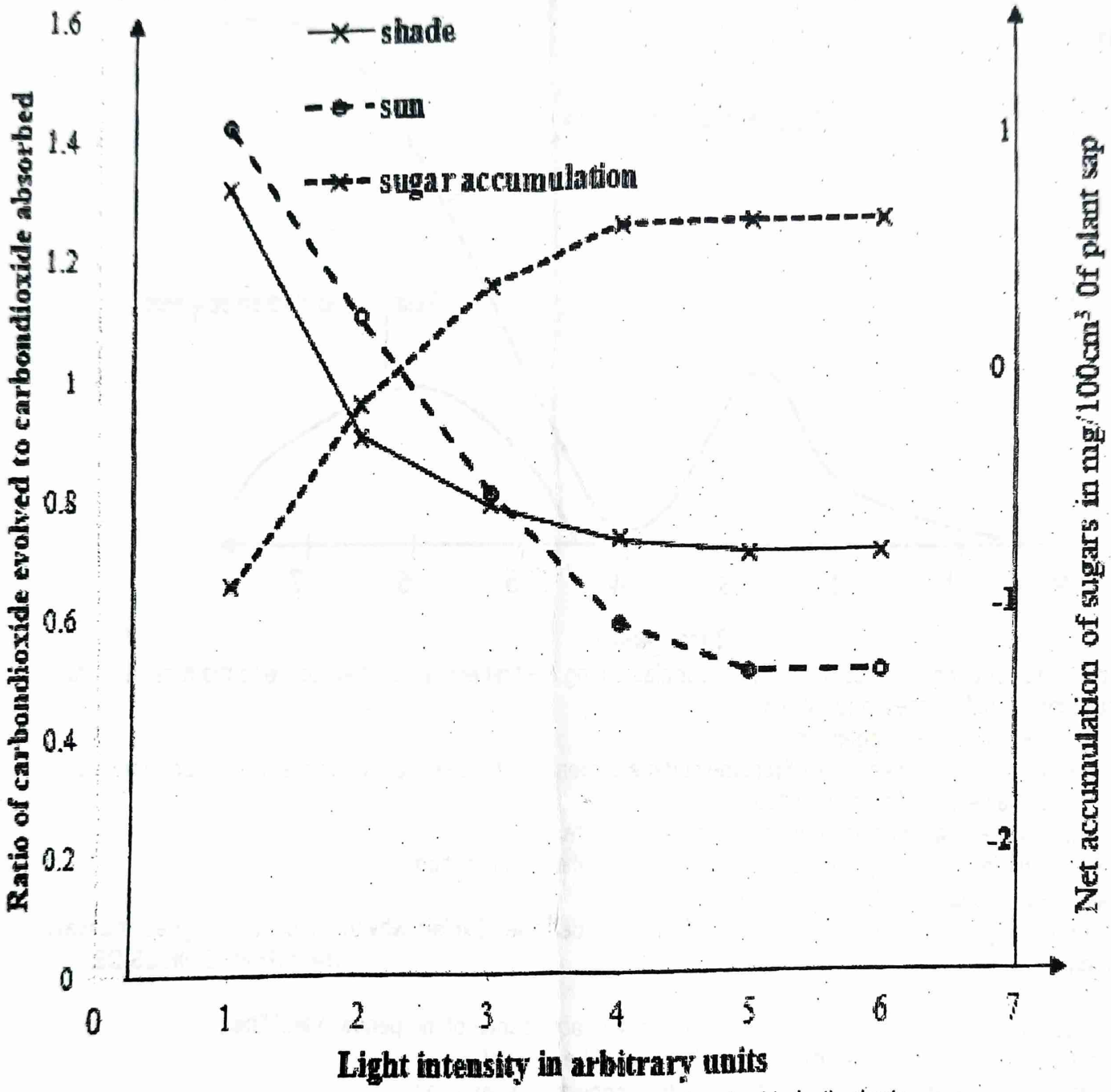
**1.** The **ratio of carbon dioxide evolved to carbon dioxide absorbed** by leaf cells of shade and sun plants together with the accumulation of sugars in leaves of sun plants were studied at different light intensities. The plants used were of the same species. The results obtained are shown in the figure below. Study the information and answer the questions that follow






(a) (i) Compare the ratio of carbon dioxide evolved to carbon dioxide absorbed in both plants.
(ii) Explain the ratio of $CO_2$ evolved to $CO_2$ absorbed for sun plants with increasing light intensity.
(b) Explain the difference in;
(i) Compensation period between shade and sun plant
(ii) Ratio of carbon dioxide evolved to carbon dioxide absorbed beyond 4 a.u of light intensity.
(c) Explain the effect of light intensity on net accumulation of sugars .
(d) Explain **three** leaf differences between shade and sun plants.
(e) Why were plants of the same species used during the experiment? **ST. JOSEPH'S SSS NAGGALAMA**

**2.** The table shows the results of an experiment carried out on the blood sucking bug of genus Rhodinus. Study the information in the table and answer the questions that follow.

| Experiment | Results |
|---|---|
| 1. Blood sucked by bug, then head cut off after 2 days later | Bug survives briefly, no moulting |
| 2. Blood sucked by bug, then head cut off 7 days later | Bug survives longer and moults |
| 3. Brain from a moulted larva transplanted into another larva of the same stage | Larva moults but does not develop into an adult |

a) Explain the observation in; i) Experiment 1 ii) Experiment 2
b) Explain the role of brain in insect development as observed in experiment 3.
c) (i) Suggest ways how the larva can be induced to develop into adult.
(ii) Of what significance are larval forms in the life cycle of insects?
d) Describe how food ingestion stimulates larval development into an adult grasshopper.
e) Explain the significance of giant axon neuro-secretion in man. **SEETA HIGH SCHOOL GREEN CAMPUS**

3. **(a) Explain the role of;**
(i) the cochlea in detection of sound and discrimination of volume and pitch,
(ii) the retina in the detection of colour and discrimination of colour, in mammals.
**(b) Account for the following.**
(i) Rod cells produce an indistinct image.
(ii) Rod cells are concerned with night vision.
(iii) Visual acuteness is greatest at the region of fovea.
(iv) When a person enters a dimly lit room from bright sunlight, the room at first seems dark but gradually objects become visible.
(v) When a person enters into a foul-smelling room, the smell eventually dies out.
**UGANDA MARTYRS SS NAMUGONGO**

4. Figures 1 (a) and 1 (b) show the physiological changes that occur in a fruit as it ripens.

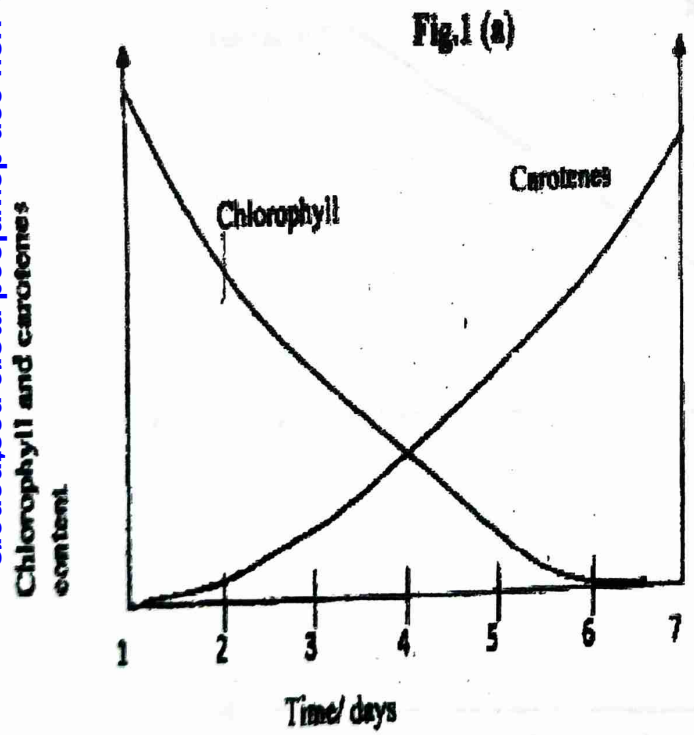


Fig.1 (a)

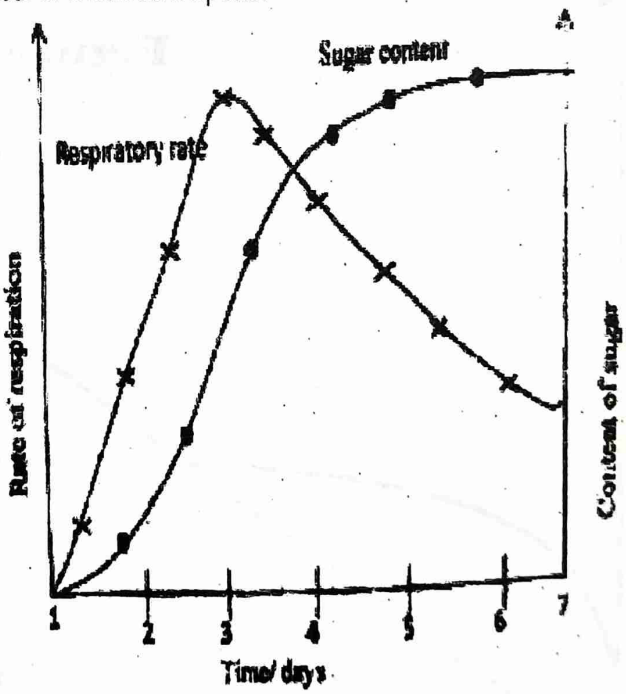


Fig. 1(b)

(a) State the relationship between sugar content and respiration rate during ripening of fruit.
(b) Give an account for the relationship given in (a) above.
(b) Explain the relationship between the content of chlorophyll and carotenes.
(c) What is the ecological significance of each of the changes depicted on the figures?
(d) Outline the other changes which occur in a fruit as it ripens. In each case, give the importance of the change.
**ST. JOSEPH'S S.S.S NSAMBYA**

5. **Figure 1** shows changes in the different potentials of a fully plasmolysed plant cell placed in a hypotonic solution. **Figure 2** shows the rate of movement of two different substances across a phospholipid membrane; glucose by facilitated diffusion and water by simple diffusion, at varying extracellular concentration.

