FORM THREE HOLIDAYS KEYNOTE BIOLOGY PP2 10 QUESTION PAPERS



FORM 3 HOLIDAYS KEYNOTE BIOLOGY PP2 TEN QUESTION PAPERS

Prefer Calling Amobi Group of Examiners

@ 0743 333 000 OR 0706 851 439

For Marking Schemes

N/B In Response to the Huge Costs Associated in Coming Up with Such/Similar Resources Regularly, We inform us All, MARKING SCHEMES ARE NOT FREE OF CHARGE. However Similar QUESTIONS, Inform of soft Copies, are Absolutely FREE to Anybody/Everybody. Hence NOT FOR SALE

by Amobi Group of Examiners.

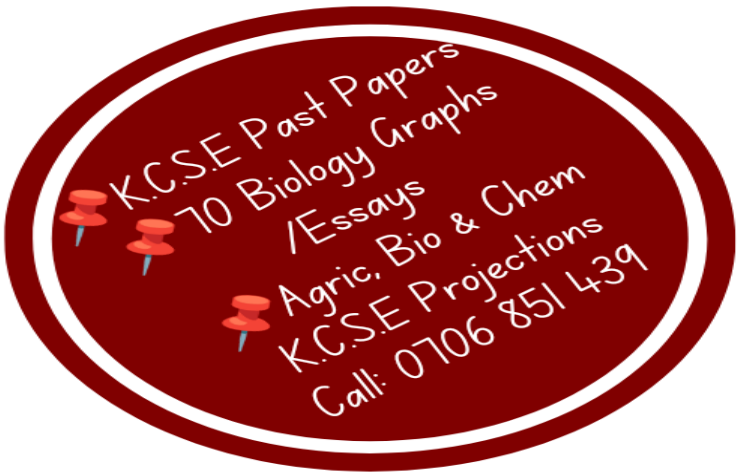
CALL AMOBI GROUP OF EXAMINERS @ 0743 333 000 OR 0706 851 439 TO ACQUIRE :









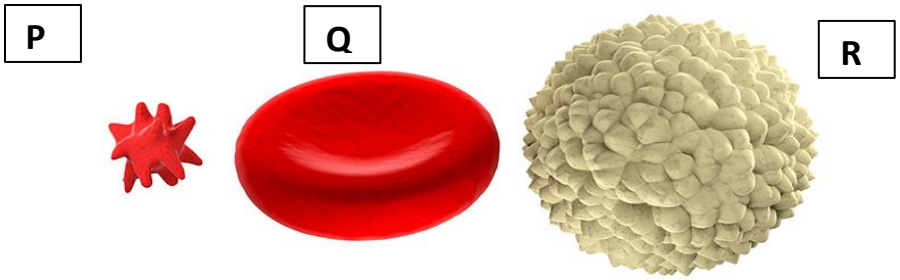




FORM THREE HOLIDAYS KEYNOTE
BIOLOGY PP2 QUESTION PAPER NO: 01

SECTION A (40 MARKS)

1. The diagrams shown below are of the three types of cells in human blood



a) Fill in the table below to show the function of cells **P** and **R** in the body **(2mks**

Blood Cell	Function
P	
R	

b) i) State the site of formation of cell **Q.** **(1mk**

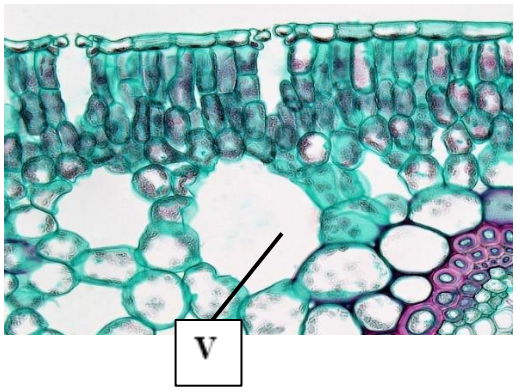
ii) Based on cell **Q**, explain why long distance athletes train in high altitude areas before a major race **(2mks**

c) State **ONE** mechanism by which the cell **R** undertakes its function **(1mk**

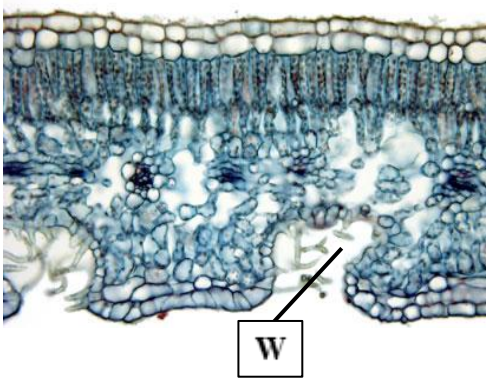
d) Name the **vitamin** and **mineral ion** required for the function achieved by cell **P** to be efficient **(2mks**

2. The following are photomicrographs of cross sections of leaves obtained from plants growing in different habitats

Leaf A



Leaf B



Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

a) State the habitat of the plant from which each leaf was obtained **(2mks**

b) Give **TWO** reasons for your answer in a i) above **(2mks**

c) How do the following parts adapt each of the two plants to their habitat

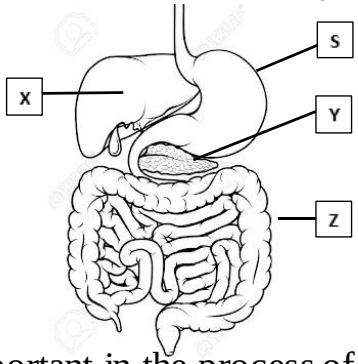
i) hair-like structures in part **W** in Leaf **B** **(1mk**

ii) Part **V** in Leaf **A** **(1mk**

d) What is the expected difference in these plants in terms of **(2mks**

Feature	**Leaf A**	**Leaf B**
Size of Stomatal Opening		
Leaf Cuticle		

3. Use the diagramatic representation of the alimentary canal shown to answer the questions that follow



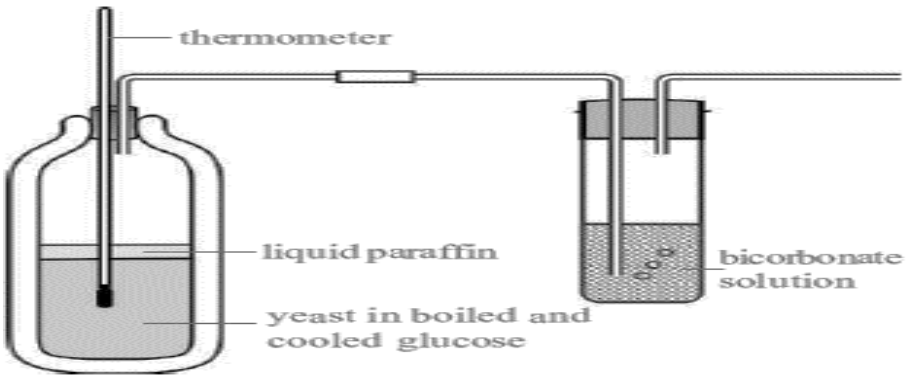
a) Explain how part **X** is important in the process of digestion **(2mks**

b) Name **TWO** substances absorbed in the part labelled **Z** **(2mks**

c) Give **ONE** way in which **S** prevent auto-digestion of its lining by pepsin **(1mk**

d) Explain the role of part **Y** when sugar level rises beyond normal **(3mks**

4. The following set up was used to investigate a particular physiological process



Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

a) i) State the expected result in the tube containing bicarbonate solution **(1mk**

ii) Account for the change expected in the thermometer reading **(2mks**

b) Why are the following done in the experiement? **(2mks**

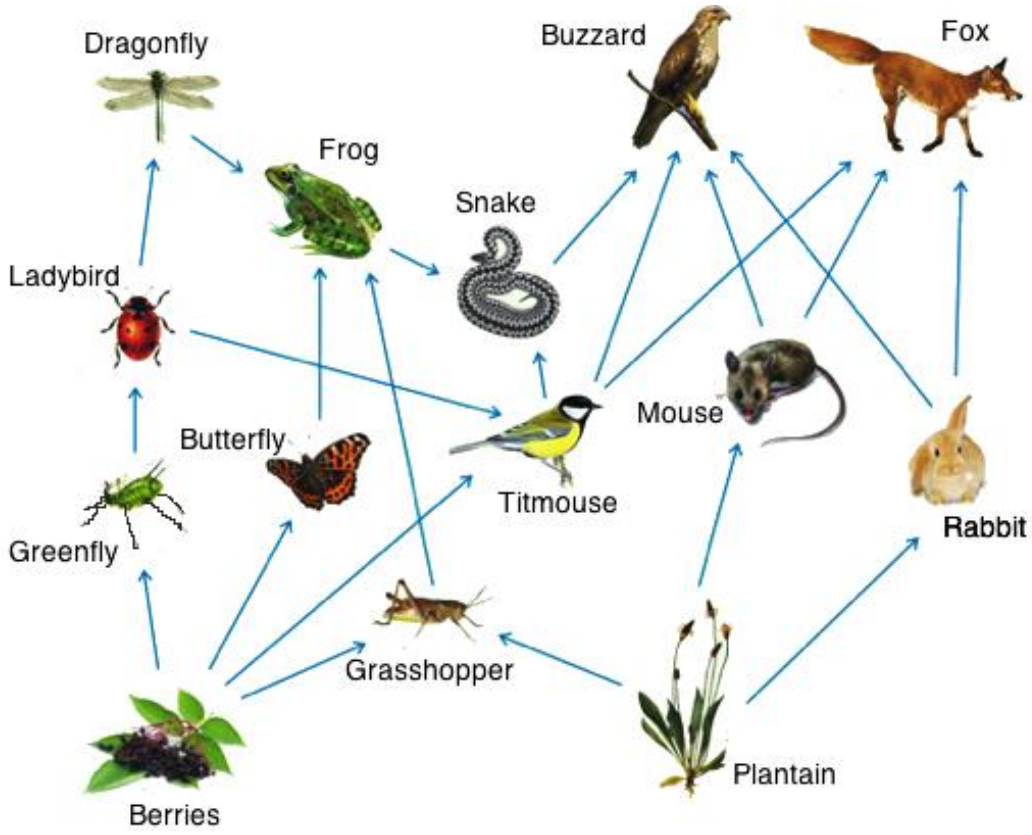
i) Boiling of the glucose

ii) Using a vacuum flask and not a test tube

c) Suggest a control experiment for the experiment shown above **(1mk**

d) Give **TWO** uses of the physiological process investigated in the food industry **(2mks**

