FORM ONE HOLIDAYS SMART PASS
BIOLOGY 10 QUESTION PAPERS



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BIOLOGY
TEN QUESTION PAPERS

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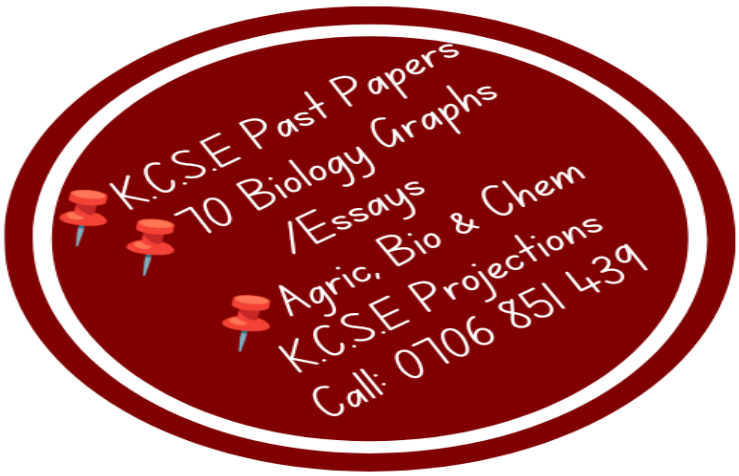
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BIOLOGY QUESTION PAPER NO: 01

1. Name two major branches of Biology. **(2mks)**

2. What is the name given to the following areas of study: **(4mks)**

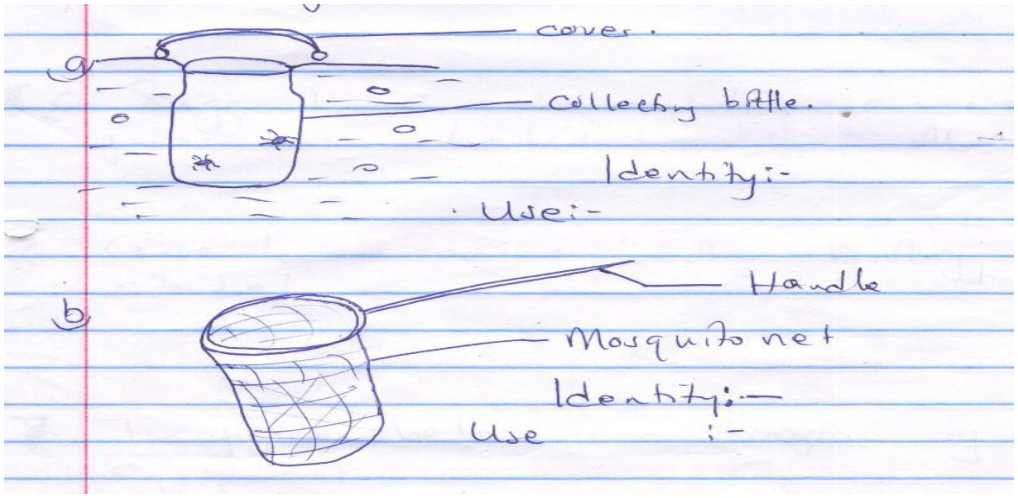
a. Study of classification

b. Study of Micro-organisms

c. Study of living things and their surroundings

d. Study of the functioning of the body

3. Identify the following apparatus and state their functions.



4. List down two precautions that should be observed during collection and observation of specimens. **(2mks)**

5. i. What do you understand with the following terms as used in characteristics of living things. **(3mks)**

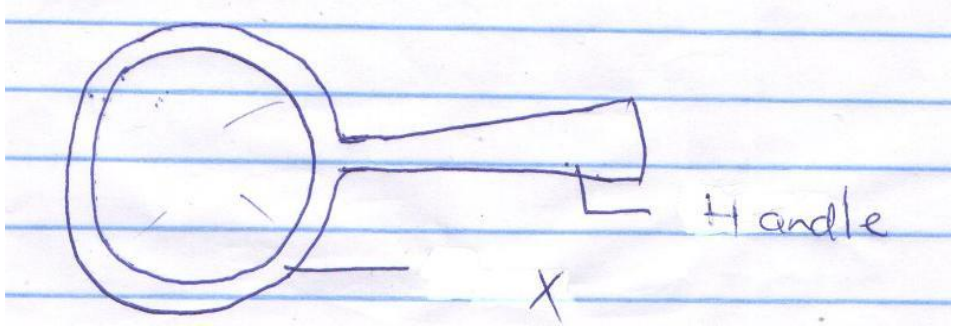
a. Nutrition. **b.** Respiration. **c.** Growth.