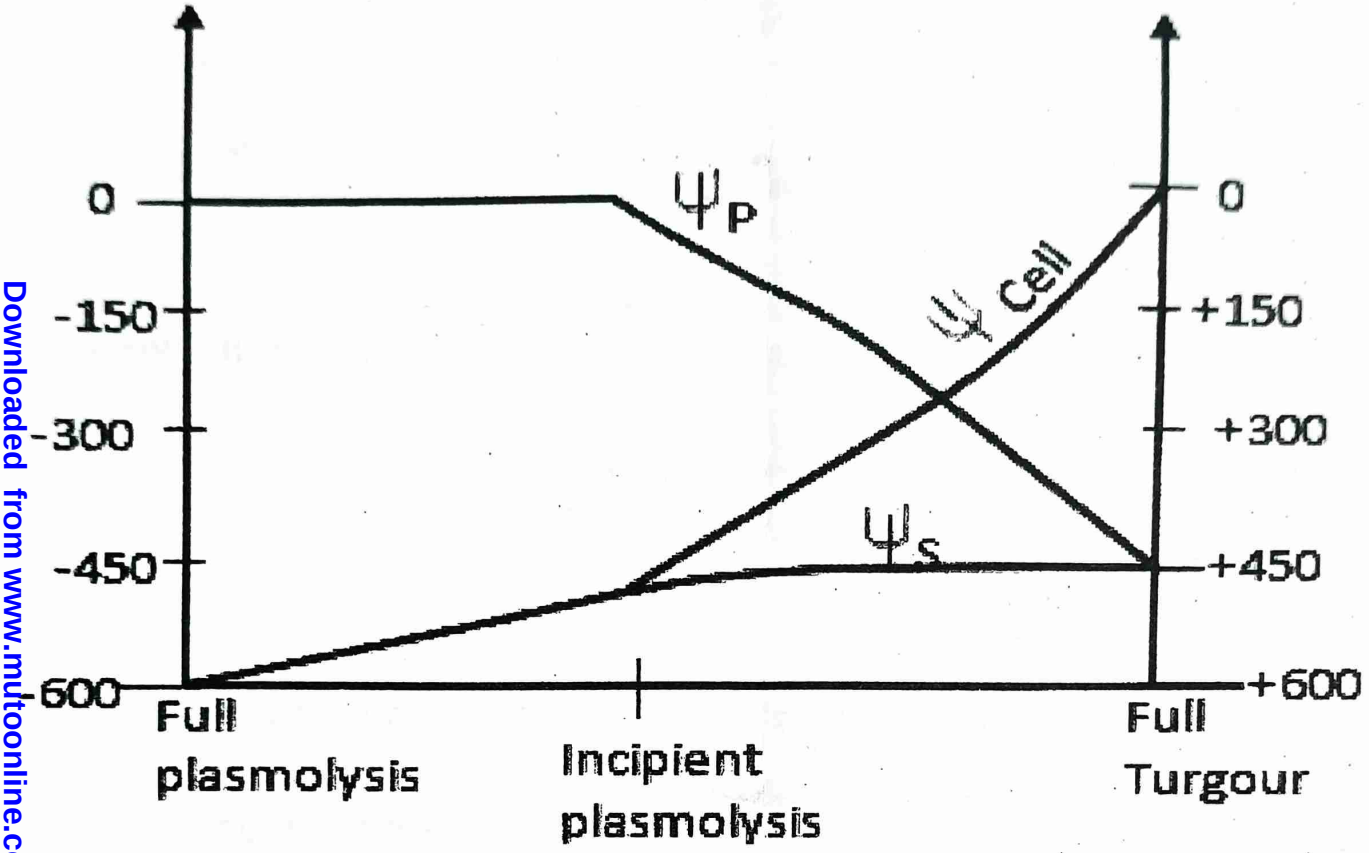
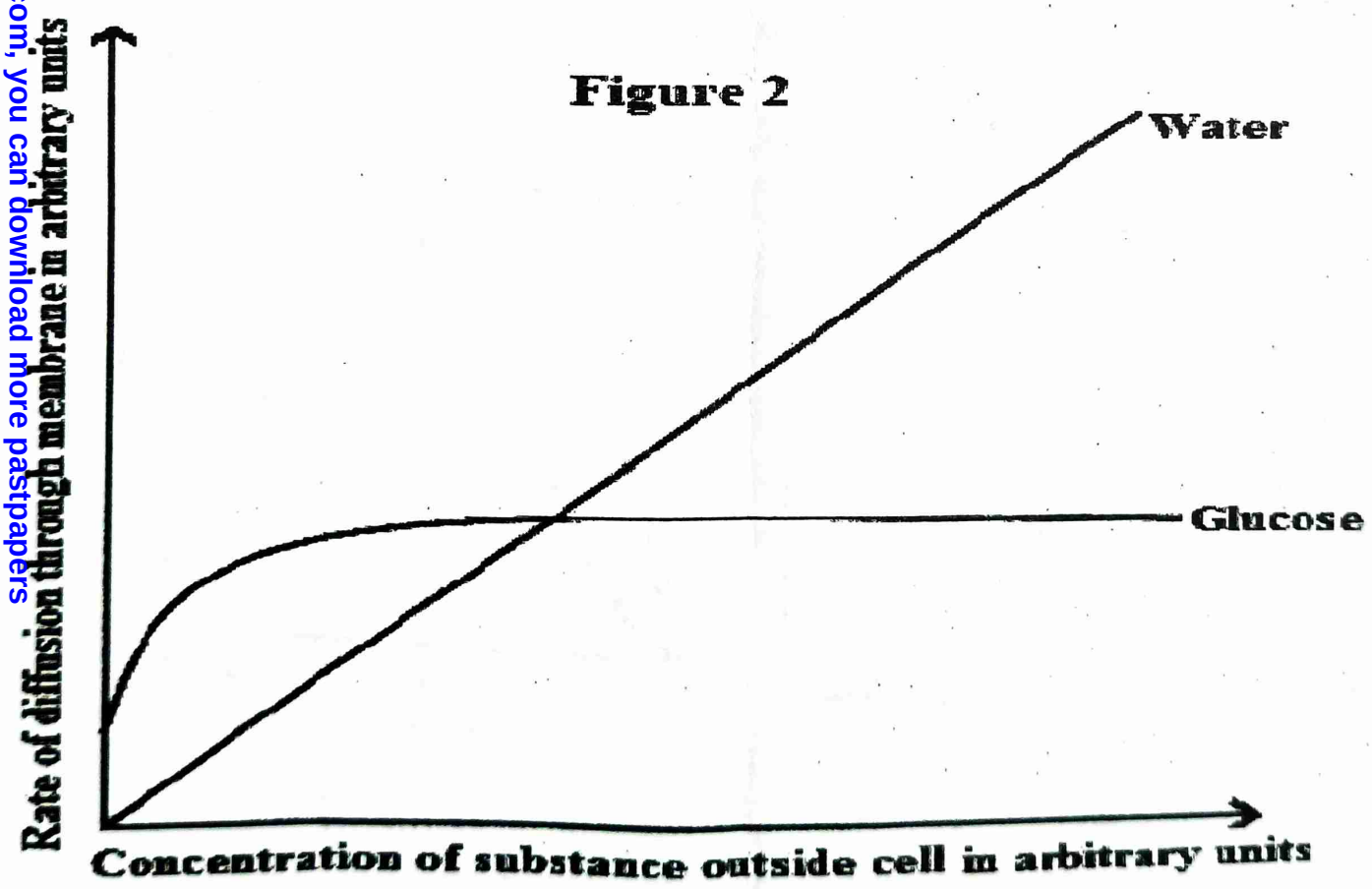



**Figure 2**

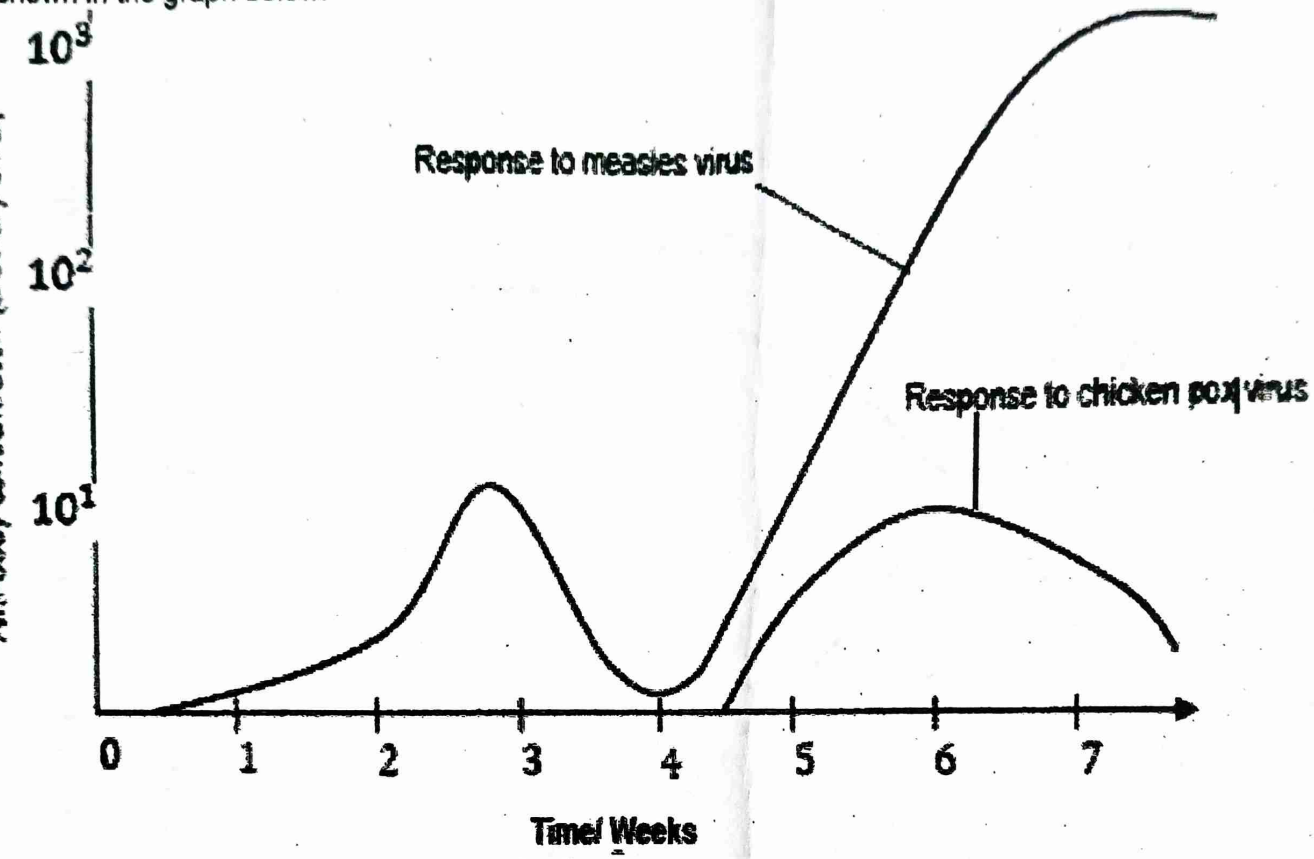



(a) From **figure 1**, compare the **changes** in pressure potential and water potential.
(b) As indicated in **figure 1**, explain the change in water potential from full plasmolysis to full turgor.
(c) From **figure 2:** Describe the effect of increasing extracellular concentration:
(i) on glucose uptake. (ii) on water uptake

(d) Explain the observed rates of uptake of glucose and water.

ST. ELIZABETH SS NKOOWE

6. The concentration of antibodies of a child was measured over a period of eight weeks. The child was exposed to the measles virus at a time 0 weeks when he inhaled droplets from the infected person. At the fourth week, the child was exposed to the measles virus, and at the same time, he was exposed to chicken pox virus. The results are shown in the graph below.




(a) Compare the variation in concentration of antibodies during the first and second exposure to the measles virus.
(b) Account for the differences in (a) above.
(c) Using the results above, suggest why;
(i) Children who catch measles for the first time suffer symptoms of the disease, but normally recover completely within two to three weeks of being infected.
(ii) A person who has had measles normally is immune for life.
(iii) A measles patient is mostly infectious about 8-16 days after first infection.
(iv) Measles vaccine is not administered at birth
(d) Innate immunity is sometimes referred to as 'first line of defense'. Explain why this is so; and suggest the ways how the child achieves it.