5. The following is a feeding relationship found in a particular ecosystem



a) i) Name the original source of energy for the ecosystem shown above **(1mk**

ii) What do the arrows in the sketch above represent? **(1mk**

b) Draw a food chain with: **(2mks**

i) The Snake occupying the 3rd Energy level

ii) The Snake as the Quartenary consumer

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

c) Explain the following observations in the habitat above **(2mks**

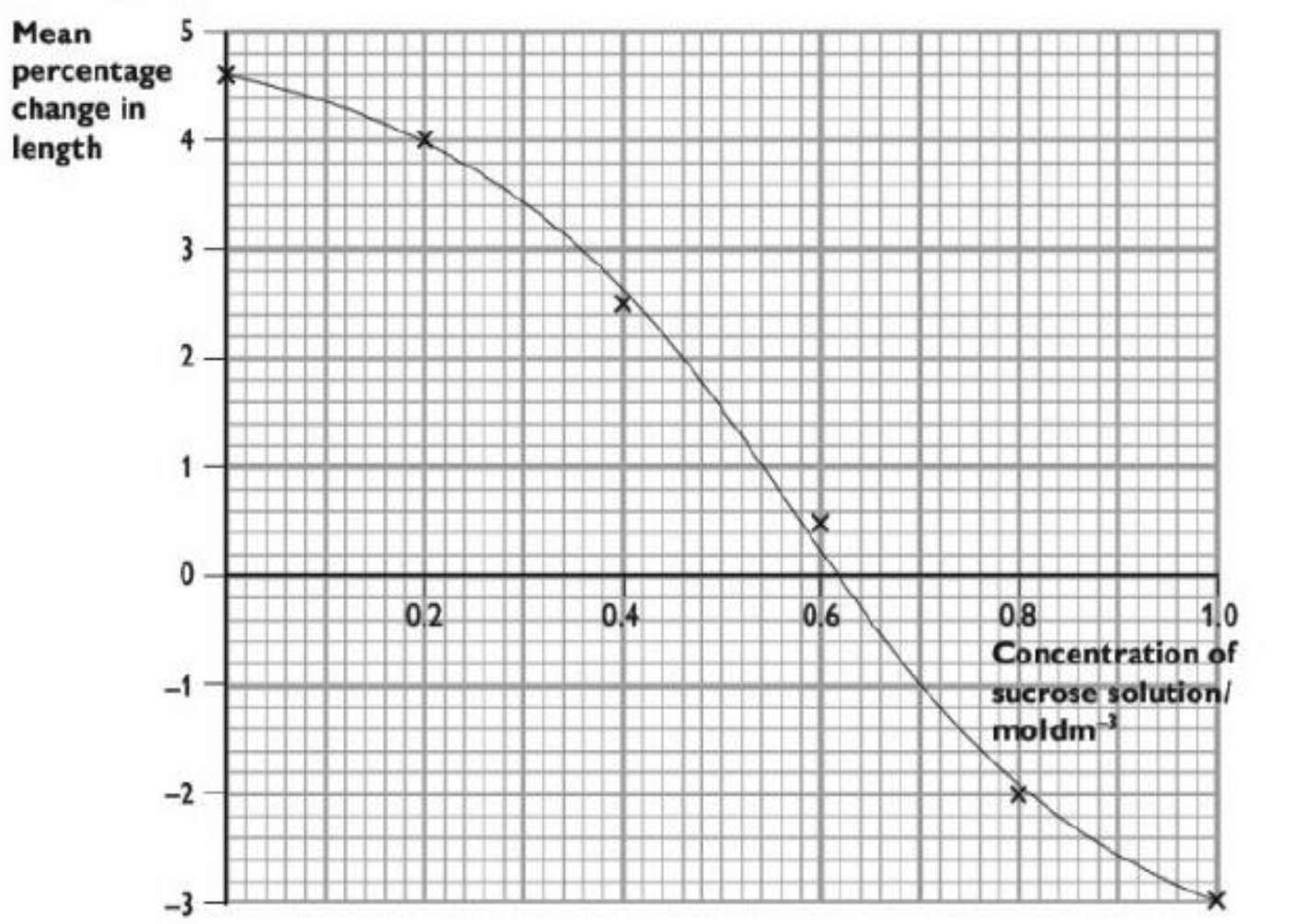
i) The population of plantain and berries is the highest

ii) The population of buzzard is the lowest

d) **250** mice were captured, tagged and released. Later, **300** mice were captured, **150** of which had tags. Determine the population of mice in the habitat studied **(2mks**

SECTION B (40MARKS)

6. In an experiment, pieces of peeled raw potato of equal lengths were placed in sucrose solution of different concentrations (expressed in moldm^{-3}). 30 minutes later, their lengths were measured and any change in length were recorded in percentage form and used to plot the graph shown below.



Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

a) i) Name the physiological process investigated in the experiment above **(1mk)**

ii) Give **THREE** ways animals benefit from the physiological process investigated **(3mks**

b) Account for changes in the length of pieces of potato placed in sucrose solution of the following concentrations:

i) 0.2 moldm^{-3} **(3mks** **ii)** 1.0 moldm^{-3} **(3mks**

c) From the graph, determine the concentration of the potato cell sap **(1mk**

d) i) Account for the observation made on a red blood cell if it was placed in sucrose solution concentration of 0.2 moldm^{-3} **(3mks**

ii) Why would a potato cell and freshwater amoeba not experience same change as red blood cell when placed in sucrose concentration of 0.2 moldm^{-3}? **(2 mk**

e) i) Make a diagram of the expected appearance of a potato cell and a red blood cell if both were placed in sucrose solution concentration of 1.0 moldm^{-3} **(2mks**

ii) Explain how the cells in potato piece placed in 1.0 moldm^{-3} sucrose solution concentration can be made to resume their normal shape and size **(1mk**

iii) Which term is used to refer to the process described in eii) above? **(1mk**

7. a) Explain how flowers are adapted to pollination by insects **(12mks**

b) Describe the mechanism of exhalation in mammals **(8mks**

8. a) Explain how the ileum is adapted to absorption of nutrients **(14mks**

b) Describe what happens to excess amino acids in the body **(6mks**

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

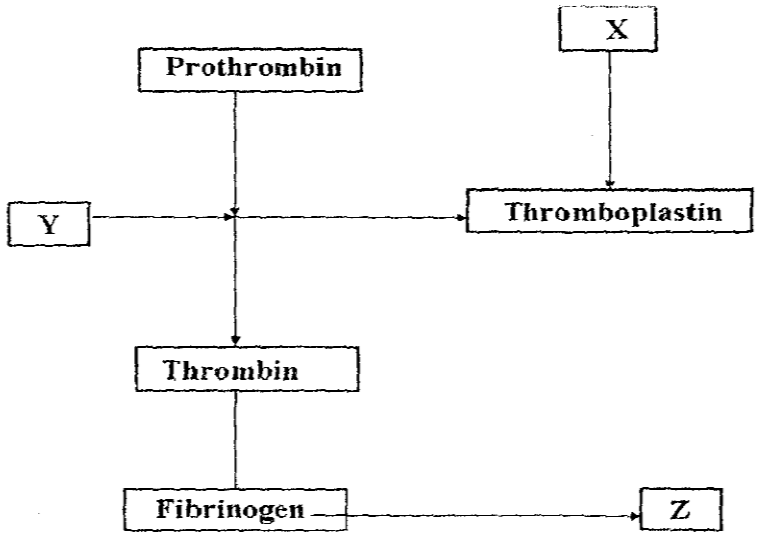
FORM THREE HOLIDAYS KEYNOTE
BIOLOGY PP2 QUESTION PAPER NO: 02

SECTION A (40 MARKS)

1. a) Distinguish between natural and acquired immunity **(l mark)**

b) Define the term allergy **(l mark)**

c) The chart below shows the blood clotting mechanism



i) Name the blood cells represented by X **(1mark)**

ii) The end product of the mechanism represented by Z **(1 mark)**

d) Explain how the following environmental factors increase the rate of transpiration.

i) Temperature **(2 marks)**

ii) Humidity **(1 mark)**

iii) Atmospheric pressure **(1 mark)**

2. A student wanted to observe human red blood cells under a light microscope. He put l0ml of solution X,Y and Z in three boiling test tubes. The solutions were of different concentration .In each of the test tubes he put three drops of blood sample. The experiment was left to stand for 30

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

minutes. He placed one drop of solution X on glass slide and observed under the microscope. The same procedure was repeated for solutions Y and Z.

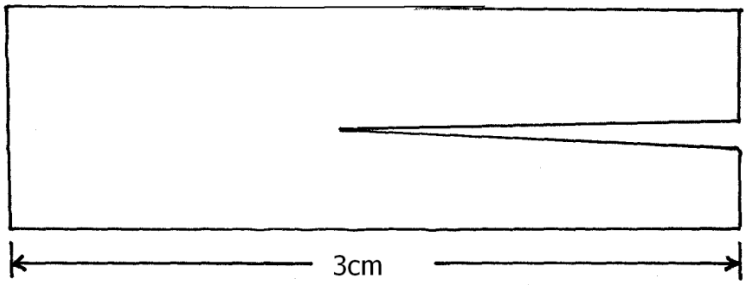
He made the following observation.

Solution	Observation
X	Normal Cells
Y	Wrinkled Cells
Z	No cells observed

(a) What was the physiological process observed. **(1mk)**

(b) Explain why red blood cells observed in solution Y were wrinkled. **(3mks)**

(c) A 3cm long piece of kale (sukuma wiki) stem was cut halfway along its length as shown below.



(i) If the piece was placed in solution Z for 30 minutes, its shape changed . Using a pencil draw a diagram in the space provided to show the expected change. **(1mk)**

(ii) Explain the results obtained in C(i) above. **(3mks)**

3. During an ecological study, students collected and marked 120 ants and released them. After 48 hours, the students captured another 90 ants, 20 of which had been marked previously.

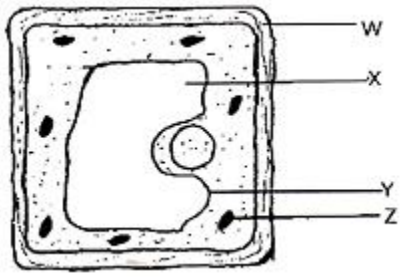
(a) How many ants were there in the compound? Show your working. **(3mks)**

(b) What are the limitations of this method in sampling animal populations. **(4mks)**

(c) State two other methods which could be used to determine the population. **(1mk)**

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

4. Examine the diagram below carefully and use it to answer the questions that follow.



(a) Name the parts labeled X, Y, and Z **(3marks)**

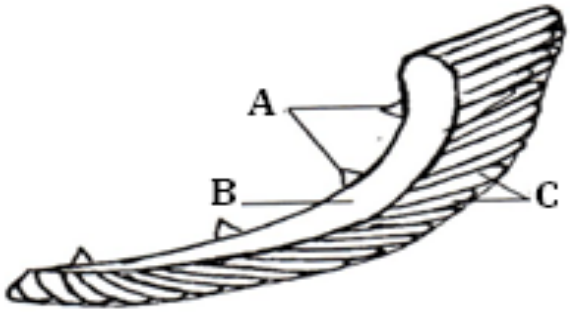
(b) State the substance by which the part labeled W is made up of **(1mark)**

(c) Name the process by which mineral salts move into the structure labeled X **(1mark)**

(d) Explainwhat happens to a red blood cell when placed in distilled water. **(3marks)**

5.a Name twosites where gaseous exchange takes place in an aquatic plant. **(2marks)**

b. The diagram below represents the gills of a bony fish. Study it and answer the questions that follow.



(i) Name the parts labeled A, B, and C **(3marks)**

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

(iii) Explain how the part labeled C is adapted to perform its functions **(2marks)**

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

Question 6

Two individuals A and B drunk volumes of concentrated solution of glucose. The amount of glucose in their blood was determined at intervals. The results are shown in the table below.

