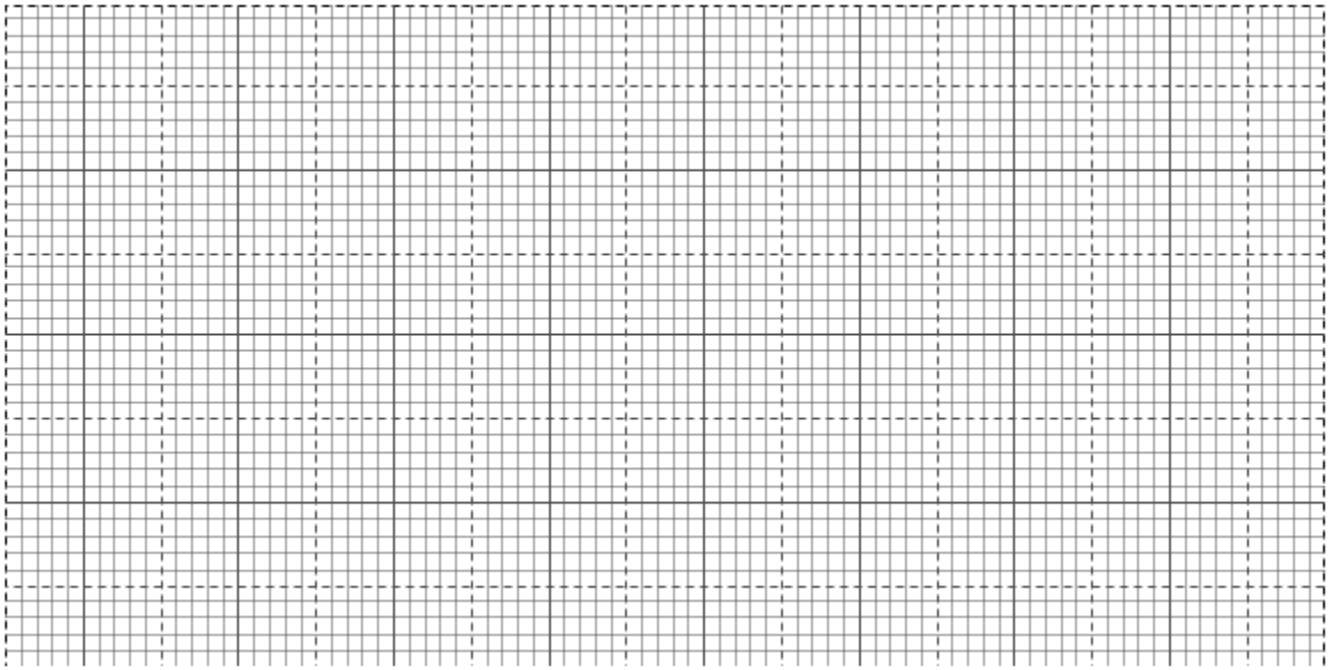
6. The glucose level in mg per 100cm^3 of blood was determined in two person Y and Z. Both had stayed for six hours without taking food. They were fed on equal amount of glucose at the start

of the experiment .The amount of glucose in their blood was determined at intervals .The results are shown in the table below.

Times in minutes	Glucose level in blood in mg /100cm^3	
	Y	Z
0	85	78
20	105	110
30	105	110
45	130	170
60	100	195
80	93	190
100	90	140
120	90	130
140	88	120

a) On the grid provided, plot graphs of glucose levels in blood against time on the same axes. (7mks)





b) What was the concentration of glucose in the blood of Y and Z at the 50th minute? (2mks)

Y.....

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Z.....

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c) Account for the level of glucose in present Y

i) During the first 45 minutes.
(2mks)

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ii) After 45th minute to the end.
(4mks)

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d) Account for the decrease in glucose level person Z after 60 minutes.

(2mks)

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e) Low blood sugar level in harmful to the body .Explain.

(3mks)

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7. Discuss the adaptations of seeds and fruits to dispersal.

(20mks)

8 Describe the structure and functions of various organelles in a mature animal cell. (20mks)

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