NAMIREMBE HILLSIDE

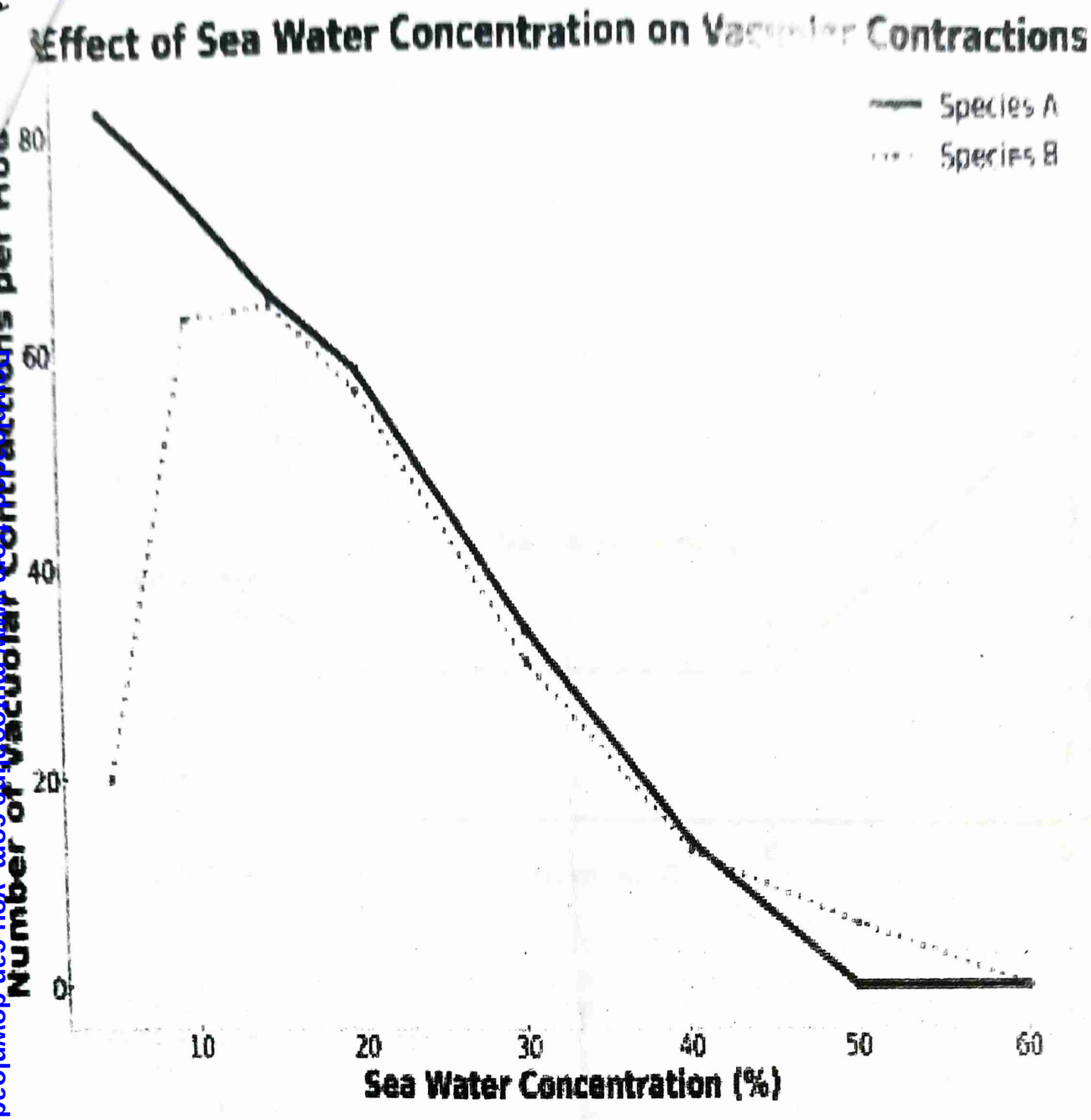
7. (a) (i) Describe how a quadrat can be used to determine abundance of millipedes in leaf litter.
(ii) Explain the important **assumptions** made when using the quadrat.
(iv) What **limitations** are associated with quadrats in population sampling?
(b) Discuss the biological role of millipedes in nature.

NDEEBA SS KAYUNGA

8. (a) Describe how gene mutation may affect the phenotype of an organism.
(b) Explain why:
(i) gene mutation by deletion usually causes severe effects than substitution mutation.
(ii) sickle cell allele is at a selective disadvantage in non-malarial regions.

KAKUNGULU MEMORIAL H/S

9. Two species of amoeba were transferred from their natural habitats to different dilutions of sea water; each individual was given time to adjust to its new environment. The table below shows data about the rate of vacuolar contractions with varying solute concentrations. Note that concentration of normal sea water=100%.




(a) Discuss the activity of contractile vacuoles with changes in salinity.
(b) Explain by reference to the data, the difference in vacuolar contraction in the two species of Amoeba when placed in the higher concentrations of seawater.
(c) What information may be deduced about the natural habitats of the two species from the rates of vacuolar contractions? Explain your answer.
(d) Explain the effect of respiratory poison such as cyanide presence in fresh waters to an amoeba.

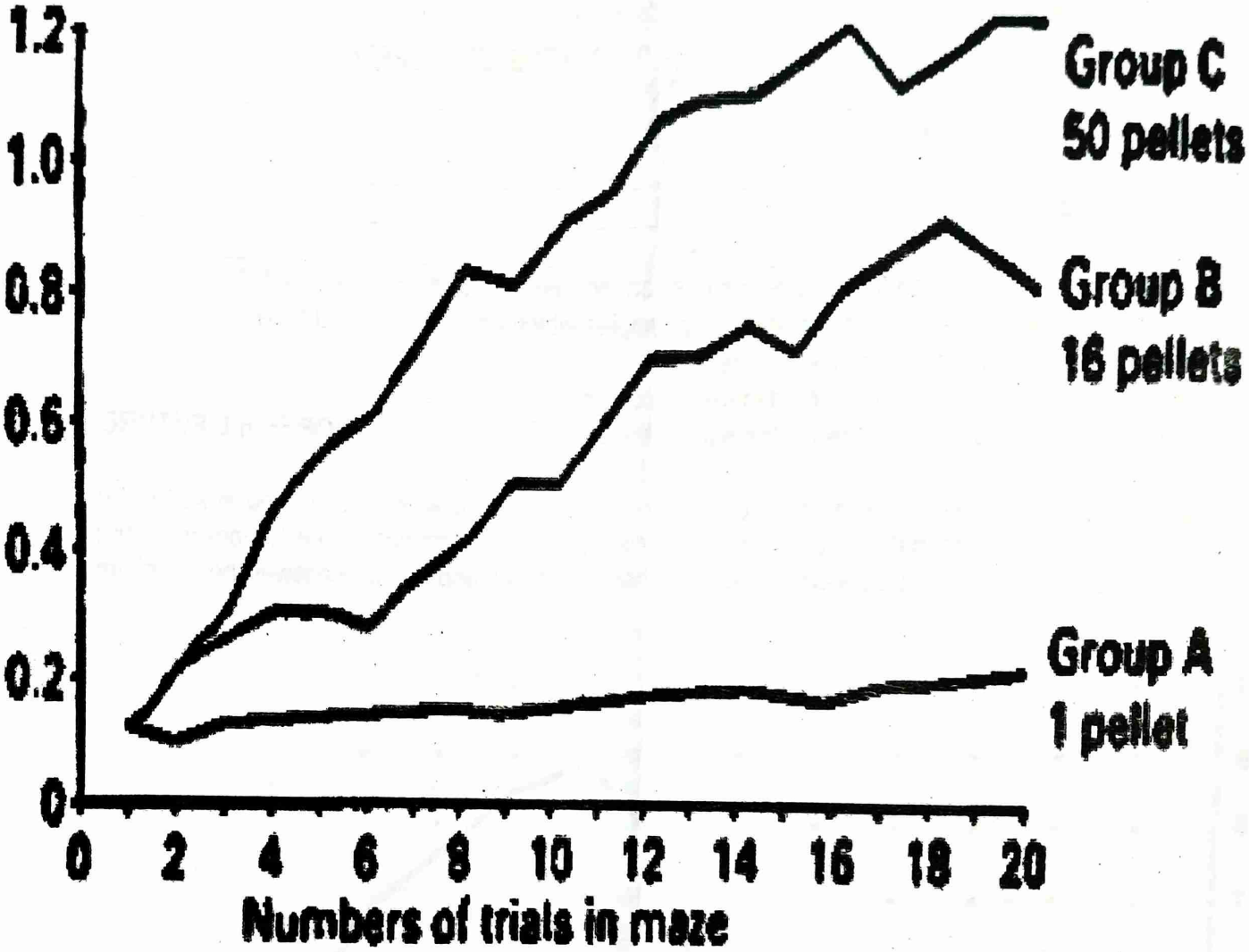
**GAYAZA HIGH SCHOOL**

**10**. (a) Describe the features of the genetic code of DNA cistron.
(b) Compare DNA transcription and replication.
(c) Explain how the genetic code is translated into a polypeptide.
(c) Describe the structural features which adapt tRNA to its role in translation. **MIDLAND H/S BUNTABA**

**11**. (a) Explain the significance of the various modes of nutrition in bacteria to nature.
(b) Explain the evolutionary changes that have made life of chordates a success on land.
(c) Explain the reasons for diversity of fungi in nature. **KATAKWI HIGH SCHOOL**

**12.** The ability of rats to learn the route out of the maze was investigated. Three groups of rats were used. Each rat in group A was put in a maze and when it found its way out it was given one pellet of food. The time taken for

each rat to get through the maze was measured and the mean speed for each group of rats was calculated. Each rat of group A was put through the maze 20 times. The rats in the other two groups were treated in exactly the same way, except that each rat in group B was rewarded with 16 pellets of food and each rat in group C with 50 pellets. The results obtained are shown in the figure below. Use it to answer the questions that follow.






(a) Compare the mean speed of rats in group C and group B.
(b) Using the figure, suggest whether learning took place by the rats. Give reasons for your answer.
(c) Explain the difference in the mean speed of rats of group A and group C.
(d) Using the information provided;
(i) Suggest and explain the type of learning behaviour in the investigation.
(ii) Suggest the factors that may influence learning in animals.
(e) Explain the ecological importance of learning to animals.
(f) Explain how living in groups increases and decreases the success of organisms.

**13.**(a) Explain how desert mammals are adapted to thrive in their environments with reference to;
(i) Allen's rule (ii) Bergman's rule
(b) An Arabian camel, storing fat mainly in its hump weighs 400kg and lives in deserts where the temperatures by day is often 40°C. The fat in the camel's hump weighs 40kg and is a source of metabolic water. During aerobic respiration 1g of fat requires 2dm$^3$ of oxygen and yields 1.07 g of water. The table shows the day temperature, oxygen content and water content of desert air and air expired from the camel's lungs.

| | Temperature(°C) | Oxygen content (cm$^3$dm$^{-3}$) | Water content(mgdm$^{-3}$) |
|---|---|---|---|
| Desert air | 40 | 200 | 5 |
| Expired air | 37 | 160 | 44 |

(i) How do these figures show that the fat in the camel's hump can not be its only source of water at 40°C?
(ii) A 70kg human contains 14kg fat. Compare the proportion and distribution of fat in the camel and the human. Suggest why the differences are advantageous to each mammal.