Time (minutes)	Glucose level in blood mg / 100cm^3	
	A	B
	87	84
	110	123
	135	170
	115	188
	100	208
	95	202
	90	144
	88	123

a) On the grid provided, plot graph of glucose level in blood against time on the same axis. **(6marks)**

b) What is the concentration of glucose in the blood of A and B at the 20th minute? **(1mark)**

c) Explain why the glucose level in person A stopped rising after 30minutes while it continued to rise in person B. **(2marks)**

d) Account for the decrease in the glucose level in person A after 30minutes and person B after 60minutes. **(4marks)**

e) Name the compound that stores energy released during oxidation of glucose. **(1mark)**

f) State five factors that determine energy requirements in human **(5marks)**

g) Name the organ in which control of blood sugar level mainly takes place. **(1mark)**

7. **(a)** State four characteristics of gaseous exchange surfaces. **(4mks)**

(b) Describe the mechanism of gaseous exchange in a mammal. **(l6mks)**

8. **(a)** What is meant by the term digestion? **(2mks)**

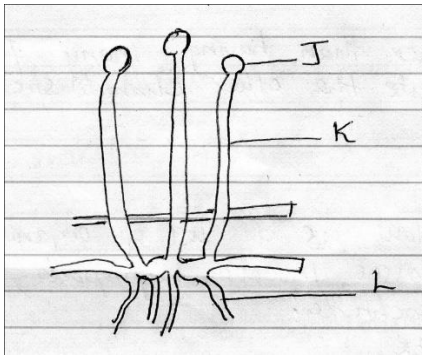
(b) Explain the role of bile in the digestion of food. **(4mks)**

(c) Describe the digestion of protein in the human body. **(l4mks)**

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

FORM THREE HOLIDAYS KEYNOTE
BIOLOGY PP2 QUESTION PAPER NO: 03

1. The diagram below illustrates the structure of bread mould.



(a) Name the parts labelled J, K, L **(3mks)**

(b) State the functions of the structure labelled L. **(2mks)**

(c) Name the type of nutrition exhibited by the mould. **(1mk)**

(d) State two economic importance of the mould . **(2mks)**

(2a) Name the phylum whose members possess notochord. **(1mk)**

(b) Other than having many features in common, state the other characteristic of a species. **(1mk)**

(c) Below is a list of organisms, which belong to classes insect, diplopoda, chilopoda and Arachnida:

(i) Tick

(ii) Centipede

(iii) Praying mantis

(iv) Tsetsefly

(v) Millipede

(vi) Spider

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

Place the organisms in their respective classes in the table below. Give reason in each case. **(6mks)**

Classes	Organisms	Reasons
Insecta		1. 2.
Diplopoda		1.
Chilopoda		1.
Arachnida		1. 2.

3(a) **(i)** Name the type of circulatory system found in members of the class insect. **(1mk)**

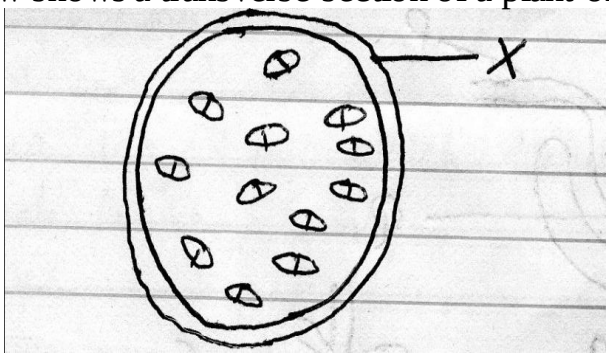
(ii) Name the blood vessel that transports blood from:

Small intestine to the liver

Lungs to the heart **(2mks)**

(iii) In what form is oxygen transported from the lungs to the tissues. **(1mk)**

(b) The diagram below shows a transverse section of a plant organ.



(i) Name the plant organ which the section was obtained. **(1mk)**

(ii) Name the class to which the plant organ was obtained. **(1mk)**

(iii) Give a reason for your answer (ii) above. **(1mk)**

(iv) Name the part labelled X.

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

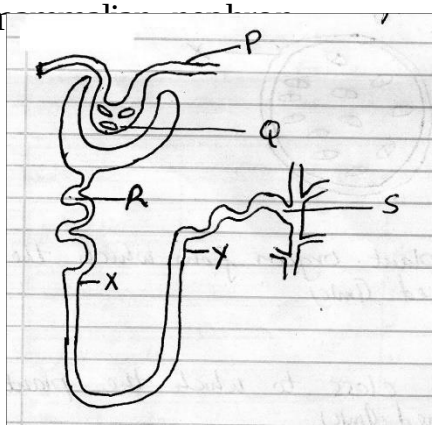
4(a) What is the meaning of the terms; **(2mks)**

(i) Homeostasis

(ii) Osmoregulation

(b) Name the hormones involved in regulating glucose level in the blood. **(2mks)**

(c) The diagram below represents a m



(i) Name the

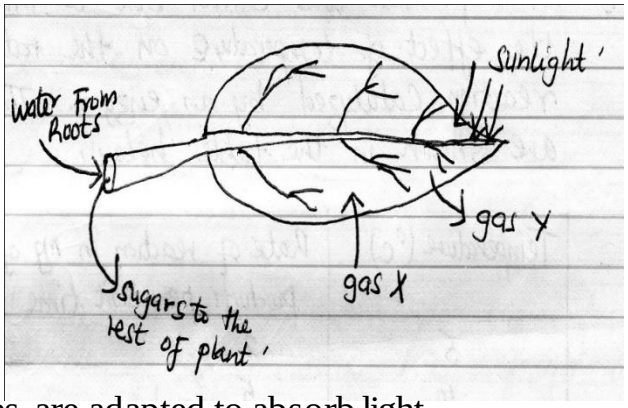
(a) Structure labelled P

(b) Portion of the nephron between point X and Y.

(ii) Name the process that takes place at point Q.

(iii) Name one substance present at point R but absent at point 5 in a healthy mammal.

5. Leaves are organs of photosynthesis. The following diagram shows what happens in a plant during photosynthesis.



(a) Give two ways in which leaves are adapted to absorb light. **(2mks)**

(b) Name the gases X and Y **(2mks)**

(c) Name the tissues which transport water into the leaf and sugars out of the leaf. **(2mks)**

(d) Describe what happens during light stage of photosynthesis. **(2mks)**

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

SECTION B

6. An experiment was carried out to investigate the effect of temperature on the rate of reaction catalysed by an enzyme. The results are shown in the table below.

Temperature (^{0}C)	Rate of reaction in mg of products Per unit time
5	2
10	5
15	8
20	11
25	15
30	21
35	30
40	37
45	34
50	28
55	21
60	11

(a) On the grid provided draw a graph of rate of reaction against temperature. **(6mks)**

(b) When was the rate of reaction 26mg of product per unit time. **(2mks)**

(c) Account for the shape of the graph between

(i) 5^0C and 40^0C **(2mks)**

(ii) 45^0C and 60^0C

(d) Other than temperature name two ways in which the rate of reaction between 5^0C and 40^0C could be increased. **(2mks)**

(e) (i) Name one digestive enzymes in the human body which works best in acidic condition. **(1mk)**

(ii) How is the acidic condition for enzymes named in (e) above attained **(2mks)**

(f) The acidic conditions in (e) (ii) above is later neutralized.

(i) Where does the neutralization take place? **(1mk)**

(ii) Name the substance responsible for neutralization. **(1mk)**

7. Explain how abiotic factors effect plants. **(20mks)**

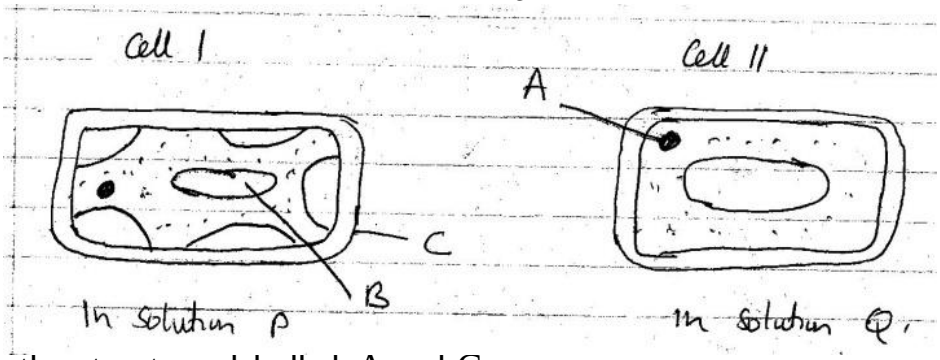
8. How is the mammalian skin adapted to its functions. **(20 MKS)**

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

FORM THREE HOLIDAYS KEYNOTE
BIOLOGY PP2 QUESTION PAPER NO: 04

SECTION A (40MKS)

1. The two cells shown below are obtained from two different potato cylinders which were immersed in two different solutions P and Q.



(a) **(i)** Name the structures labelled A and C **(2mks)**

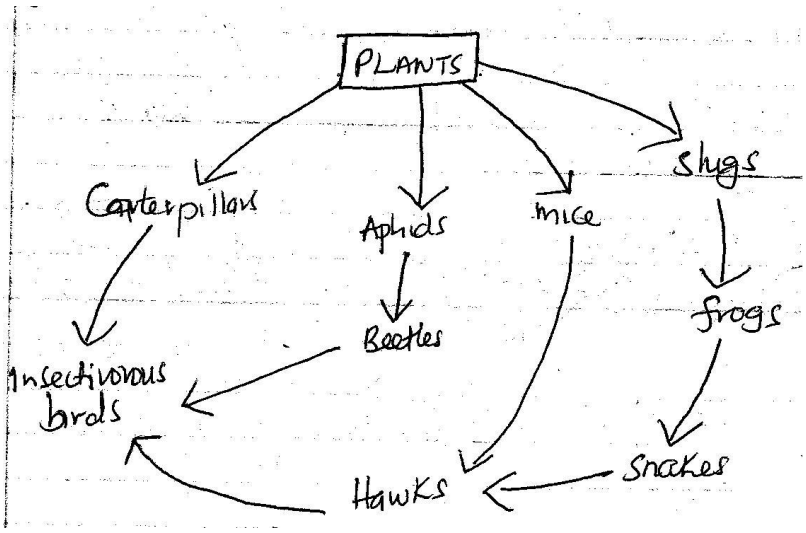
(ii) State the function of structure B. **(1mk)**

(b) Suggest the identity of the solution Q **(1mk)**

(c) Account for the change in Cell 1 above **(2mks)**

(d) State two importance of the physiological process being demonstrated above in living organisms. **(2mks)**

2. Study the following food web and answer the questions that follow.



Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

(a) **(i)** Name the organisms that occupy the second trophic level **(2mks)**

(ii) What is the other name for the second trophic level **(1mk)**

(b) Write down two food chains from the web that

(i) End with hawks as tertiary consumer **(1mk)**

(ii) End with hawks as Quaternary consumer. **(1mk)**

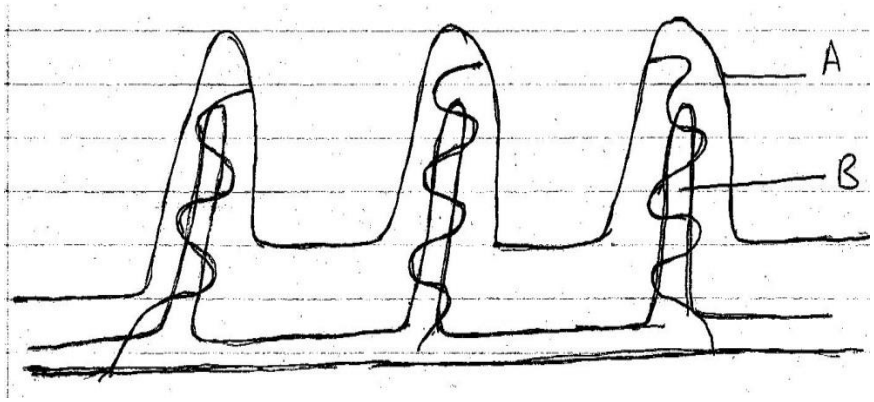
(c) Giving reasons state;