ii. Name three other characteristics of living things other than the one written in 5 (i) above. **(3 mks)**

iii. Suggest a reason why animals move from one habitat to another. **(1mk)**

6. Give two reasons why Biology should be studied. **(2mks)**

7. The figure below is a diagram of biological equipment.



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a). Name the part labeled X**.** **(1mk)**

b). Give the use of the part X. **(1mk)**

c). A student was provided with a specimen measuring 2 cm and drew an image measuring 5 cm. Give the formula used to calculate magnification and state the magnification of the image drawn**.** **(2mks)**

8. Suggest a biological tool that is suitable for collecting each of the following organisms. **(4 mks)**

a). Scorpion.

b). Rat.

c). Butterfly.

d). Safari ants on a tree trunk.

9. Which characteristic of living organisms is shown by each of the following:- **(2mks)**

a). Cheetah chasing a gazelle.

b). A germinal bean seed.

10. State the use of the following apparatus**.** **(4 mks)**

a. A pit fall trap.

b. A pair of forceps.

c. A hand lens.

d. A sweep net.

11. Draw a neat diagram showing a pooter. **(4 mks)**

12. Name the first 5 TAXA into which living organisms are placed by biologists**.** **(5mks)**

13. What do you understand by Binomial Nomendalur? **(2 mks)**

14. State the importance of classification in biology. **(4 mks)**

15. When classifying living organisms' biologist use external features. List down the external features that can be used to classify the following plants and animals into their respective group.

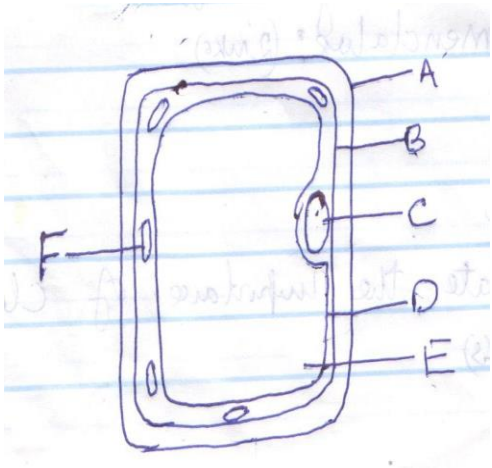
i. Seed producing plants. **(2 mks)**

ii. Birds. **(2 mks)**

iii. Fish. **(2 mks)**

16. Name the term used to describe the processes through which living organisms are classified. **(1 mk)**

17. Name the parts of the plant cell labeled A to F**.** **(6 mks)**



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18. Name:-

a. Two organisms in the kingdom monera. **(2 mks)**

b. Three examples in the kingdom fungi. **(3 mks)**

c. Three examples in the kingdom animalia. **(3 mks)**

19. State the main characteristic of each of the following kingdoms. **(5 mks)**

a. Monera. **b.** Protoctista. **c.** Fungi. **d.** Animalia. **e.** Plantae.

20. What do you understand by the term species? **(5 mks)**

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BIOLOGY QUESTION PAPER NO: 02

1. What is biology? **(1 mk)**

2. Give two skills gained by a student learning Biology. **(2 mks)**

3a) Name the unit of classification that has the least organisms. **(1 mk)**

b)State the application of Binomial nomenclature in naming organisms. **(1 mk)**

4. What is the importance of using a hand lens in classification of organisms **(1 mk)**

5. State two main branches of biology. **(2 mks)**

6. Define each of the following terminologies as used in biology : **(2 mks)**

a). Ecology

b). Anatomy

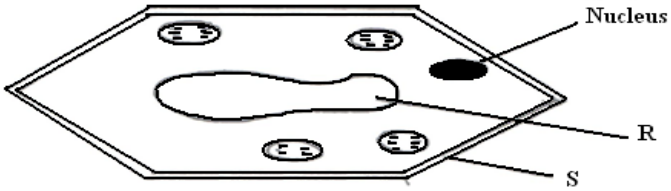
7. What characteristics of living organisms is represented by the following characteristics:

a)A cat producing kittens. **(1mk)**

b)A girl dropping a hot pan. **(1mk)**

c)The exhalation of carbon (IV) oxide. **(1mk)**

8. The diagram below represents a plant cell.



(a) Name a carbohydrate which forms part of the structure labelled S. **(1mk)**

(b) State two functions of the part labelled R. **(2 mks)**

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

9 a) An electron microscope has a much greater resolving power than a light microscope. Explain the meaning of the term resolving power. **(1 mk)**

b) Give a reason why an electron microscope cannot be used to study life specimen. **(1 mk)**