(iii) The concentration of urine produced by a camel can be twice that of a human. Suggest how the structure of the camel kidney may differ from that of the human kidney and how this difference can account for the camel's greater urine concentration.

(c) The table shows the average sweating rates of a man under various conditions in the desert. The results were obtained by accurately weighing the man during 4-hour periods when the air temperatures was 38°C.

| State of man | rate of sweating (grams per hour) |
|---|---|
| Walking naked in the sun | 1150 |
| Walking clothed in sun with 15kg mass | 1000 |
| Walking clothed in sun | 900 |
| Lying clothed in sun on ground | 650 |
| Sitting clothed in sun | 460 |

Comment with reference to the data, on the differences in sweating rates of the man under the following contrasting conditions. In each case, explain the physical principles which account for the differences.

(i) Walking naked in the sun and Walking clothed in the sun

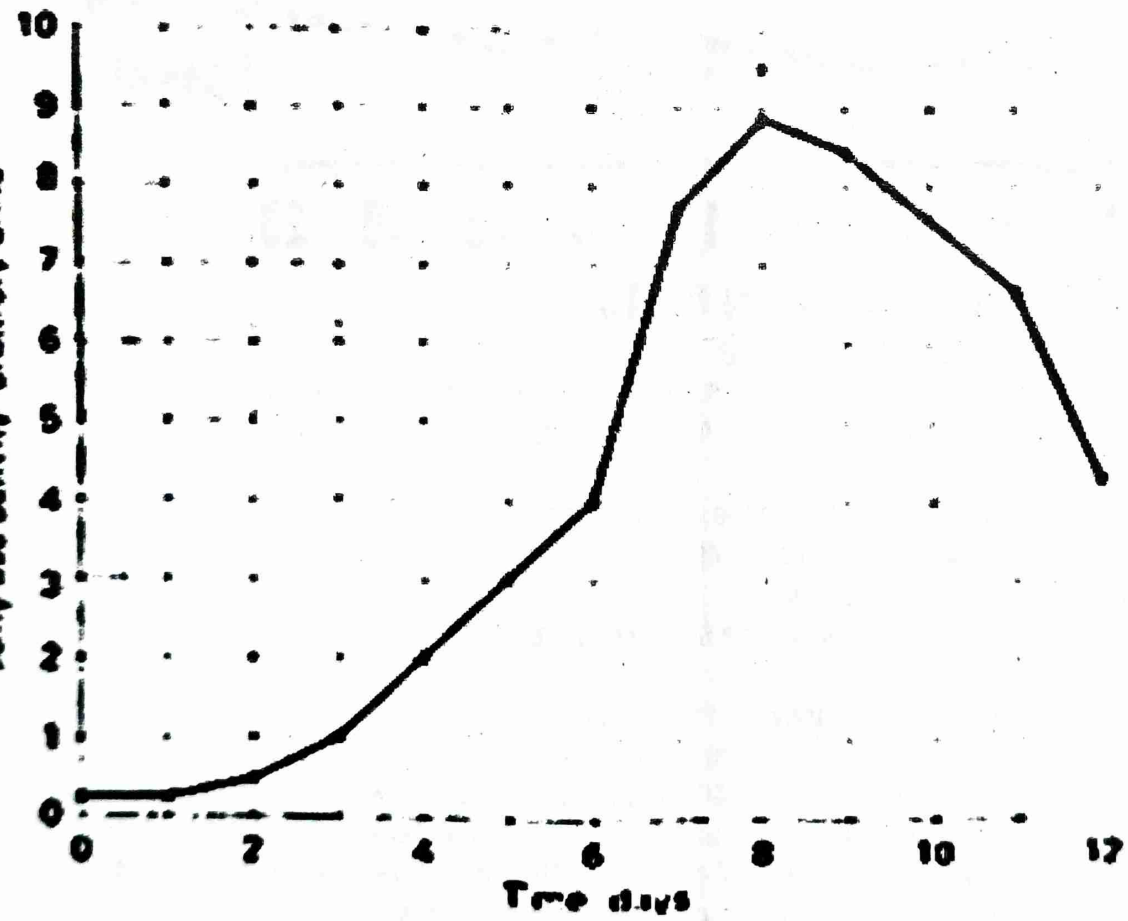
(ii) Walking clothed in the sun and Walking clothed in the sun carrying 15kg mass

(iii) Sitting clothed in the sun and Lying clothed in the sun on the ground

**HOPEFULL FUTURE**



**14** An investigation was carried out on germinating barley seeds. The barley grains were soaked in water and allowed to germinate. The changes that took place in amylase activity of the germinating seeds were recorded over a period of 12 days. The results are shown in the figure below. Study it and use it to answer the questions that follow.




(a) How does amylase activity change over the time for germination?

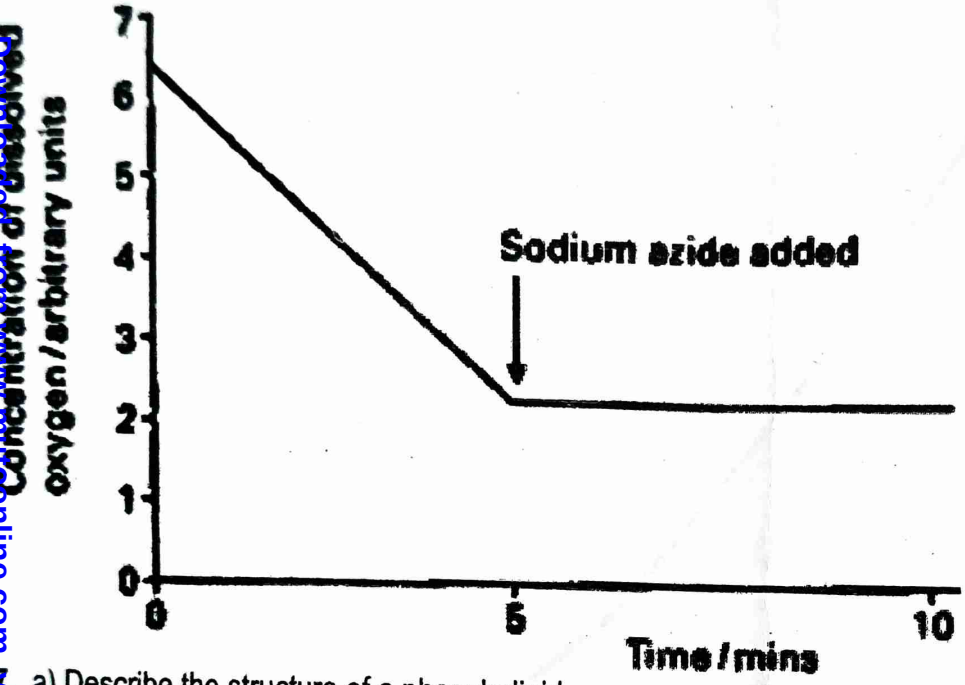
(b) Calculate the rate of increase in amylase activity in germinating barley grains between day 2 and day 6. Show your working.

(c) Explain the function of amylase in germinating barley grains.

(d) Explain the changes in amylase activity from day 0 to day 8.

(e) Suggest and explanation for the changes in amylase activity beyond day 8. What is the significance of such changes?
(f) Suggest how the soaking of barley seeds at the start of the investigation participated in seed germination.
(g) State any other three treatments on the barley grains that would improve the results.

**15.** An experiment was carried out in which a suspension of active mitochondria was incubated in a buffer solution containing succinate, an intermediate of the Kreb's cycle. The concentration of dissolved oxygen was measured every minute for five minutes. A solution containing sodium azide was then added to this preparation and the concentration of dissolved oxygen was measured for further five minutes as below.



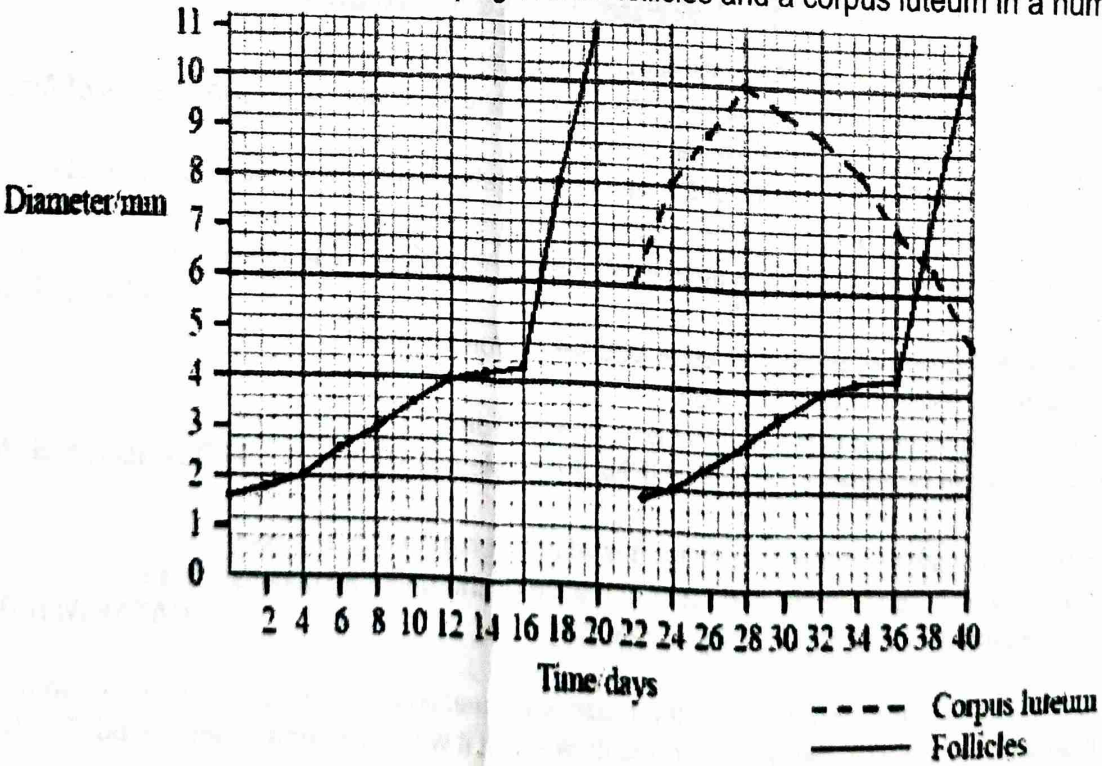

(a) Explain the variation in the concentration of dissolved oxygen for the first five minutes.
(b) Suggest with evidence from the figure above the nature of sodium azide.
(c) Suggest why the buffer solution was used in the investigation.
(d) Explain how the mitochondrion suited to carry out the Krebs reactions.
(e) Explain how the energy needs of an individual are met during and after the exercise.

**MUKONO HIGH SCHOOL**

**12.** a) Describe the structure of a phospholipid.
b) Describe how the primary structure of a protein is related to structure of the cistron.
c) Describe post translational changes a polypeptide molecule undergoes to form a functional enzyme.
d) Explain how environmental temperature of the habitat of an animal can affect the structure of it plasma membrane.

**SEETA HIGH SCHOOL A CAMPUS**

**13.** The graph shows the change in the diameter of developing ovarian follicles and a corpus luteum in a human ovary over 40 days.