(i) The organism with largest biomass **(1mk)**

(ii) The organism with least biomass **(1mk)**

(d) Name the source of energy in the above ecosystem. **(1mk)**

3. The diagram below represents a longitudinal section through the ileum wall.



(a) Identify the structure labeled A and **B** **(2mks)**

(b) State one function of A and B **(2mks)**

(c) State two functions of the ileum. **(2mks)**

(d) Explain the role of the liver in digestion. **(2mks)**

4. The equation below represents a metabolic process that occurs in a certain organ in the mammalian body.

$$\text{Ammonia} \xrightarrow[\text{Carbon (IV) Oxide}]{\text{enzymes}} \text{Organic compound Q} + \text{water}$$

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

(a) Name the process represented in the equation. **(1mk)**

(b) Name the organ in which the process occurs. **(1mk)**

(c) Why is the process important to the mammal? **(1mk)**

(d) Identify the organic compound Q. **(1mk)**

(e) What happens to organic compound Q ? **(1mk)**

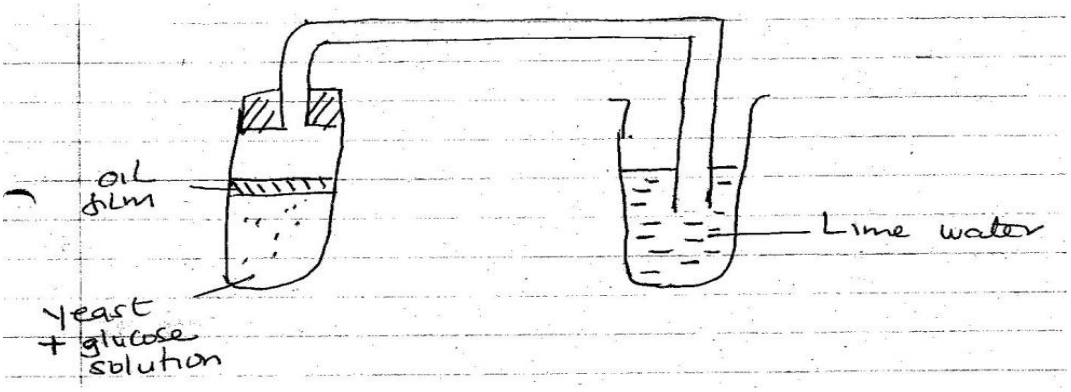
(f) A person was found to pass large volume of dilute urine frequently. Name the; **(3mks)**

(i) Disease the person was suffering from.

(ii) Hormone that was deficient.

(iii) The gland that secretes the above hormone.

5. Some glucose was boiled and cooled in a boiling tube. Some yeast was added and a layer of oil put on top. The set up below was used.



(a) Why was the glucose solution boiled before the experiment. **(1mk)**

(b) What is the use of the oil film in the experiment ? **(1mk)**

(c) Name the process being investigated by the above experiment. **(1mk)**

(d) State what happens to the lime water as the experiment proceeds to the end. **(1mk)**

(e) Explain what would happen if the temperature of glucose and yeast was raised beyond 45^0C. **(2mks)**

(f) State two industrial applications of the process being investigated above in the experiment. **(2mks)**

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

SECTION B (40MKS)

6. In an ecological study, a locust population and that of crows was estimated in a grassland area over a period of one year. The results were tabulated as shown below:-

Months	J	F	M	A	M	J	J	A	S	O	N	D
Number of locusts	90	20	11	25	200	450	652	15	10	35	192	456
Number of crows(birds)	4	2	0	1	8	16	22	2	1	1	5	15
Amount of rainfall	20	0	55	350	520	400	350	10	25	190	256	350

(a) Draw a graph of population of locusts and crows (birds) against time. **(8mks)**

(b) (i) State the relationship between rainfall and locust population. **(1mk)**

(ii) Account for the relationship you have stated in (b) (i) above **(1mk)**

(c) What happens on the populations of locusts and crows in the months of January to March ? Give a reason. (**2mks)**

(d) State one method used to estimate the population of locust. **(1mk)**

(e) **(i)** State the trophic level of the; **(2mks)**

Locusts -

Crows -

(ii) Construct a simple complete food chain involving these organisms **(2mks).**

(f) If the locusts were removed from the food chain, what would be its effect ? **(1mk)**

(g) Define the following terms **(2mks)**

(i) Biomass

(ii) Ecosystem

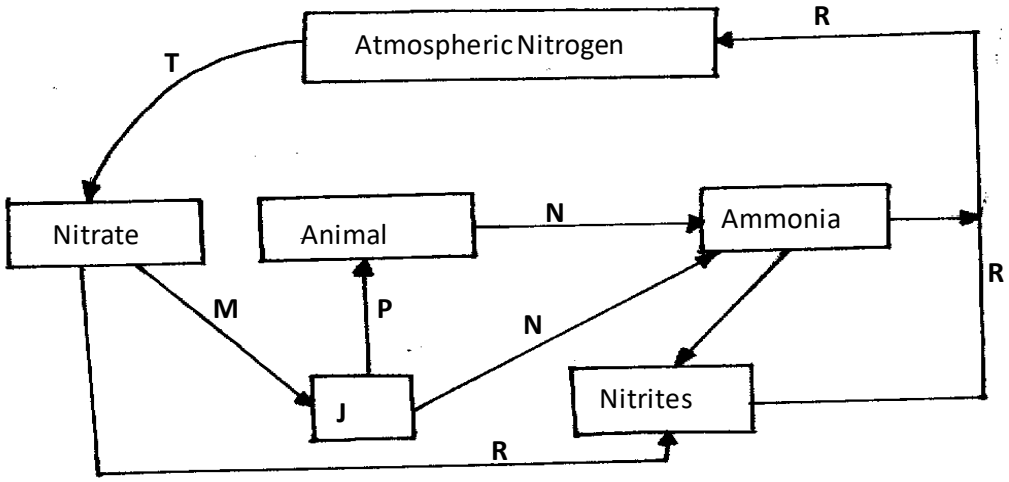
7. Describe how hydrophytes and xerophytes are adapted to deal with environmental problems in the regions where they grow. **(20mks)**

8. Describe how the mammalian skin regulates body temperature. **(20mks)**

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

FORM THREE HOLIDAYS KEYNOTE
BIOLOGY PP2 QUESTION PAPER NO: 05

1. The diagram below represents a nitrogen cycle.



(a) Name the groups of organism represented by **J.** **(1mrk)**

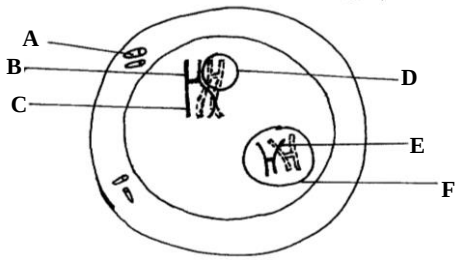
(b) Name the process represented by **R,P,M** and **N.** **(4mrks)**

(c) Name **one** process represented by **T.** **(1mrk)**

(d) (i) Name a structure in roots involved in process **M.** **(1mrk)**

(ii) State **one** adaptation of the structure named in d (i) above to its function. **(1mrk)**

2. The following diagram shows a cell at a certain stage of cell division.



a) Name the type and stage of cell division. (1mrk)

(b) (i) Give **one** reason for your answer in (a) above. (1mrk)

(ii) What is the significance of the process shown in the diagram above in relation to the behavior of chromosomes? (1mrk)

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

(c) What is the general name of organs where the above process occurs? **(1mk)**

(d) Name the part labeled; **C** & **F** **(2mrks)**

(e) State the significance of part labeled **A** in relation to the process shown above ?. **(1mrk)**

(f) Name **one** cell in plants which is haploid **(1mrk)**

3. In an experiment to analyze a 200cm^3 sample of air was treated with pyrogallic acid. This reduced its volume to 168cm^3. Potassium hydroxide was then added and the volume of gas reduced further to 160cm^3

(a) What was the role of pyrogallic acid? **(1mrk)**

(b) What was the role of potassium hydroxide? **(1mrk)**

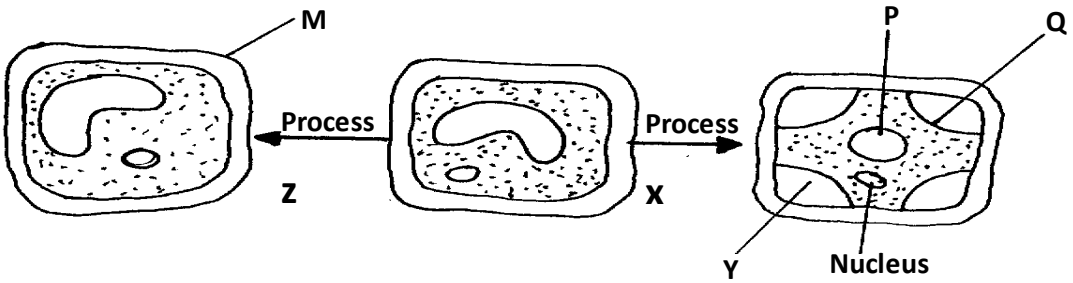
(c) Calculate the percentage of oxygen and percentage of carbon (iv) oxide in the sample. **(2mrks)**

(d) Suggest the likely biological source of carbon (iv)oxide gas. **(1mrk)**

(e) State the behavior of external intercostal muscles during exhalation. **(1mk)**

(f) Explain why smokers are more prone to respiratory tract infections than the non- smokers **(2mks)**

4. The diagram below represents **two** process underwent by a plant cell.



(a) Identify process **X** **(1mrk)**

(b) Name the state of the cell after undergoing process; **X** & **Z** **(2mrks)**

(c) Name the substance which is found in parts labelled; **P** & **Y** **(2mrks)**

(d) Name parts labelled **M** and **Q.** **(2mrks)**

(e) Name the cell organelle which is usually referred to as " cell's kitchen". **(1mrk)**

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

5.(a) Name **two** substances transported in blood plasma. **(2mrks)**

(b) Wanjiru is blood group **A**.