10. What is taxonomy? **(1mk)**

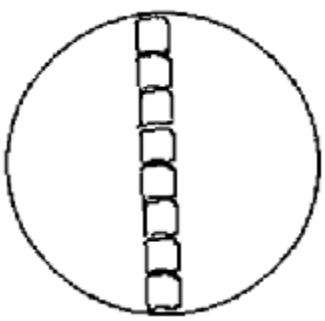
11. Give two reasons why classsification is important in biology. **(2mks)**

12.(a) Distinguish between growth and development. **(2mks)**

(b) State the importance of growth in living organisms. **(1mk)**

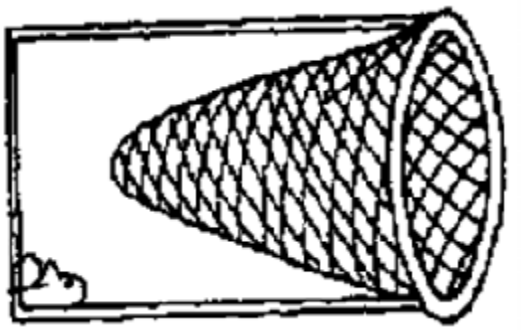
13. During a practical lesson to estimate the size of a cell, using the sketch below which some students observed, calculate the length of one cell in micrometers given that the field of view was 8mm wide. **(3 mks)**

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14.a) What is meant by the term Entomology. **(1 mk)**

b) The diagram below represents a certain apparatus used by biology students.



(i) Name the apparature above. **(1 mk)**

(ii) State the role of the apparatus named in b) (i) above. **(1 mk)**

15. Black jack (Bidens pilosa) belongs to the family Compositae.

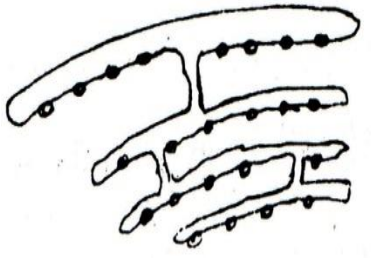
What is it's:

Genus. **(1 mk)**

Species. **(1 mk)**

16.a) Differentiate between prokaryotic and eukaryotic cells. **(1 mk)**

b) i) identify the organelle represented by the diagram below. **(1 mk)**



ii) State the function of the organelle identified in 2b(i) above. **(1 Mk)**

17. If a light microscope had an eye piece lens of X25 and an objective lens of X40, what would the total magnification be? **(2 mks)**

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18. a. State the importance of each of the following process in living things. **(3 mks)**

i. Respiration

ii. Gaseous exchange

iii. Reproduction

b. Apart from the characteristics of living things mentioned in (a) above, state any other 4other characteristics common in living things. **(4mks)**

19. a). Give a reason why each of the following steps are followed when preparing cross sections of a leaf for examination under a microscope: **(4mks)**

b) Cutting very thin sections

c) Using sharp razor blade (scalpel) during cutting.

d) Placing the sections in water

e) Staining the sections with iodine before observing under a microscope.

20. Calculate the magnification of the drawing of the termite below given that the actual length of the termite is 0.9cm long .Show your working **(2mks)**



21. Plasmodium Falciparum are transmitted by a mosquito.

(a) Identify two mistake made in writing the scientific name **(2mks)**

(b) Can the above organisms interbreed? Give reasons **(2mks)**

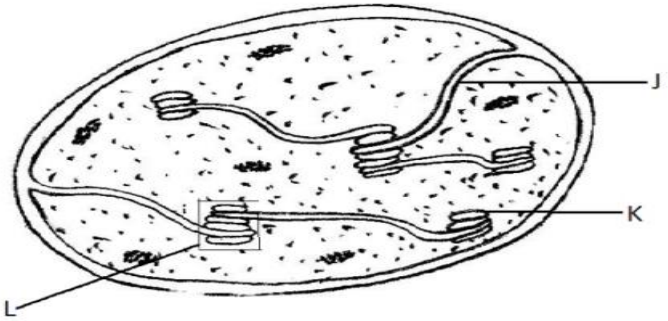
(c) Rewrite the above scientific name properly **(1mk)**