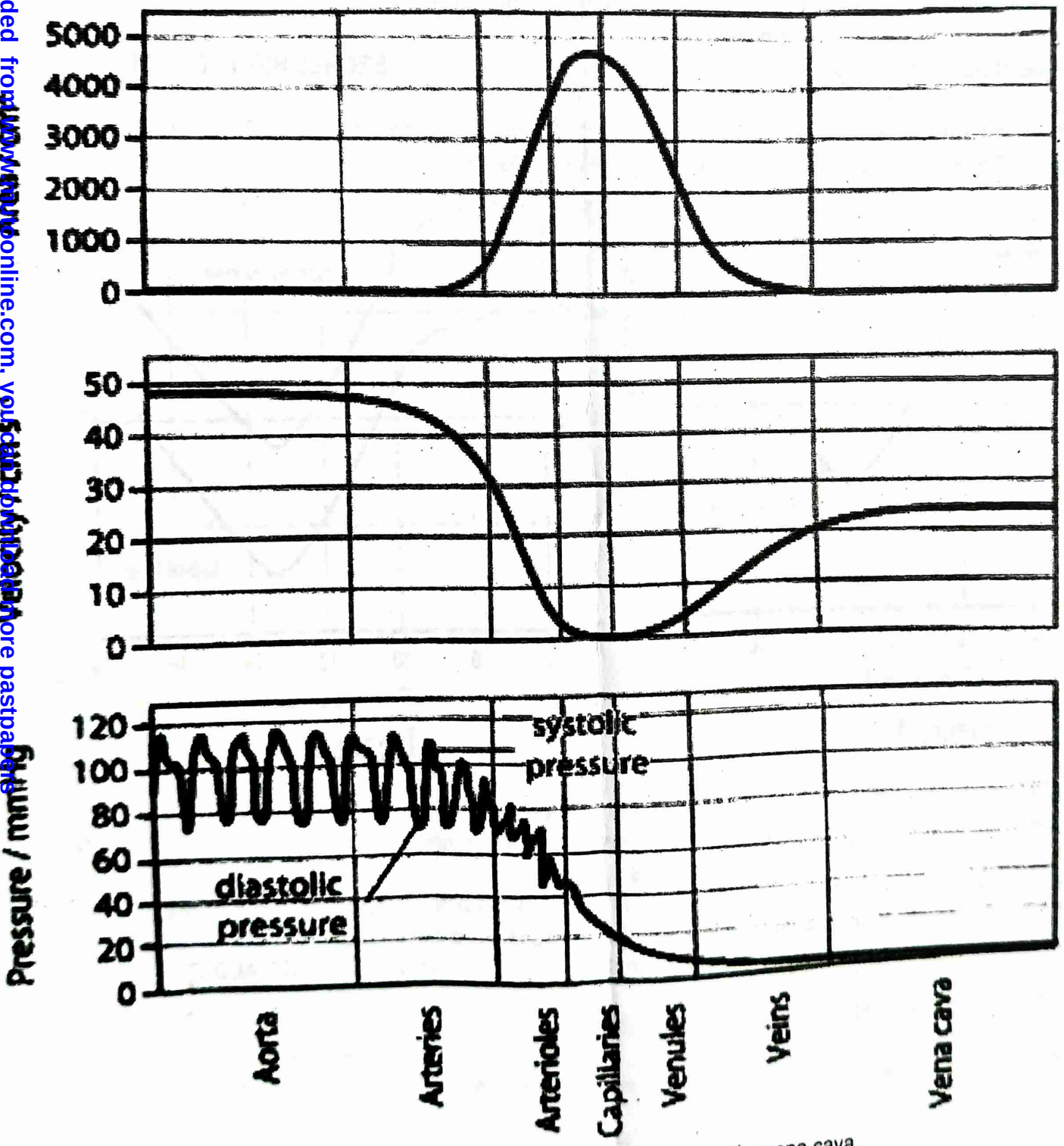


When would fertilisation be most likely to occur? Explain your answer.
(ii) Describe two pieces of evidence which show that fertilisation did not occur during the 40 days.
b) Describe the physiological changes that occurred in the female between day 20 and day 38.
c) With reference to the human menstrual cycle;
(i) Account for why the cycle is under negative feedback.
(ii) State the roles the cycle plays in a teenage girl.
(d) A population of Daphnia (water flea) reproduces only females in the spring and summer; but produces males and females in the autumn.
(i) Explain the likely reason for this seasonal reproductive pattern.
(ii) Discuss how this strategy benefits the species' survival.





19. The figures show how blood pressure, cross-sectional area and blood velocity change as blood flows through different blood vessels.




(a) Explain how the blood pressures change as blood moves from the aorta to the vena cava.
(b) Explain how the velocity changes as blood flows from the aorta to the vena cava.

(c) Explain how blood is able to flow through the veins despite their seemingly very low blood pressure.
(d) When an animal is wounded, its overall blood pressure rises, but the area in the vicinity of the wound swells as a result of local vasodilation. Suggest what the advantage of these changes might be. **LIGHT ACADEMY**

**20.** (a) What is meant by;
(i) water stress (ii) Physiological drought
(b) Outline the effects of water stress in plants.
(c) With examples, explain how plants survive conditions of;
(i) water stress (ii) Physiological drought

**21.** (a) Describe how each one of the following occurs;
(i) Biomagnification (ii) Pest resurgence
b) Describe characteristics of a good pesticide.
c) Explain how;
(i) Biological pest control may lead to pest resurgence
(ii) Primary producers with lower biomass may support primary consumers having higher biomass
(iii) Pesticide resistance arises and spreads in a population of pests.
d) The grass of genus Spartina has two strains, one resistant to copper with the other non-resistant and the two strains have different flowering seasons. Explain how this can lead to speciation.
**SEETA HIGH SCHOOL MAIN CAMPUS**

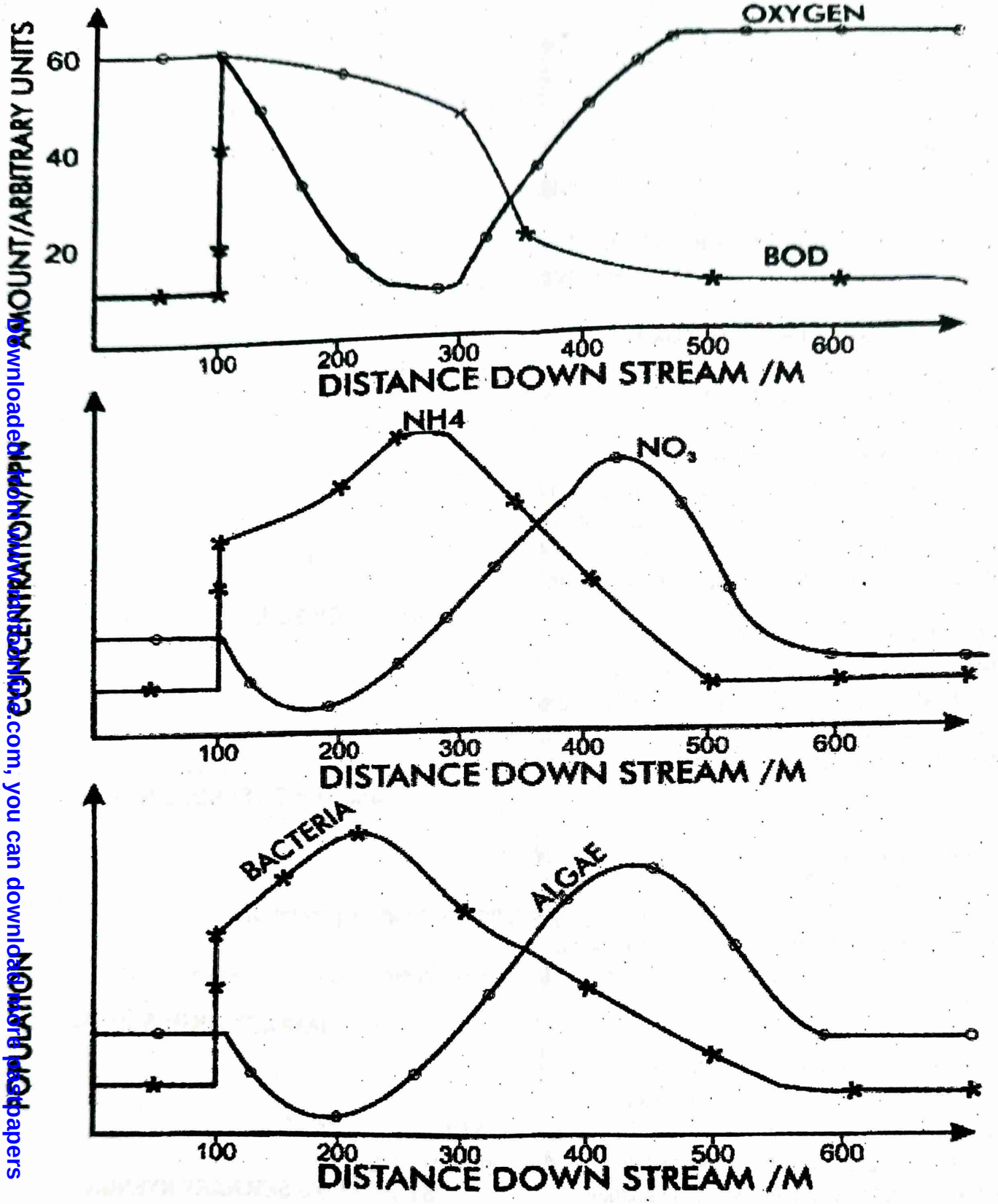
**22.** a) Describe the structure of an antibody.
b) How do antibodies protect the body from infections?
c) Describe how blood flow through the capillary bed is regulated.
d) Explain various ways oxygen supply to active skeletal muscle is increased during physical exercise.
e) State long term and short-term physiological changes that occur in mammals moved from low land to high altitude.
**SEETA HIGH SCHOOL MUKONO**

**23.** a) Distinguish between organic evolution and adaptive radiation.
b) With examples, describe the different types of polymorphism.
c) Explain the ecological and evolutionary significance of polymorphism in a natural population.
d) Describe how fossil record provides evidence of evolution.
e) What is the significance of the changes that occurred in the ancient horse to form the modern horse for the survival of the horse?
**IMPACT HIGH SCHOOL**

**24.** a) Distinguish between releasers and motivation.
b) Describe how hormones regulate animal behaviour.
c) How is supply of enough oxygen and nutrients to the foetus ensured during pregnancy?
d) State advantages and challenges associated with internal development in mammals.
e) Explain various ways that prevent inbreeding in animals.
**ST JOSEPH'S SEMINARY NYENGA**

**25.** (a) Distinguish between;
(i) Action potential and generator potential
(ii) Conditioned and simple reflexes with an example in each case.
b) Describe various ways transmission of an impulse across a chemical synapse may be prevented.
c) Explain how efficiency of the mammalian eye is ensured.
d) Explain the significance of few synapses in a reflex arc.
**MT ST MARY'S NAMAGUNGA**

**26.** The graphs below indicate the effect of sewage discharge at 100 meters of **the river** towards its biotic and abiotic environments. Study them carefully and answer the questions that follow.






(a) Explain the relationship between distance from sewage discharge point and
(i) oxygen concentration. (ii) biological oxygen demand (BOD).
(b) Explain the relationship between concentrations of ammonium and nitrate ions downstream following sewage discharge.
(c) Suggest and explain
(i) the likely effects of the population changes of algae to tho river between 200m – 450m, when it occurs for a long period of time, downstream.
(ii) what would happen to the level of pollution in the river during extreme conditions of dry season.
(iii) how water quality of the river can be monitored basing on physical conditions. **COUNTRYSIDE COLLEGE**

27. a) Compare carbohydrates and lipids.
b) Explain why a hibernating animal first converts carbohydrates to lipids before hibernation.
(c) Describe the role played by lipids in life.