(i) Name an antibody found in her blood plasma. **(1mrk)**

(ii) Name an antigen found in her red blood cell. **(1mrk)**

(iii) Name the blood groups she can donate to; **(2mrks)**

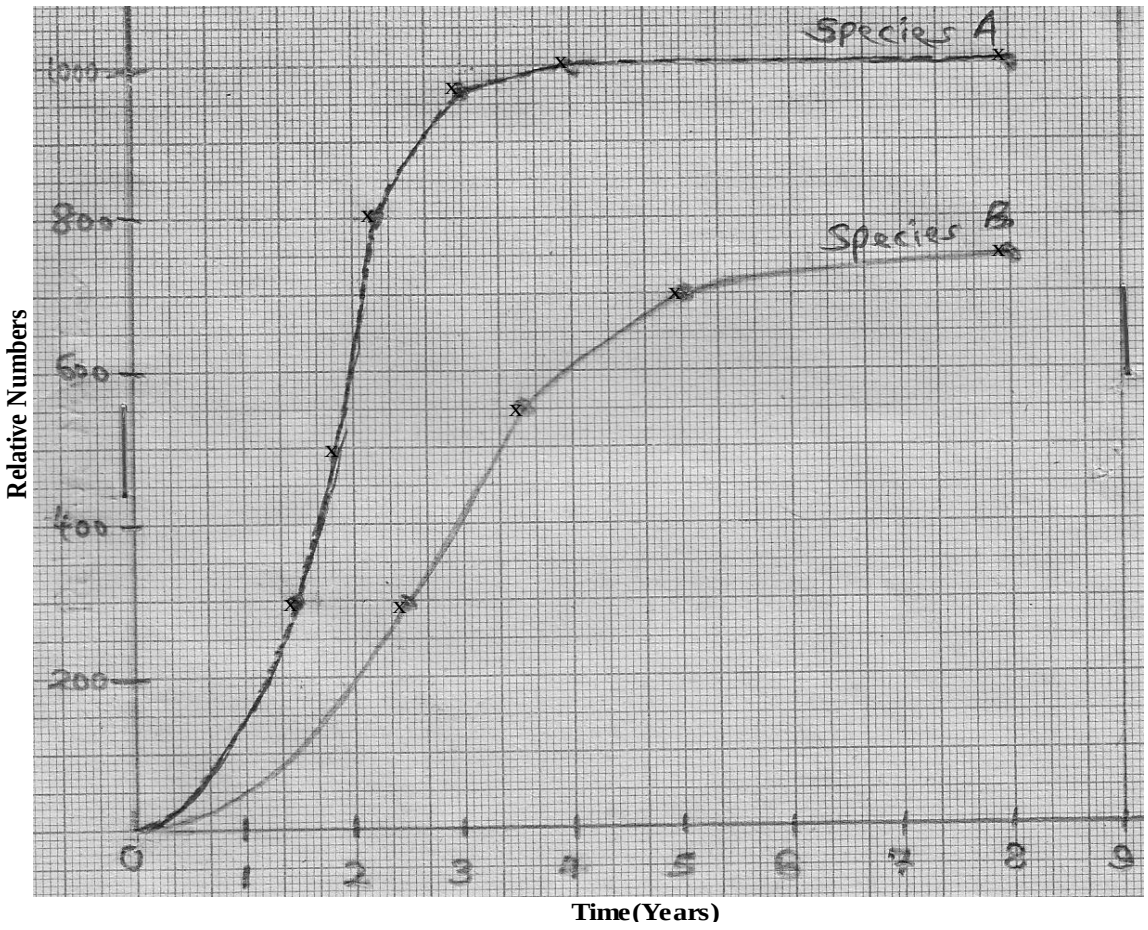
(c) What is meant by the term allergy? **(1mrk)**

(d) Name **one** substance that can cause allergy. **(1mrk)**

SECTION B(40MARKS)

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

6. Two herbivorous mammal species were introduced into an ecosystem at the same time and in equal numbers. The graph below represents their populations during the first seven years. Study the graph and answer the questions that follow.



Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

(a)(i) Which species has a better competitive ability? **(1mrk)**

(ii) Give a reason for your answer. **(1mrk)**

(b) Account for the shape of the curve for spicies **A** between;

(i) One year and three years. **(3mrks)**

(ii) 4 years and eight years. **(3mrks)**

(c)A natural predator of species **A** was introduced into the ecosystem. With a reason, state how the population of each species would be affected? **(4mrks)**

(d) State **four** other biotic factors of the ecosystem which affects organisms distribution in their habitat other than the one illustrated in the above graph. **(4mrks)**

(e) Name the instruments used to measure the following; **(4 Marks)**

(i) Light intensity.

(ii) Light penetration in water

(iii) Speed of wind..

(iv) Atmospheric pressure

7. Describe how human male reproductive system is adapted to its functions **(20 marks)**

8. Describe how seeds and fruits are adapted to different modes of dispersal. **(20marks)**

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

FORM THREE HOLIDAYS KEYNOTE
BIOLOGY PP2 QUESTION PAPER NO: 06

1) During an ecological study, form three students encountered three plant species: **X**, **Y** and **Z**. The students recorded the main features of each plant species, as shown below

X: - Leaves with broad lamina and with large air spaces

- Many stomata on the upper epidermis

Y: - Leaves with broad lamina

- Long flexible stems with tendrils

Z: - Large buttress roots

- Pneumatophores

(a) State the possible habitat of each plant **X, Y** & **Z**

(b) State the significance of the following:

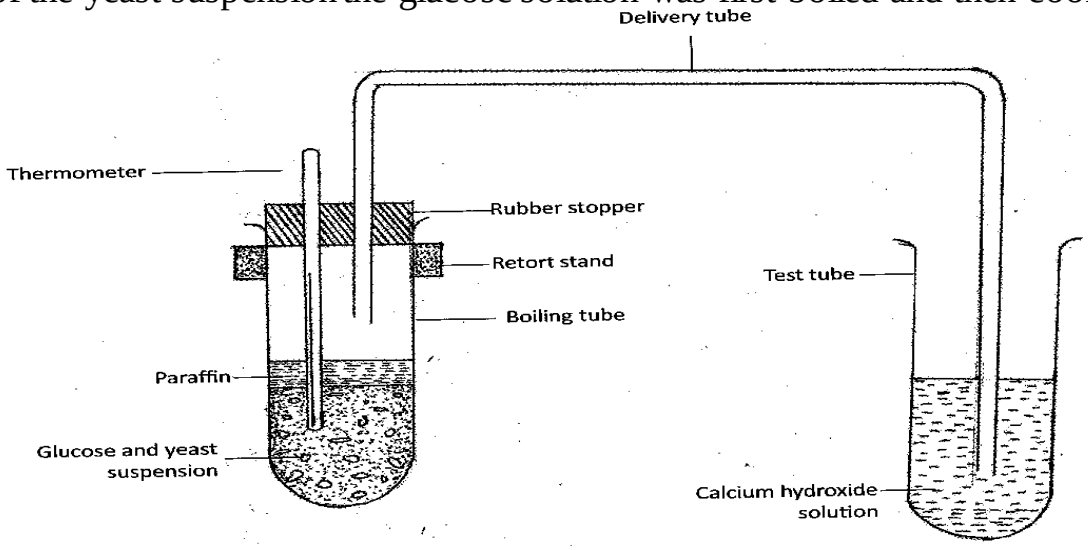
(i) Numerous stomata on the upper epidermis in plant **X** **(1 mark)**

(ii) Broad leaves in plant **Y** **(1 mark)**

(iii) Buttress roots in plant **Z** **(1 mark)**

(c) Give **two** problems faced by plant **X** in its habitat **(2 marks)**

2) The set up below illustrates an experiment to demonstrate a certain biological process, before the addition of the yeast suspension the glucose solution was first boiled and then cooled at 40°C.



Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

a) What was the aim of the experiment? **(1mk)**

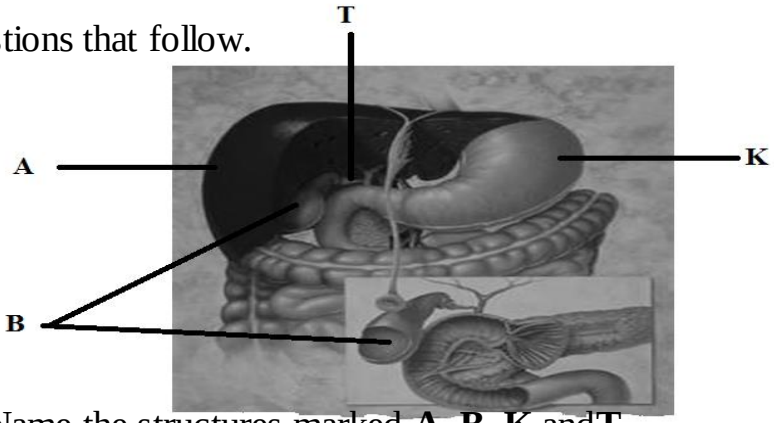
b) What observations would you make in the tubes a few minutes after the experiment begun **(2mks)**

c) Explain the observations made in (b) above **(2mks)**

d) Why was glucose solution boiled before cooling at 40°C **(1mk)**

e) How can you set up a control experiment for the above **(1mk)**

3). Use the photograph of mammalian digestive system and associated organs to answer the questions that follow.



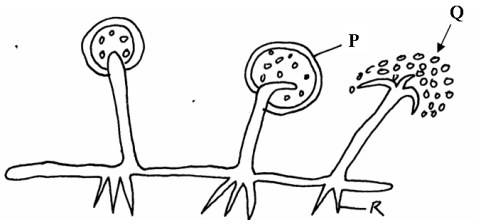
(i) Name the structures marked **A**, **B**, **K** and **T**. **(4marks)**

(ii) Name an acid found in the structure labelled **K**. **(1mark)**

(iii) Name the juice stored in the structure labelled **B** and give its function. **(2marks)**

(iv) Label with letter **D** part where function named in (iii) above takes place. **(1 mark)**

4) The diagram below represents a mature bread mould (Rhizopus)



(a) Name the structures P, Q and R **(3mks)**

(b) What is the function of the structure P? **(1mk)**

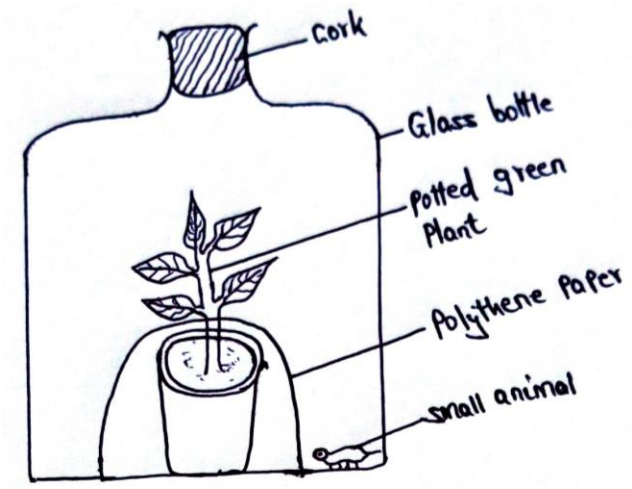
(c) State **two** economic importances of moulds **(2mks)**

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

(d)(i) Name the kingdom to which bread mould belong **(1mk)**

(ii) List down **one** general characteristic of member of the kingdom named in d (i) above.

5) An experiment was set up to investigate a factor in autotrophism in green plants.



Vaseline was applied at joint between the cork and the mouth of glass bottle and set up was left under sunlight for 6 hours.

a) Why was it necessary;

i) To apply Vaseline **(1mk)**

ii) To cover the pot with polythene paper **(1mk)**

iii) What was the purpose of including the small animals? Give two reasons. **(2mks)**

b) i) What would happen to the small animal if the set up was left over night in darkness **(1mk)**

ii) Account for the answer in b (i) above **(1mk)**

c) State the respiratory surface of the following organism **(2mks)**

i) Amoeba

ii) Fish

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

SECTION B (40MARKS)

6) A research was carried out to determine the trend of growth of some boys and girls. Their average mass in kilograms was taken separately for a period of 20 years and tabulated as shown in the table below.