22. Peter was using a light microscope to view onion cells with lens combination of eye piece lens X10 and objective lens X20.

a) Calculate the total magnification. **(1 mk)**

b) If he changed the objective lens magnification to X40, would the cells appear bigger or smaller? Explain. **(2 mks)**

23. Below is a structure found in plants.



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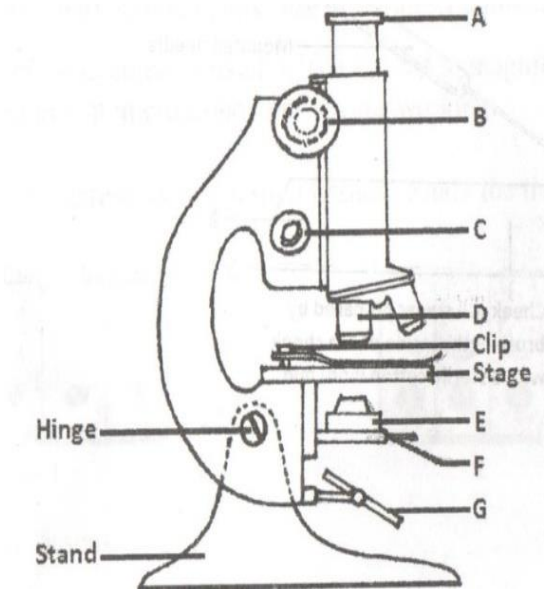
a) Name the organelle. **(1 mk)**

b) Role of the organelle you have named in (a) above. **(1 mk)**

c) Name the parts labeled J and L. **(3 mks)**

24. Name the five major kingdom of classification **(5mks)**

25. The diagram below represents the structure of a light microscope. Study it and answer the questions that follow.



a) Name the parts of the microscope labeled A to G. **(7 mks)**

b) State the functions of each of the parts marked E and F. **(2 mks)**

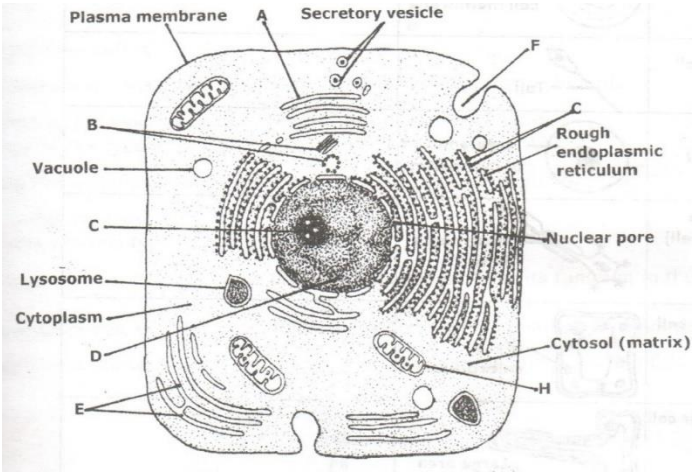
c) Which part of the microscope (use letter symbols):

i. Contributes to the magnification of the specimen. **(1 mk)**

ii. Is used to move the body tube over very small distances when observing under high power magnification. **(1 mk)**

e) While trying to observe a specimen under a microscope, a student failed to see the field of view. Suggest two possible causes of this. **(2 mks)**

26. The diagram below shows a cell as seen under a microscope.



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a)i. Is this observation under a light or an electron microscope? **(1 mk)**

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

iii. Is this an animal or a plant cell? **(1 mk)**

iv. Give a reason for your answer in (b) (i) **(1 mk)**

b) Name the parts labeled A to H. **(5 mks)**

c) State the functions of each of the parts marked A, B, C, D, E, F, H. **(6 mks)**

27. Briefly and adequately explain how plants compensate for lack of movement in a constantly changing environment. **(2 mks)**