ST JOSEPH'S HIGH SCHOOL NAMAGUNGA

28. a) Explain positive feedback during;
i) Generation of action potential (ii) impulse transmission across non-myelinated axon
iii) parturition
(b) Explain how the deviation of thyroxine level in blood is reduced to the norm.

JJINJA COLLEGE

29. (a) What is meant by genetic recombination?
(b) Outline the conditions that limit the degree of recombination in animal populations.
c) Explain how genetic recombination brings about organic evolution.

RINES SS NAMUSERA

30. (a) State 3 ways in which chemical digestion differs from physical digestion.
(b) Explain the similarities and differences in structure of the stomach and the ileum.
(c) Explain the intestinal phase of controlling digestion.
(d) Explain the type of nutrition in fungi.

SECHEL HIGH SCHOOL

31. Figure A shows changes in the relative humidity of the atmosphere during the daylight hours of one day. Figure B shows changes in the tension in the xylem of a tree during the same period.

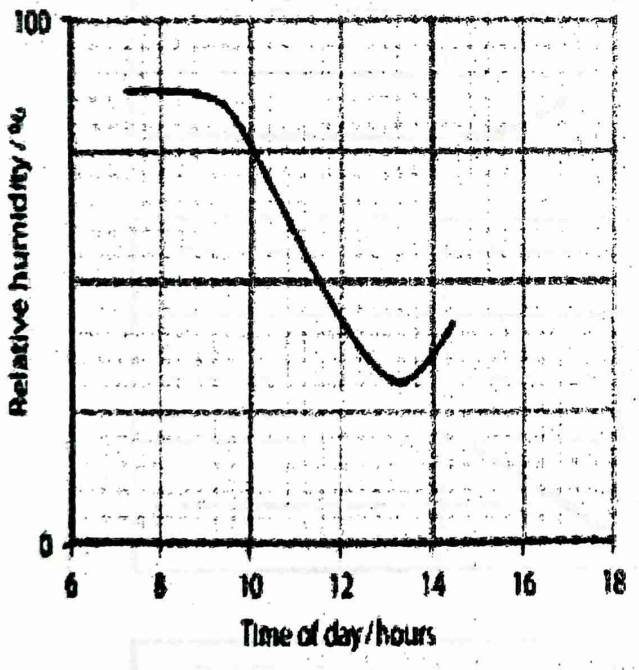



Figure A

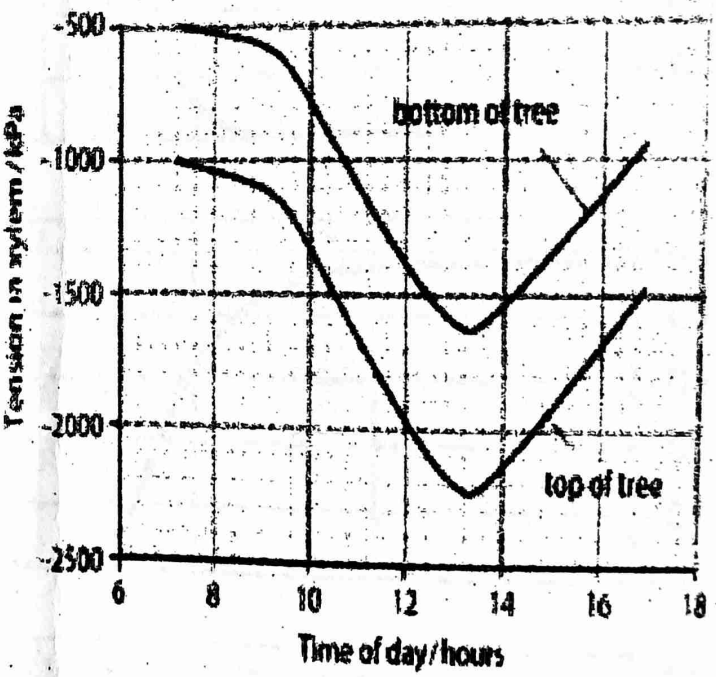
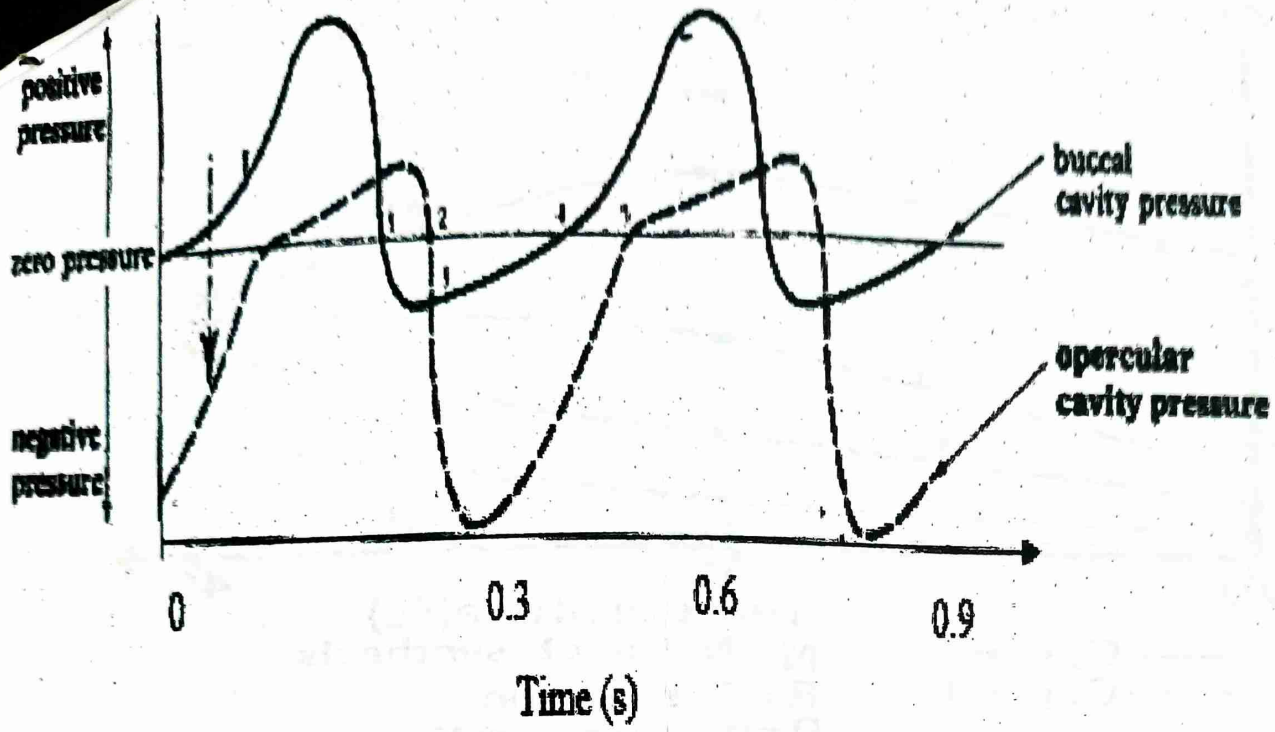



Figure B

(a) Explain the relationship between relative humidity and xylem tension.
(b) Account for the differences observed in xylem tension between the tree top and bottom.
(c) Describe water movement into and through xylem vessels.
(d) At what time of day would there be the greatest decrease in tree trunk diameter? Explanation your answer.
(e) (i) Explain the mechanism of loading sugar from leaf mesophyll cells into the sieve tubes.
(ii) State evidences that translocation in plants is an active process.

TESO COLLEGE ALOET

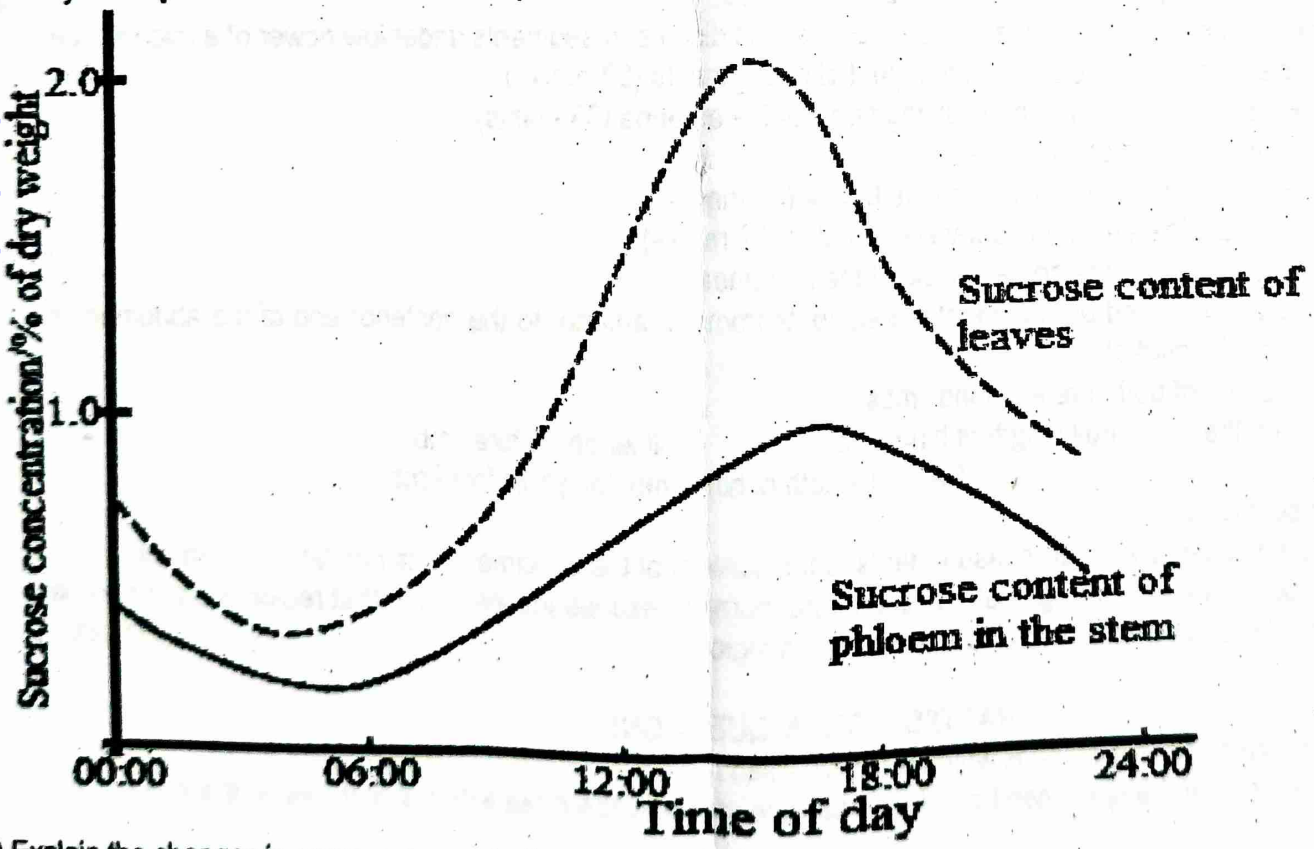
32. a) Explain the suitability of air and water as respiratory media in;
(i) Bony fish (ii) Land mammals
b) The graph below shows changes in pressure of buccal cavity and opercular cavity of a large bony fish.