Age	Average mass of boys (kg)	Average mass of girls (kg)
0	2.5	2.5
2	11.5	11.5
4	15.0	16.0
6	18.5	19.3
8	22.1	27.1
10	25.1	27.1
12	27.5	30.5
14	37.0	35.5
16	44.0	44.0
18	46.9	52.0
20	48.5	55

On the same axis draw a graph of the average mass of the girls and boys against age (7mks)

a) From graph, determine the:

i. Mass of boys at the age of 11 years **(1mk**

ii. Growth rate of girls between ages 13 and 15 **(3mks)**

iii. Account for the change in the mass of girls during the age stated in (ii) above **(2mks)**

b) Explain the trend observed in the curves for both boys and girls **(2mks)**

c) Why do girls above 10 years require intake of food that richer in iron than boys of the same age **(2mks)**

d) Apart from using average mass to estimate growth in human beings name two other parameters that can be used **(2mks)**

7) a) Describe the mechanism of inhalation and exhalation in mammals **(14mks)**

(b) Explain **three** factors that affect rate of breathing **(6mks)**

8) a) Describe the process of double fertilization in flowering plants. **(15 mks)**

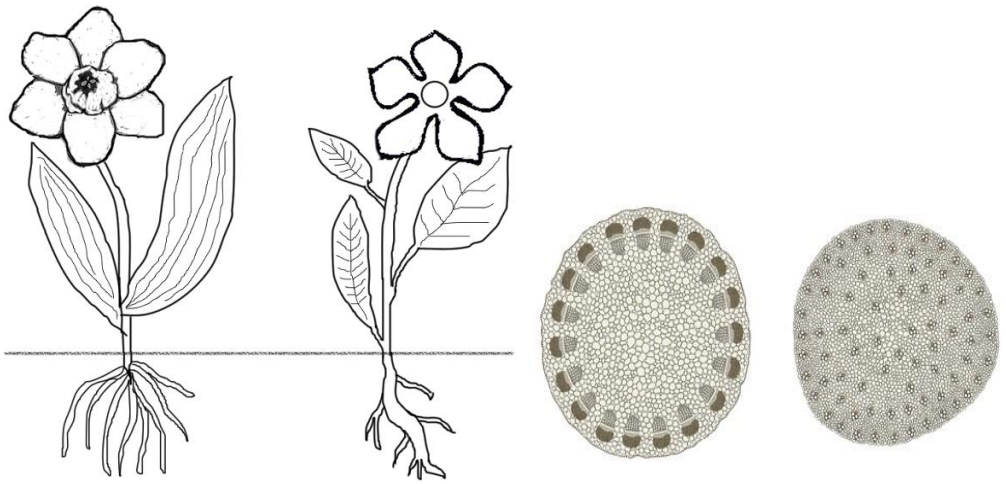
b) Describe what happens to the various parts of a flower after fertilization. **(5 mks)**

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

FORM THREE HOLIDAYS KEYNOTE
BIOLOGY PP2 QUESTION PAPER NO: 07

SECTION A (40 MARKS)

1. The diagrams shown below represent two different plants and sections of tissues obtained from them



Plant **A** Plant **B** Section **X** Section **Y**

a) Giving reasons based on the floral parts only, name the classes to which the plants **(4mks**

Plant	Class	Reason
A		
B		

b) i) From which organ of the plant were the sections **X** and **Y** obtained? **(1mk**

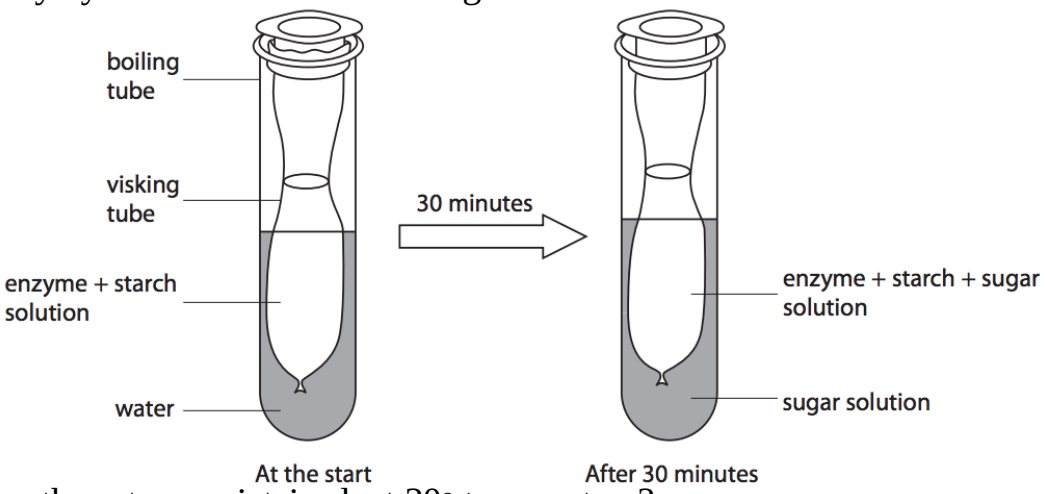
ii) Fill in the table below to match the sections and the plants represented above from which the sections were obtained **(2mks**

Section	Plant
X	
Y	

c) Which feature shows that the above plants belong to the Sub-division Angiospermaphyta **(1mk**

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

2. The following experimental set up was maintained at 30° for 30 minutes in a water bath for a biology study by Form ones in Kilimo High School.



a) i) Why was the set up maintained at 30° temperature? **(1mk**

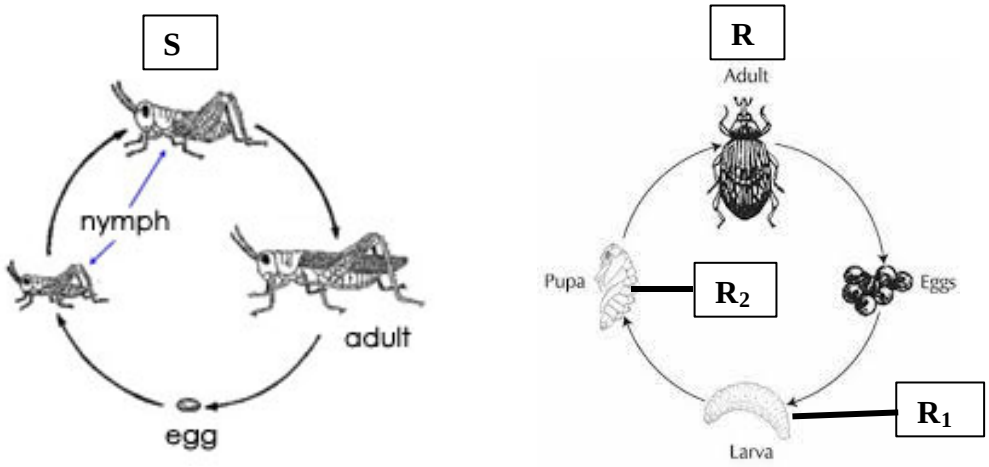
ii) Suggest an identity of the enzyme used in the experiment **(1mk**

b) i) Account for the observation made after 30 minutes **(3mks**

ii) Suggest a control experiment for the experiment above **(1mk**

c) Give **TWO** ways of increasing the rate of reaction in the visking tubing in order to have results of the experiment in less than 10 minutes **(2mks**

3. Different types of life cycle of insects are shown below



a) i) Identify the type of lifecycle represented by **S** **(1mk**

ii) Give **TWO** reasons for your answer in ai) above **(2mks**

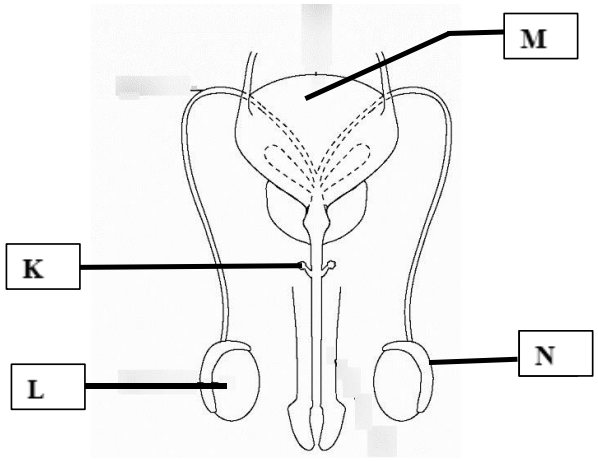
Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

b) Explain the advantage life cycle **R** has over life cycle **S** **(2mks**

c) State the importance of stage $\mathbf{R_2}$ in the development cycle **R** **(1mk**

d) i) Explain how development is affected by removal of the prothoracic gland during stage $\mathbf{R_1}$ of life cycle **R** **(2mks**

4. The human male reproductive system and associated glands is shown below



a) State the function of the part labelled **M** **(1mk**

b) i) Name the part labelled **N** **(1mk**

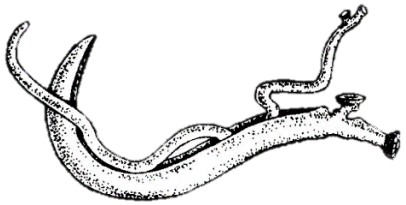
ii) How is **N** adapted to its function **(1mk**

c) What is the significance of part **L** hanging outside the male body? **(2mks**

d) State the function of secretions from the accessory gland labelled **K** **(1mk**

e) Explain the role of Luteinizing hormone in organ labelled **L** **(2mks**

5. The diagrams shown below are of two organisms associated with human diseases



P



Q

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

a) i) Name the vector of parasite labelled **P** **(1mk**

ii) What is the survival advantage of the close association of the male and female of parasite **P** as shown in the diagram above? **(1mk**

iii) List **TWO** symptoms of the disease caused by **P** **(2mks**

b) i) Name the parasite transmitted by the organism labelled **Q** **(1mk**

ii) Explain why only the female of organism **Q** transmit human diseases **(1mk**

c) Small fish can be used to control spread of human disease associated with **Q**. Explain **(2mks**

SECTION B (40 MARKS)

6. The table below shows data collected from an experiment on photosynthesis

Concentration of Carbon (IV) Oxide (%)	Rate of Photosynthesis (Arbitrary Units)	
	Low Light Intensity	High Light Intensity
0.00	0	0
0.02	20	20
0.04	29	36
0.06	35	51
0.08	39	68
0.10	42	84
0.12	45	89
0.14	46	90
0.16	46	90
0.18	46	90

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

a) i) What was the aim of the experiment? **(1mk**

ii) State **TWO** factors that should be controlled for the outcome of the experiment above to be reliable **(2mks**

b) Give **TWO** roles of light during the process of photosynthesis in plants. **(2mks**

c) On the same axes, plot a graph of rate of photosynthesis against the concentration of Carbon (IV) Oxide **(8mks**

d) Account for the rate of photosynthesis at the following concentration of Carbon (IV) Oxide:

i) 0.00% **(2mks**

ii) O.14% to 0.18% **(2mks**

e) From the graph drawn, determine the optimum concentration of Carbon (IV) Oxide **(1mk**

f) Give **TWO** ways in which photosynthesis is important to human beings **(2mks**

7. a) Describe the mechanism of gaseous exchange in a bony fish **(12mks**

b) Describe the adaptations of proximal convoluted tubules to its functions **(8mks**

8. a) Explain how the mammals maintain optimum osmotic pressure of blood. **(12mks**

b) i) Give **TWO** ways in which seed dormancy is important to a seed **(2mks**

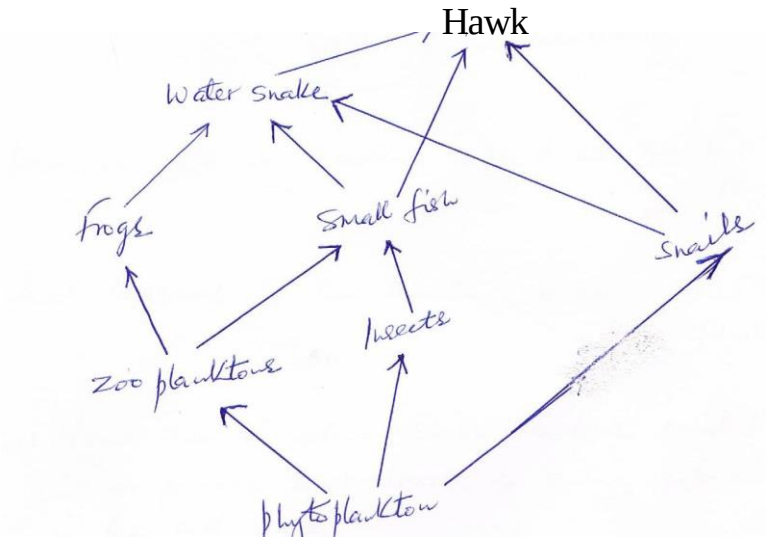
ii) Explain how water, oxygen and enzymes are important during seed germination **(6mks**

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

FORM THREE HOLIDAYS KEYNOTE
BIOLOGY PP2 QUESTION PAPER NO: 08

SECTION A 40 MARKS

Q1. The food web represents a feeding relationship in an ecosystem.