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BIOLOGY QUESTION PAPER NO: 03

1. Biology is derived from two Greek words bios and logos. What is the meaning of

Bios **(1mk)**

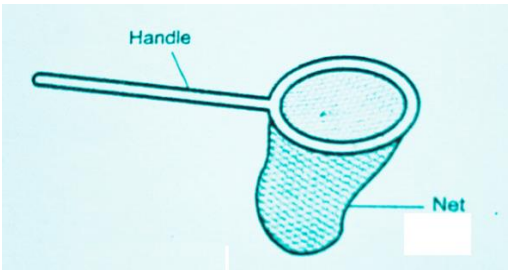
Logos **(1mk)**

2. List three main branches of biology and for each give its definition **(6mks)**

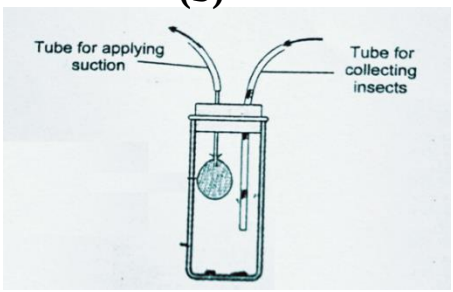
3. Describe six characteristics observed among living organisms **(12mks)**

4. Identify the following apparatus and for each state the function **(6mks**

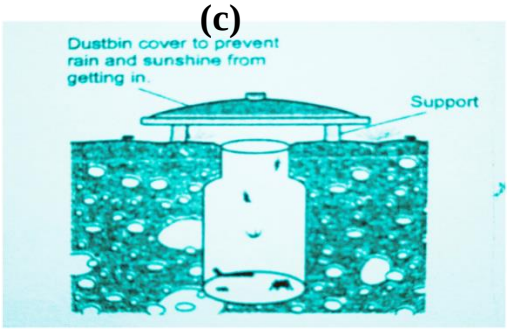
(a)



(b)

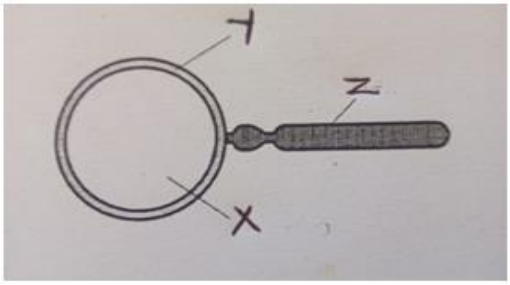


(c)



5. Outline the four precautions to be observed during collection and observations of organisms during practical study. **(4mks)**

6. The diagram below shows an instrument used in the laboratory



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

(b) Label the parts X, Y & Z **(3mks)**

(c) What is the function of the instrument?

(d) The student observed the housefly whose actual length was 8cm. she used the apparatus named above 6(a) above and the total magnification was X4. Calculate the length of the drawing. Show your working. **(3mks)**

7. (a) What is classification? **(1mk)**

(b) What is the need for classification? **(4mks)**

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8. Fill the table below by identifying the correct kingdom and appropriate representative in each case **(5mks)**

kingdom	**representative**
a)	Hydra
b)	Protozoa
c)	Yeast
d) Monera	
e)	Garden pea

9.

a) Distinguish between magnification and resolution **(2mks)**

b) Fill the table below **(3mks)**

Eye-piece lens	**Objective lens**	**Total magnification**
X30	(i) ……	X600
X14	X5	(ii) ……
(iii) ……	X40	X2000

c) Study the diagram below and answer the questions that follow

The diagram represents the field of view observed under the light microscope during the form one practical lesson.



If the students counted 10 cells across the field of view, calculate the size of one cell in micrometers. Show your working. **(3mks)**