(a) Comment on the changes in pressure in buccal and opercular cavities.
(b) Calculate the ventilation rate of this fish.
(c) Explain the changes in buccal and opercular cavities pressures experienced in one complete cycle.
(d) Explain how thickness of gill lamellae affect extent of the opercular cavity in a large bony fish.

**MPOMA SCHOOL, GIRLS' CAMPUS**

33. An investigation was carried out on production and utilization of organic materials by a plant species. It included measuring the sugar content of the plant. The Figure below shows the sucrose content at different times of the day. Study it and use it to answer the questions that follow




(a) Explain the changes in sucrose concentration in leaves of the plant.
(b) Compare sucrose content of leaves and that of phloem.
(c) Explain the differences present in b) above
(d) What evidence is given by the results that sugars are synthesized by leaves and transported by phloem?

(e) How does transport of materials in phloem differ from that in the xylem?

ST CYPRIAN HIGH SCHOOL KYABAKADDE

**34.** (a) Explain how the cells present in mammalian lungs make the gas exchange process efficient.
(b) Explain the role of connective tissues in ventilation of human lungs.
(c) How are alveoli of lungs protected from infections?
(d) Explain how does exercise improve lung efficiency?

ST. NOAH MAWAGALI MBIKKO

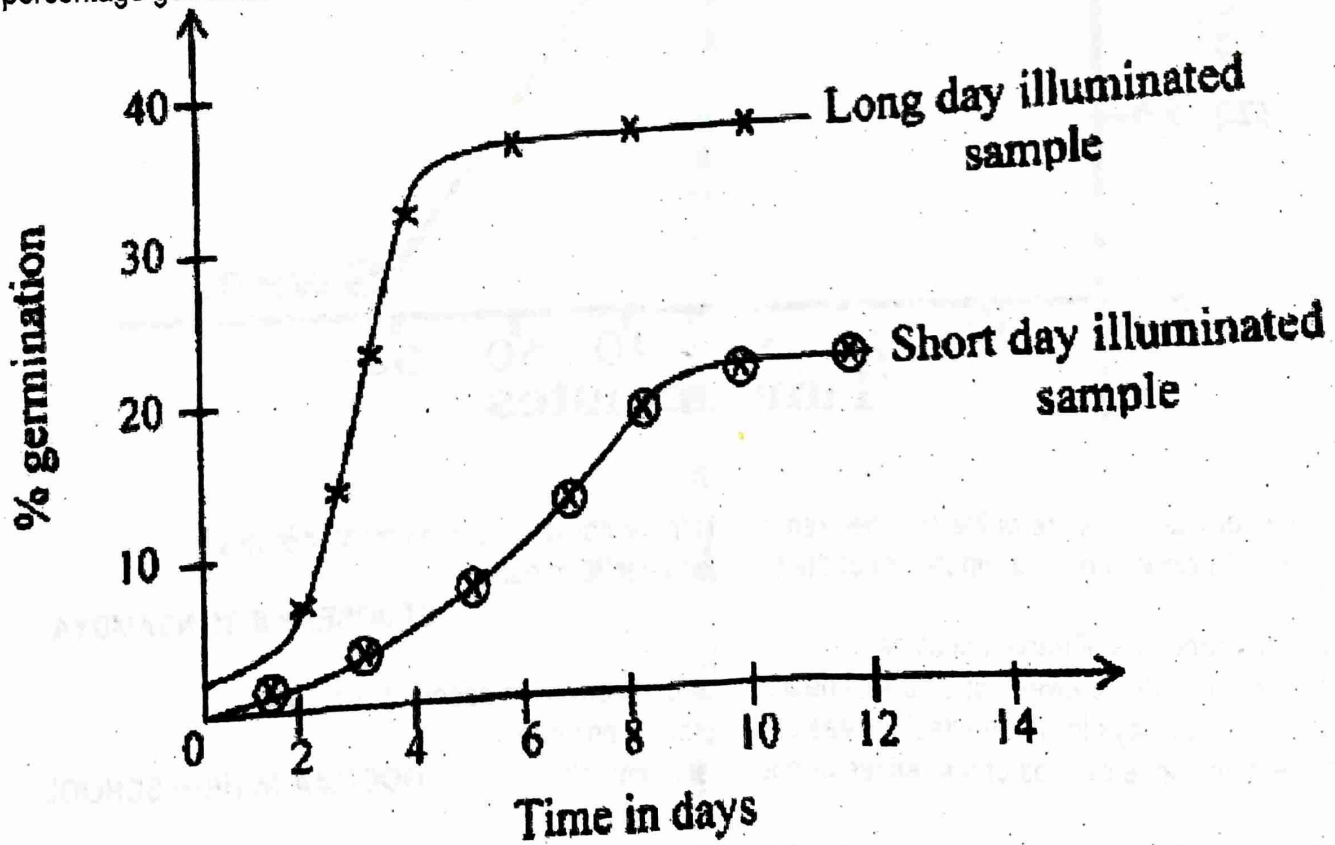
**35.** (a) Show how variation of glomeruli in teleost fish reflect the level of water retention in their bodies in relation to their habitat.
(b) Explain the ecological and evolutionary significance of using uric acid as nitrogenous waste product.
(c) Describe various evolutionary strategies that enable survival in habitats in habitats without permanent water bodies.
(d) How may dehydration be important to organisms?

ST. NOAH GIRLS ZANA



**36.** (a) Examine the suitability of air as a gas exchange medium for mammals.
(b) Explain how the gaseous exchange system of insects enables them to develop the metabolic rate necessary for flight.
(c) Why do very tiny insects need a gaseous exchange system in spite of their high Surface area to volume ratio?
(d) Explain the structural features that enable proper ventilation and gaseous exchange in alveoli.

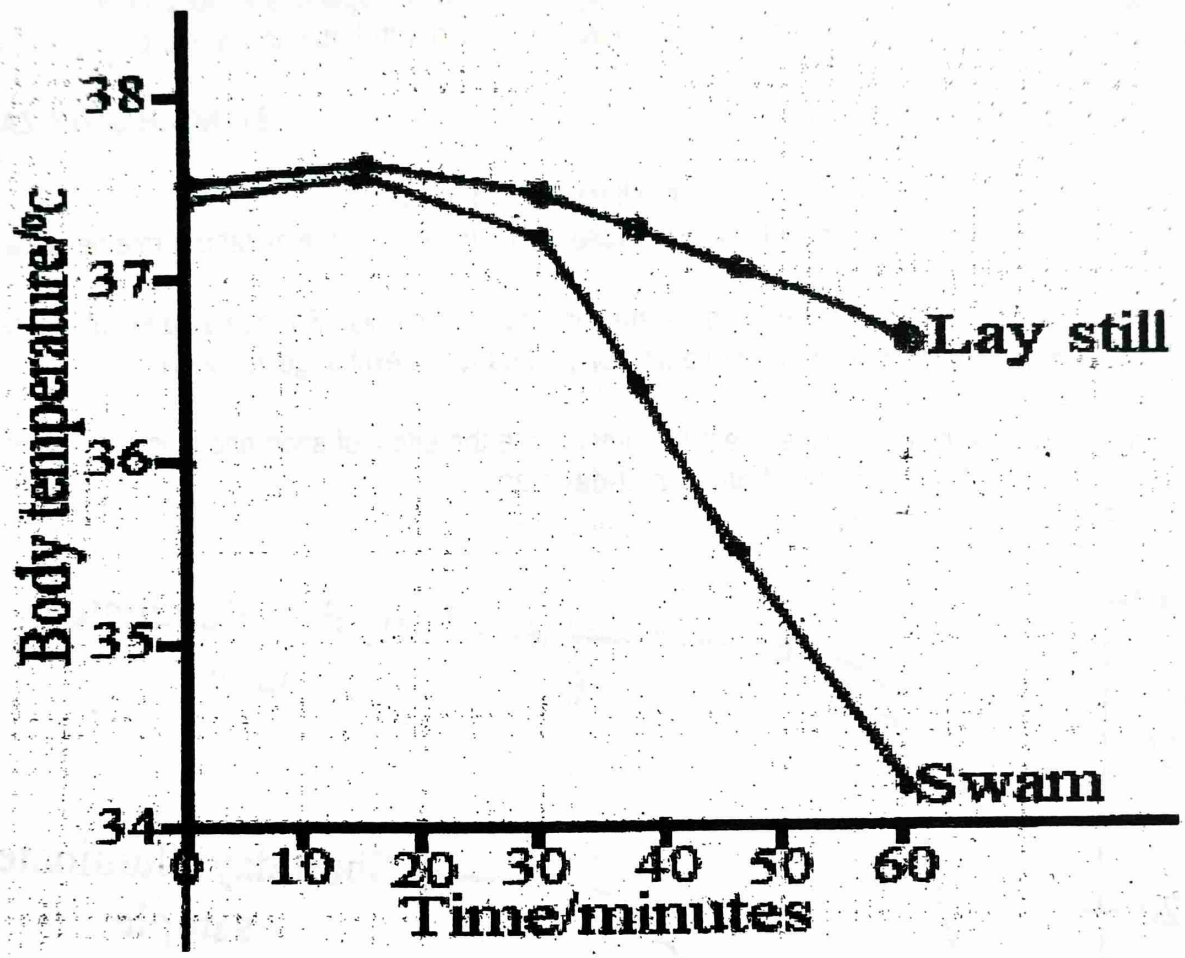
**37.** (a) The below shows the results of an experiment to demonstrate the effect of short and long day illumination on the percentage germination of seed samples from a short-day plant.




(a) Compare the effect of long hours of red light illumination and few hours of illumination on the percentage germination of the seeds.
(b) Explain the differences in effects of long and short-day illumination on the percentage germination of the seeds
(c) State other conditions that can deter the germination of some seeds.
(d) Describe the various types of plant hormones and their roles in plant coordination.
(e) Describe how environmental factors influence plant coordination. LUBUGUMU JAMIA HIGH

**38** (a) . Describe physiological responses of mammals to;
(i) Oxygen shortage (ii) Oxygen deprivation

(b) When a person is submerged in cold water, the body temperature can drop very quickly. This is because heat is transferred quickly by conduction from the warm body into the cold water. An experiment was carried out to see if it is better to stay still if you fall into cold water or to try to swim. Two men sat for 30 minutes in air at 15°C. They then got into a swimming pool, where water was also at a temperature of 15°C. Person A swam for the next 30 minutes. Person B lay still in water. The body temperature of both men were measured at 10 minute intervals throughout the experiment. The results are shown by the figure below. Study the figure and use it to answer the questions that follow.