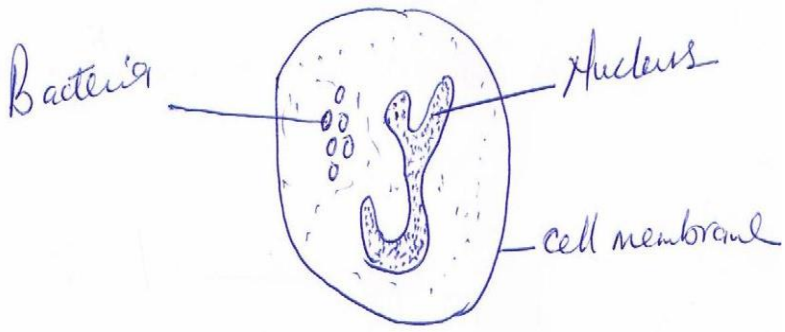
(a) Name two organisms which are both secondary and tertiary consumers **(2mks)**

(b) State the short term effect of immigration of insects in the ecosystem. **(2mks)**

(c) Which organism has the least biomass in the food web? Give reasons **(2mks)**

(d) Explain the disadvantages of using synthetic pesticides over biological control in agriculture **(2mk)**

Q2. The diagram shows a white blood cell



Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

(a) Describe how the bacteria entered into the cell **(2mks).**

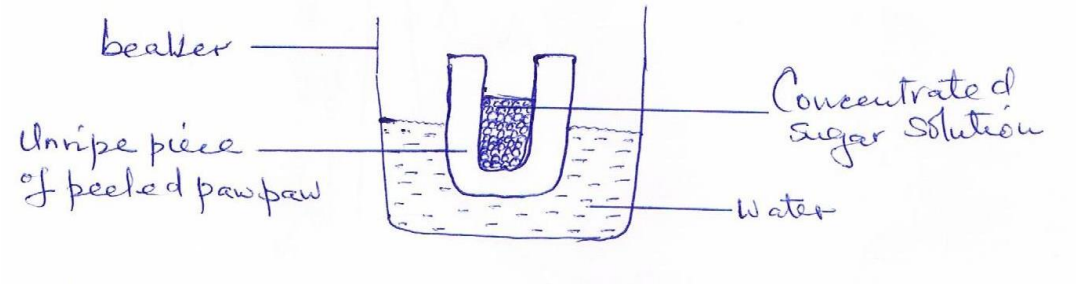
(b) What happens to the bacteria once in the cell? **(2mks)**

(c) (i) Name the kingdom whose members exhibit the same process that leads to entry of bacteria in the cell **(1mk)**

(ii) besides the process described in (a) above, state two ways by which white blood cells protect the body. **(2mks).**

(iii) State where white blood cells (lymphocytes) are made. **(1mk)**

Q3. A group of students set up an experiment to investigate a certain physiological process. The set up is as shown in the diagram below:



(a) After sometime, the students observed that the level of the sugar solution had risen. What physiological process was being investigated? **(1mk)**

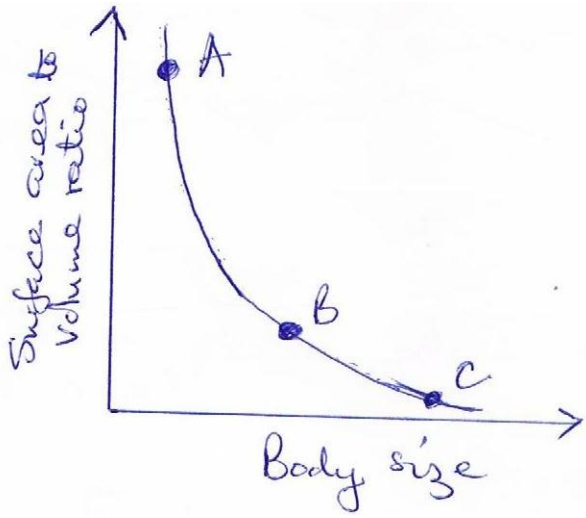
(b) Account for the rise in the level of sugar solution in the experiment. **(3mks)**

(c) (i) Suggest the results that the students would obtain if they repeated the experiment Using a piece of boiled paw paw. **(3mks)**

(ii) Give a reason for your answer in (c) (i) above **(1mk)**

Q4. The graph shows relationship between body size and surface area to volume ratio of Organisms. Three animal species A, B and C are marked on the graph.

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

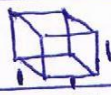
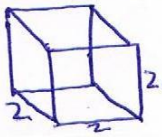


(a) Which of the three animals is likely to have the simplest transport system? Give a reason for your answer **(2mks).**

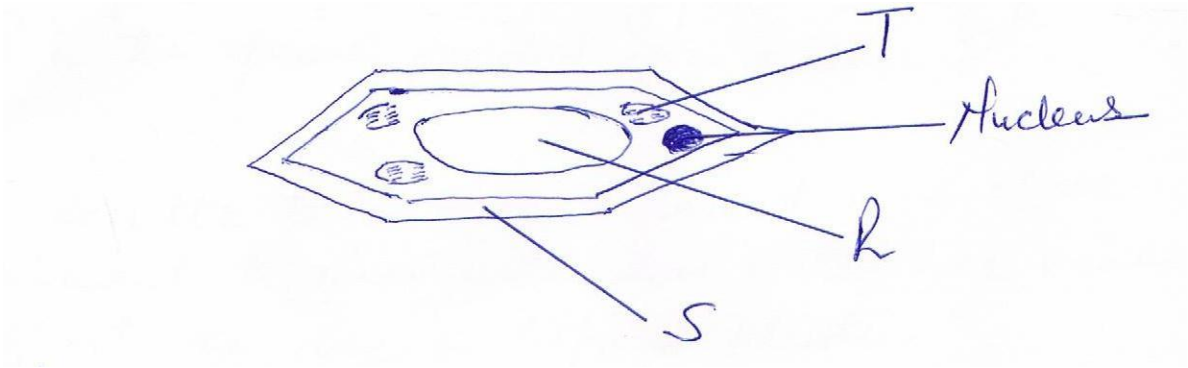
(b) Give the formula used to calculate surface area to volume ratio of an organism. **(1mk).**

(c) State two disadvantages of small surface area to volume ratio in organisms. **(2mks).**

(d) Showing your working, calculate the surface area to volume ratio of the following organisms X and Y.

Organism	Surface area (cm^2)	Volume (cm^3)	Surface area : volume ratio
X 	½	½	
Y 	½	½	

Q5. The diagram represents a plant cell.



Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

(a) Name a carbohydrate which forms the structure labeled S **(1mk)**

(b) (i) State the function of the part labeled R **(2mks)**

(c) Name two cell organelles present in the diagram but absent in animal cells **(2mks)**

(d) Complete the following table. **(2mks)**

Eye – piece lens magnification	Objective lens magnification	Total magnification
X10	X5	
	X40	X600

SECTION B (40 MARKS)

Q6. The results below were obtained in a class experiment to investigate how water loss varies Throughout the day in tropical plants.

Time in day (hrs)	2.00 am	6.00a m	8.00 am	10.0 0am	12.0 0am	1.00 pm	2.00 pm	3.00 pm	4.00 pm	6.00 pm	8.00 pm	12.00 midnight
Water loss $gm^{-2}\ h^{-1}$	14	35	135	275	315	285	245	175	75	16	16	

(a) (i) Plot a graph of amount of water lost against time. **(6mks)**

(ii) At what time of the day was 210 $mg^{-2}\ h^{-1}$ of water lost? **(1mks)**

(b) Account for the amount of water lost between

(i) 2.00 a.m and 6.00 a.m **(2mks)**

(ii) 6.00 a.m and 1.00 p.m **(2mks)**

(iii) 1.00 p.m and 6.00 p.m **(2mks)**

(c) (i) Which set of apparatus was used in the experiment? **(1mks)**

(ii) State the effect of putting an electric fan near the apparatus during the experiment. Give a reason for your answer **(2mks)**

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

(d) In a related ecological study two habitats each of 25 meters square were studied for five hours. Habitat A was an open pond while B was a forested area. More water was found to be lost in habitat B than A. explain **(2 mks)**

(e) In a related ecological study two habitats each of 25 meters square were studied for five hours. Habitat A was an open pond while B was a forested area. More water was found to be lost in habitat B than A. explain **(2 mks)**

7. (a) Giving examples,describe how various fruits and seeds are suited to different methods dispersal. **(17mks)**

(b) state the differences between a seed and a fruit. **(3mks)**

8. Describe how the ileum is adapted to its functions. **(20mks)**

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

FORM THREE HOLIDAYS KEYNOTE
BIOLOGY PP2 QUESTION PAPER NO: 09

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.

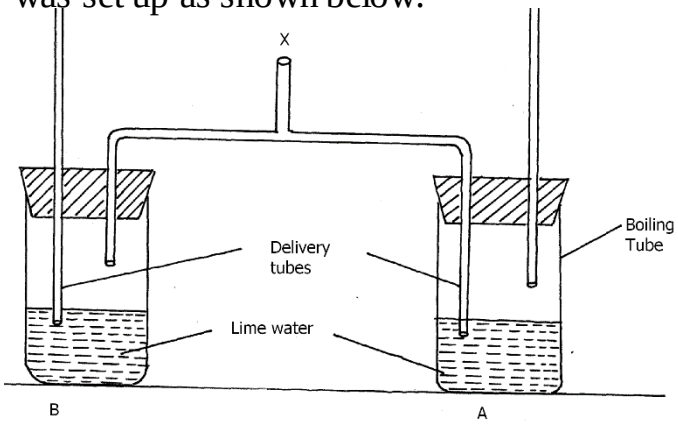
a) From the above information, construct a food web. **(3mks)**

b) In which trophic level is small fish found. **(1mk)**

d) Suppose all the crabs were poisoned, what would be the immediate effect in the ecosystem. Give a reason. **(1mk)**

(e) Give a reason why pyramid of biomass is a better representation of energy flow in an eco system than pyramid of numbers. **(1mk)**

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)**

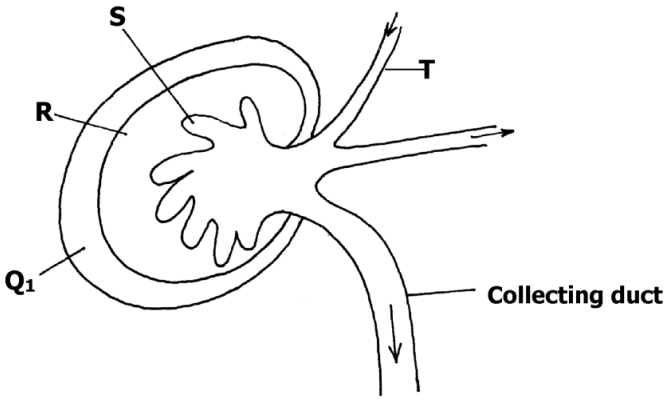
(c) What is the effect of lactic acid in the thigh muscles of an athlete after a short fast race. **(2mks)**