10. What is the importance of the following practices in biological preparation of the specimen?

i) Cutting <u>very thin</u> sections **(1mk)**

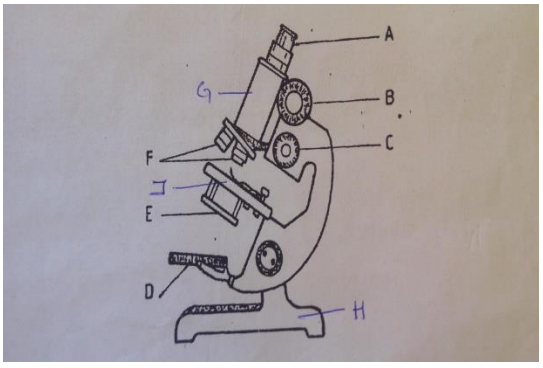
ii) Staining the cells using common dyes **(1mk)**

iii) Adding <u>a drop</u> of water on the cell **(1mk)**

11. Distinguish between unicellular and multicellular organisms. **(2mks)**

12. Identify three types of cells found in plants. **(3mks)**

13. The figure shows a microscope



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a) Name the parts of the microscope shown below. **A, C, J & D** **(4mks)**

b) State the functions of the part **B, E, F, G & H** **(5mks)**

14. State three importance of studying biology **(3mks)**

15. For the table below, identify the cell organelle and state the appropriate function **(10mks)**

CELL ORGANELLE	**FUNCTION**
Cell wall	……
……	Add carbohydrates to protein and transport them in the cell
Nucleus	……
Nucleolus	……
……	Protein synthesis
Chloroplast	……
……	Contain lytic enzymes
Rough endoplasmic reticul	……
……	Transport lipids
……	Site for respiration

16. Name the taxonomic units of classification in order of hierarchy **(7mks)**

17. (a) What is the name given to the double naming of living organisms? **(1mk)**

(b) The scientific name of a cat is ***Felis catas.*** Which taxonomic group does the name ***Felis*** and ***catas*** refer to? (**2mks)**

(c) Outline four principles used in double naming system of living organisms **(4mks)**

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BIOLOGY QUESTION PAPER NO: 04

1. State the name given to the study of **(2mks)**

(i) Insects

(ii) Classification of living organisms.

2. (a) Name the products of complete hydrolysis of sucrose. **(1mk)**

(b) What happens to these products named in (a) above, when they are excess in the body of man. **(2mks)**

3.(a) State the roles of light in plant nutrition. **(2mks)**

(b) Give a reason why glucose formed at the end of photosynthesis is converted at once into starch. **(1mk)**

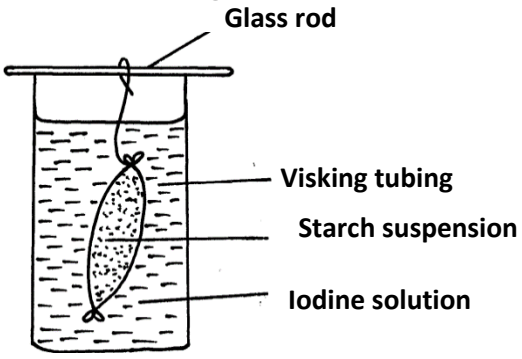
4. (a) State the formula for calculating linear magnification of a specimen when using a hand lens. **(1mk)**

(b) Give **one** functional advantage of use of the following microscopes. **(2mks)**

(i) Light Microscope

(ii) Electron Microscope.

5. An investigation was set up as shown in the diagram below.



After 30 minutes, starch suspension had turned blue-black while iodine solution retained its colour.

(a) Name the physiological process that was being investigated in the experiment. **(1mk)**

(b) Account for the results observed after 30 minutes. **(3mks)**

6. Define the term osmosis. **(2mks)**

7. (a) Distinguish between homodonts and heterodonts. **(1mk)**

(b) A certain mammal has no incisors, no canines, 6 premolars and 6 molars in the upper jaw. In the lower jaw, there are 6 incisors, 2 canines, 6 premolars and 6 molars.

(i) Write down the dental formular of this mammal. **(1mk)**

(ii) What is the mode of nutrition of this mammal? **(1mk)**

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8. The reaction represented by equation below occurs in the body

Hydrogen peroxide ⟶ Oxygen + Water

(a) Name enzyme **Z** **(1mk)**

(b) Name an organ in the human body where this reaction occurs **(1mk)**

(c) State the biological importance of the reaction above **(1mk)**

9. State how each of the cells below are specialized to carry out their functions

(a) Palisade cell **(1mk)**

(b) A sperm cell **(1mk)**

10. State the functions of each of the following organelles.

(i) Ribosomes **(1mk)**

(ii) Golgi apparatus **(1mk)**

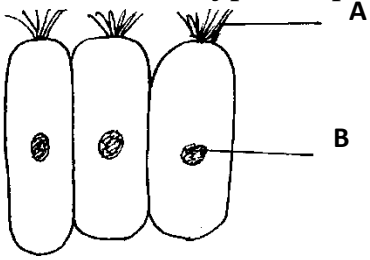
11. Name the bond that exists between amino acids during condensation process of forming proteins? **(1mk)**