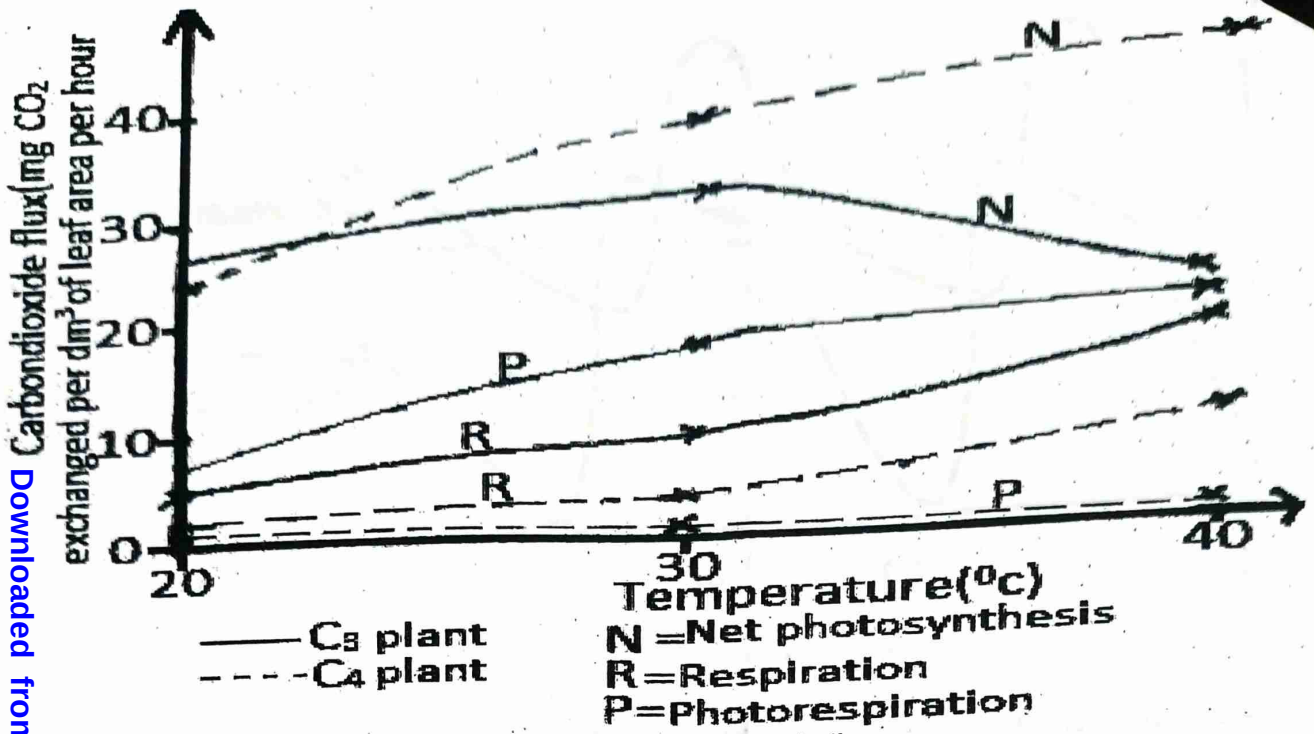

(a) Explain why body temperature of the two men remained almost constant for the first 30 minutes.
(b) Explain the difference in body temperature of the two men after 30 minutes.

**ST JOSEPH'S SS NSAMBYA**

**39**. (a) State the properties of nerve impulses
(b) Explain the relationship between structure of neurones and transmission speed of impulses.
(c) Explain the various ways in which effectiveness of receptors is ensured.
(d) Explain the dominance by rods of the retinae of nocturnal mammals.

**GOODMARK HIGH SCHOOL**

**40**. Two species of plants one a $C_3$ and the other $C_4$ plant, were placed under the same conditions and their rates of carbon dioxide output or intake were measured, Figure shows their rates of net photosynthesis, respiration and photorespiration at three different temperatures, study the figure and answer the questions that follow.




(i) net photosynthesis (il) photorespiration

(c) What conclusions can you make about the physiology of the plant species?

(d) Suggest explanations for the differences in the physiology of the plants.

(i) Photosynthesis (ii) Photorespiration (iii) respiration

**MT. ST HENRY'S HIGH SCHOOL MUKONO**

## COCKROACH QUESTIONS

41. You are provided with specimen M which is freshly killed.

(a) Cut off one antenna; examine its last three proximal and distal end segments under low power of a microscope.

(i) Describe the shape, structure and arrangement of its segments (02 marks)

(ii) Draw but don't label the last three distal segments of the antenna (03 marks)

(b) Examine the ventral side of the thorax.

(i) Describe the attachment of limbs on the thorax (02 marks)

(ii) State two significances of the above description (02 marks)

c) Observe the segments on the dorsal cuticle of the abdomen.

(i) Describe the structure and arrangement of segments from the anterior to the posterior end of the abdomen on the dorsal cuticle. (03 marks)

d) Measure full length of both fore and hind limbs

(i) Record the; Full length of hind limb Full length of fore limb

Ratio of length of hind limb: length of fore limb

State your observation.

(ii) Explain the significance of your measurements to the survival of the specimen in its habitat (03marks)

e) Pin the specimen and cut the right lateral side of the thorax to expose the viscera in that region without making any displacements. Draw and label your dissection in the region. (17marks)

## RAT DISSECTION QUESTIONS

**42.** You are provided with specimen R which is freshly killed

(a) Observe the head of the specimen from the dorsal side and describe three external features on the head. (07 marks)

(b) Pin specimen R ventral side upper most. Cut the masseter muscles and open the mouth wide. Pull the tongue forward and displace it to the left side of the specimen.

(i) Draw and label structures in the buccal cavity which are used for physical break down of food into smaller particles. (08 marks)

any three features observed in the mouth are suited for the diet of the animal (04 marks)
Observe the mouth of the specimen and write down its dental formula (01mark)
(c) Dissect specimen R further by cutting the rib cage to expose structures in the thorax and base of the neck. Clear away the thymus gland and deflect the heart and left lung to the right of the specimen. Draw and label the circulatory and respiratory systems within the thoracic and lower neck regions. (21 marks)

**43.** You are provided with a freshly killed rat.
a. (i) Observe the head carefully and describe five ways its external structural features adapt the animal to live its habitat. ***(5marks)***
(ii) Draw and label the head as you observe it in its Ventral view ***(03 marks)***, lateral view ***(03marks)***
(iii) Open the buccal cavity and count the number of teeth. Write the dental formula. ***2 marks)***
(i) Dissect the animal to display the superficial structures in the neck. Draw and label.***(10 marks)***
(ii) Proceed to dissect and display the structures used for reproduction, and blood vessels supplying blood to them. Draw and label. ***(12marks)***
(b) By further dissection, display the structures used for reproduction, and blood vessels supplying blood to them. Draw and label. ***(10 marks)***

**44.** You are provided with a freshly killed rat.
(a) Examine the trunk and limbs and suggest five ways the animal is adapted to cope up with the challenges in its habitat. ***(05marks)***
(b) (i) State the sex of the animal and suggest two reasons for your answer. ***(1½ marks)***
(ii) Draw and label the external structures you used to establish the sex of your specimen. ***(03marks)***
(iii) Describe the external structures you would use to identify the mammal of the opposite sex. ***(06marks)***
(c) Proceed to dissect and display reproductive structures and blood vessels supplying blood to them. Draw and label. ***(10marks)***
(d) By further dissection:
(i) Open up the thoracic cavity and display the structures in the undisturbed state in this part of the body.
(ii) Displace the liver lobes anteriorly and the stomach to your left. Draw and label the structures in the thoracic cavity and those originally obscured by the stomach on the same drawing. ***(22marks)***

**45.**(a) You are provided with a freshly killed rat. Examine the animal carefully and describe:
(i) Structure and distribution of fur. ***(06marks)*** (ii) The structural features of the tail. ***(03marks)***
(iii) Outline the significance of your observations in **(a) (i)** and **(ii)** to the survival of the animal. ***(05marks)***
(b) Dissect the abdominal region, and display the internal structures in this part of the body. Deflect liver lobes anteriorly, displace duodenum to the right and the rest of the intestine (ileum) to the left. Re-arrange the structures so that the structures within the mesentery can be seen clearly. Cut and remove stomach and spleen. Draw and label. ***(20marks)***

**46.** (a) You are provided with specimen K. dissect to display blood vessels that supply and those that drain structures anterior to the diaphragm on the left side of the body. With the heart displaced to the right, draw and label your dissection. (20 marks)
(b) Dissect the specimen to display superficial structures on the left thigh, abdomen and left part of the thorax. Draw and label your dissection. (16 marks)

**47.** Dissect the thorax up to the base of the neck of specimen P to display:
(i) Structures that channel materials and fluids in and out through the thorax.
(ii) Main blood vessels in the thorax region. With the heart displaced to the right, draw and label. (19 marks)

**48.** You are provided with specimen X. dissect the abdomen, cut out the alimentary canal and associated structures. Continue with your dissection to display:
(i) Blood vessels draining abdominal structures on the right of the specimen.

(ii) Blood vessels supplying blood to the left half of the abdomen and those supplying the left hind limb. Draw and label your dissection. (25 marks)

49. You are provided with specimen B.

a (i) Open up the abdomen, cutout the alimentary canal. Dissect to display blood vessels draining the left half of the specimen.

(ii) Open up the anterior part and display blood vessels supplying the right side of the head and thoracic regions. With the heart displaced to the right, draw and label what is displayed in (i) and (ii) on one drawing. (29 marks)

(b) Dissect specimen G to display blood vessels:

(i) Draining gut structures posterior to the stomach and those draining the left head region.

(ii) Taking blood to right fore limb, right side of abdominal wall, right pelvic region and to abdominal structures involved in reproduction, secretion and excretion on the right side of the abdomen. With the heart undisplaced, draw and label your dissection in (i) and (ii) on one drawing



## TOAD DISSECTION 2025

You are provided specimen R which is freshly killed.

(a) Examine the Trunk of the specimen and state how the structural features enable the specimen to survive in its habitat. (05 marks)

(b) Draw and label the ventral side of the left fore foot and the left hind foot of the specimen. Both drawings should be at the same magnification. (6 marks)

(i) Fore foot (ii) Hind foot

(c).Basing on the above features, classify the specimen as much as possible. (02½ marks)

(d) Examine the head of the specimen and state how the structure an location of the following structures contribute to the living of the specimen

(i).Tympanic membrane (03 marks) (ii). Eyes (03 marks)

(e) Observe the structures on the skin taking note of how it is attached to the underlying body wall.

(i) Describe the attachment of the skin to the body wall. (03 marks)

(ii) Suggest the significance of the way the skin is attached to the body wall as described in (f)(i) above.(02 maks)

(g) Observe the main blood circulation on the skin. Describe the pattern of blood circulation on the skin. (02 )

(h) Give the significance of the pattern of blood circulation described in (f)(iii) (03 marks)

(i) . Dissect the specimen to display the;

(i) Blood vessels draining the right side of the head and from anterior part of the trunk region back to the heart turned dorsally. (17 marks)

(ii) Continue to display blood vessels that carry blood to the left of the mouth floor and structures in the upper trunk and from the heart. With the heart in situ. Draw and label your dissection. (12 marks)

(j) Cut off the left thigh of the specimen to display the main superficial muscles. Draw and label the muscles. (06 marks)

(k) Continue to trace for,

(i) The main blood vessel and its tributaries that drain the organs responsible for absorption of digestive substances and associated organs.

(ii) Blood vessels draining the, kidneys and right hind limb back to the heart, with the alimentary canal displaced to your right and the heart turned anteriorly (26 marks)

(l) Further manipulate the specimen to display blood vessels carrying blood to;

(i) Organs in the posterior half of the abdominal cavity from the heart. (ii). Structures used for elimination of excretory wastes from the body in the lower trunk. With the heart displaced anteriorly. Draw and label the blood vessels and structures displayed in (c) (i) and on one diagram. (27 marks

**ALL THE BEST DEAR CANDIDATES YEAR 2025**