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

(d) Identify the type of muscle in human being where formation and effect of lactic acid is not felt. **(1mk)**

(e) What is the biological significance of boiling milk /ultra heat treated milk. **(1mk)**

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



a) Name the organ **(1mk)**

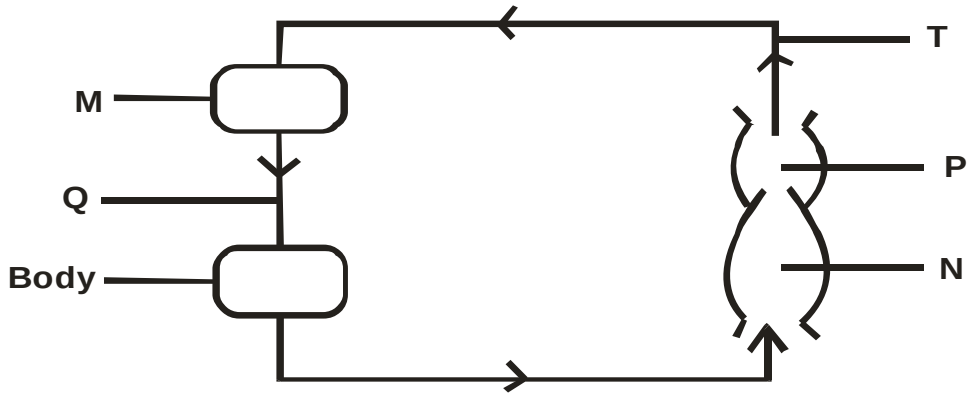
b) Identify the parts R and S **(2mks)**

c) i) State two differences in the structure above found in the deserted- rat and fish **(3mks)**

ii) Account for the difference stated above. **(2mks)**

d) Name the gland associated with the secretion of aldorsterone hormone. **(1mk)**

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



Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

a) Identify the type of circulatory system shown above. **(1mk)**

b) Name **one** class of animals having this type of circulatory system. **(1mk)**

c) Identify parts labelled M, N and P. **(3mks)**

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

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

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

$$\underset{\textit{Sucrose}}{C_{12}H_{22}O_{11}} \longrightarrow \underset{\textit{Fructose}}{C_6H_{12}O_6} + \underset{\textit{Glucose}}{C_6H_{12}O_6}$$

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

a) Suggest identity of the substances **K & L** **(2mks)**

b) Other than temperature, state three factures that increase the rate of reaction. **(3mks)**

c) Explain how substance "L" slowed the rate of reaction. **(2mks)**

d) What type of reaction is represented by the equation above? **(1mk)**

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

SECTION B (40 MARKS)

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)**

c) Account for the level of glucose in present Y

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

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

d) Account for the decrease in glucose level person Z after 60 minutes. **(2mks)**

e) Low blood sugar level in harmful to the body .Explain. **(3mks)**

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)**

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

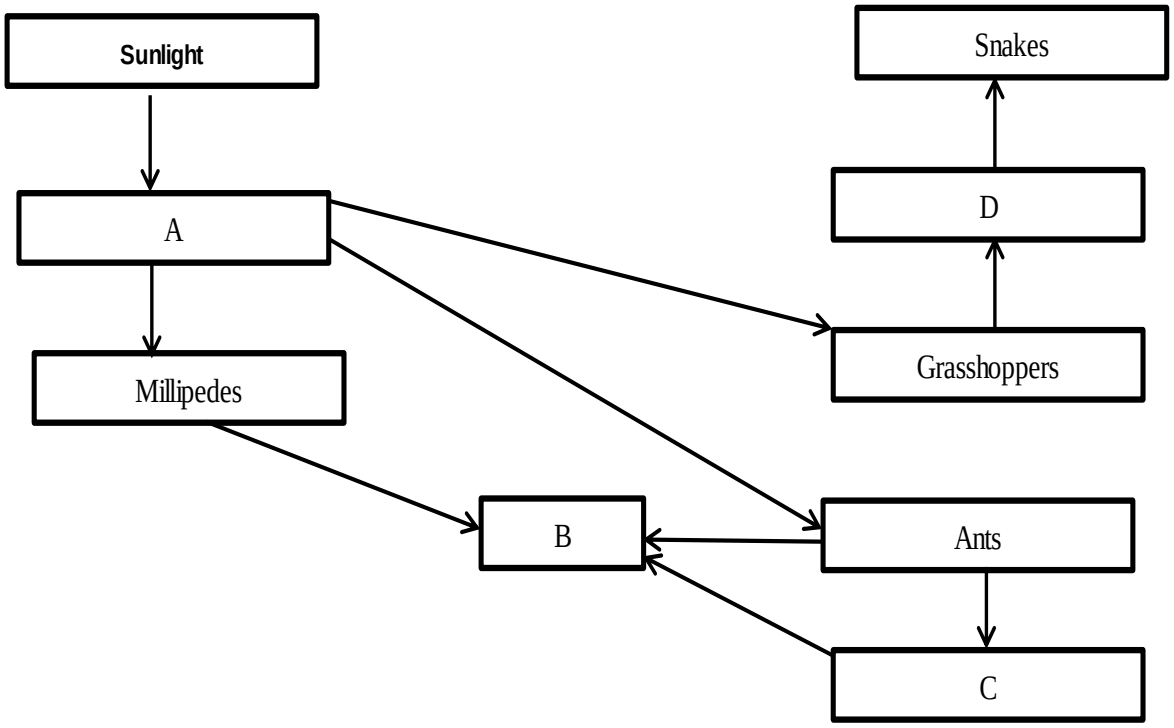
FORM THREE HOLIDAYS KEYNOTE
BIOLOGY PP2 QUESTION PAPER NO: 10

SECTION A (40 MARKS)

Answer all questions in this section

1. The following organisms were found to exist in a certain ecosystem, ***lizards, grass, Grasshopper, centipedes, ants, toads, millipedes and snakes.***

a) In a chart below, fill in the boxes A to D with the organisms listed above to complete a food web in the ecosystem. **(4mks)**



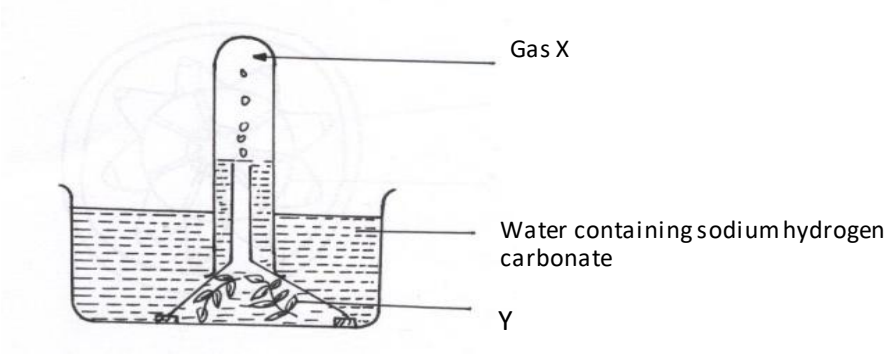
b) From the list of organisms given above, name the organism which has the largest biomass. **(1mks)**

c) Give a reason for your answer. **(1mks)**

d) Explain the ecological importance of fungi to plants. **(2mks)**

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

2. The set up shown was used to investigate a certain process. The set up was left in bright sunlight for 4 hours.



a) State the aim of experiment **(1mk)**

b) Name X and Y **(2mks)**

c) Other than sunlight name three factors that would affect the experiment **(3mks)**

d) State how the identity of gas X could be confirmed **(1mk)**

e) Explain why submerged water plants was used in the experiment **(1mk)**

3. (a) What is meant by:

i) Autecology **(1mk)**

ii) Synecology **(1mk)**

(b) Using the table below, answer the questions that follow

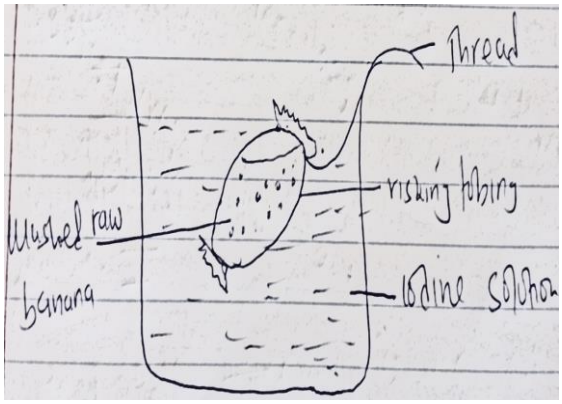
	Number of stomata	
Leaf	**Upper epidermis**	**Lower epidermis**
A	300	0
B	150	200
C	02	13

Suggest the possible habitat of the plants from the leaves were obtained **(3mks)**

(c) State the modifications in the stomata of leaf C **(3mks)**

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

4. In an investigation, a raw banana was peeled, mashed into a paste and treated as shown in the set up below.



a) Name the physiological process being investigated **(1mk)**

b) State the expected observations in the above set up after 30 minutes **(2mks)**

c) Account for the observations made in (b) above. **(2mks)**

d) State three role of active transport in human **(3mks)**

5. Study the table below and answer the questions that follows:

substance	% in blood Plasma	% in glomerular Filtrate	% in urine
Water	100	90	60
Protein	6.5	0	0
Urea	0.03	0.03	1.8
glucose	0.1	0.1	0

a) Why is the concentration of protein in glomerular filtrate and urine zero? **(1mk)**

b) (i) By how many times is urea more concentrated in urine than in glomerular Filtrate? **(1mk)**

(ii) Explain why there is greater concentration of urea in urine than glomerular filtrate **(1mk)**

c) Explain why there is no glucose in urine **(1mk)**

d) State the economic importance of the following plant excretory products **(2 mks)**

i) Rubber **ii)** Papain

e) State two reasons why plants lack complex excretory organs. **(2mks)**

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

SECTION B: (40MARKS)

6. During germination and growth of cereal, the dry weight of the endosperm, the weight of the embryo and the total dry weight were determined at two days intervals. The results are shown in the table below.

Time after planting (days)	Dry weight of endosperm (mg)	Weight of embryo (mg)	Total dry weight (mg)
0	43	2	45
2	40	2	42
4	33	7	40
6	20	16	37
8	10	25	35
10	6	33	39

(a) On the same axes, plot a graph of dry weight of endosperm, weight of the embryo and the total dry weight against time. **(8mks)**

(b) What was the total dry weight on day 5? **(1mk)**

(c) Account for the;

i) Decrease in dry weight of the endosperm from day 0 to 10 **(2 mks)**

ii) Increase in weight of the embryo from day 0 to 10 **(2mks)**

iii) Decrease in the total dry weight from day 0 to 8 **(1mk)**

iv) Increase in the total dry weight after day 8 **(1mk)**

(d) State two factors within the seed and two outside the seed that cause dormancy. **(2mks)**

7. (a) Explain how xerophytes are adapted to their habitat. **(12mks)**

(b) State four differences between mitosis and meiosis.. **(8mks)**

8. (a) Explain inspiration in the gills of bony fish **(10mks)**

(b) Explain the factors affecting the rate of breathing in humans **(10mks)**

Prefer Calling Amobi Group of Examiners@ 0743 333 000 or 0706 851 439 for Marking Schemes

CALL AMOBI GROUP OF EXAMINERS @ 0743 333 000 OR 0706 851 439 TO ACQUIRE :