12. Explain how the following factors affect the rate of photosynthesis

(a) Concentration of carbon (iv) oxide. **(1mk)**

(b) Light intensity **(1mk)**

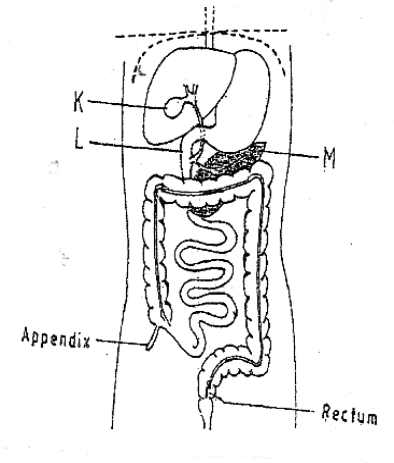
13. Study the figure below which shows a type of epithelial tissue



(a) State the name of structure **A**. **(1mk)**

(b) Give an example in humans where this epithelium is found **(1mk)**

14. The diagram below represents part of the human digestive system.



Name the organs labeled L and M. **(2mks)**

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15. Some form one students wanted to collect the following animals for study in the Laboratory. . State the suitable apparatus they should use.

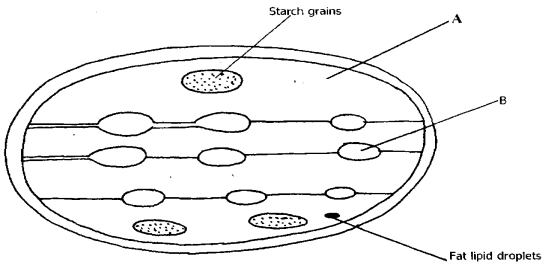
i) Flying insects ..... **(1mk)**

ii) Crawling stinging insects ..... **(1mk)**

iii) Small animals from tree barks ..... **(1mk)**

16. Study the diagram below and answer the questions that follows

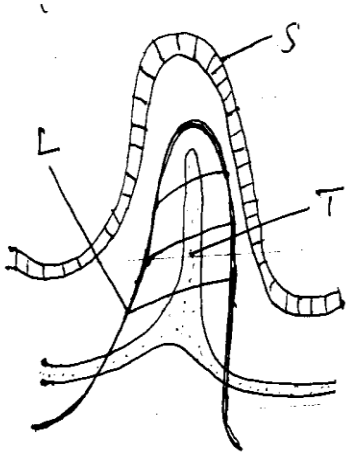
a) Identify the structures labeled A and B **(2mks)**



b) What process takes place in the parts labeled A and B **(2mks)**

17. A student estimated the diameter of a field of view to be 2.8mm. The diameter was occupied by four onion cells. Estimate in micrometers the diameter of onion cell. Show your working. **(2 mks)**

18. The diagram below represents structure found in the walls of ileum.



a) Identify the structure shown in the diagram. **(1 mk)**

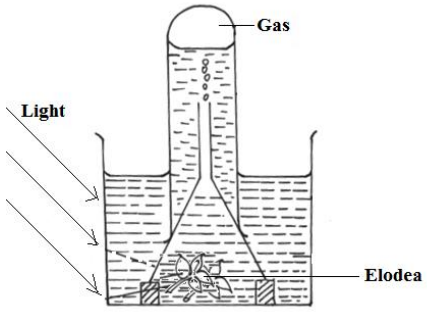
b) Name parts labeled S, T and L. **(3 mks)**

c) Name products of digestion which are absorbed into; L & T **(2 mks)**

d) State how the above structure is adapted to its function. **(2 mks)**

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19. The diagram below represents a set up that was used to investigate a certain process in a plant.



(a) State the process that was being investigated. **(1 mk)**

(b) Other than the factors shown, state two factors that would affect the process named in (a) above. **(2 mk)**

20. Outline two roles of active transport in human beings. **(2 mks)**

21. Write the role of the following parts of microscope. **(3mks)**

i) Mirror

ii) Diaphragm

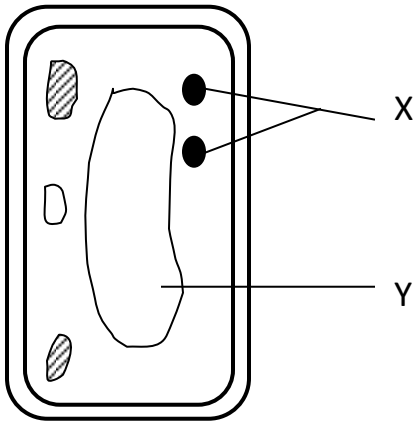
iii) Coarse adjustment knob

22. Explain w hy plant cells do not burst when immersed in distilled water. **(2mks)**

23. (a) State two functions of bile juice in the digestion of food? **(2mks)**

(b) How does substances concentration affect the rate of enzyme reaction? **(1mk)**

24. The diagram below represents a cell



a) Name the parts labeled X and Y **(2mks)**

b) State why the structures labeled X would be more on one side than the other side**. (1mk)**

25.a) What is diffusion **(2mks)**

b) How does diffusion gradient affect the rate of diffusion? **(1mk)**

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BIOLOGY QUESTION PAPER NO: 05

1. State the functions of the following parts of alight microscope: **(2mks)**

a) Objective lens

b) Diaphragm

2. State the functions of the following cell organelles:

a) Ribosomes **(1mk)**

b) Lysosomes **(1mk)**

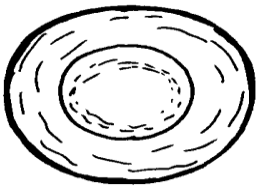
3a) Distinguish between diffusion and active transport. **(2mks)**

b) State **one** hole that is played by osmosis in:

i) Plants. **(1mk)**

ii) Animals **(1mk)**

4. The diagram below a red blood cell that was subjected to a certain treatment.



At start



at the end of experiment

a) Account for shape of the cell at the end of the experiment. **(2mks)**

b) Draw a diagram to illustrate how a plant cell would appeared if subjected to the same treatment. **(1mk)**

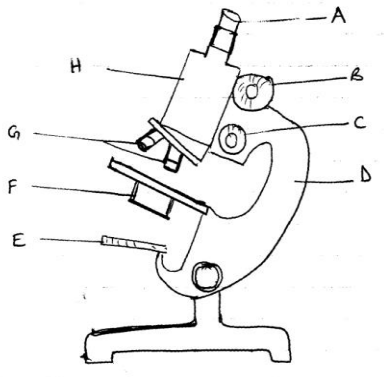
5. Plant cells do not burst when immersed in distilled water. Explain **(2mks)**

6. State **three** functions of Golgi apparatus. **(3mks)**

7. Name **one** cell organelle found in the actively respiring tissues. **(1mk)**

8. Distinguish between hypertonic and hypotonic solutions. **(2mks)**

9. The following is a diagram of a light microscope.



a) Name the parts labeled A, B, C, D,E , **(5mks)**

b) State the functions of parts labeled E and F **(2mks)**

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10. Name the organelle that:

a) Manufacture and transport lipids and steroids in a cell **(1mk)**

b) Contain enzymes that are capable of destroying old damaged cells. **(1mk)**

c) Control all the processes in a cell. **(1mk)**

d) Form Cilia and flagella in cells that have them **(1mk)**

11. State the branch of biology that deals with the study of : **(2mks)**

(i) Insects

(ii) The relationship between organisms and their environment.

12. Name the filed of science that specializes in the study of cells. **(1mk)**

13. State the use of the following apparatus.

i) Pooter. **(1mk)**

ii) Sweep net **(1mk)**

14. The scientific name for beans is phosedus vulgaris.

a) What taxan does the term phoseodusrepresent. **(1mk)**

b) State **two** rules that are followed when giving a scientific name to an organism **(2mks)**

15. Compare the structure of plant and animal cells. **(4mks)**

16.List **seven** life processes/characteristics that must take place in all living organisms. **(7mks)**

17. List **seven** major taxonomic units of classification on living things. In descending order. **(7mks)**

18. Classify the following organisms into their kingdoms **(4mks)**

Organisms	Kingdom
a) Maize,Beans	……..
b) Mushrooms,Yeast	…….
c) Protoza, algae	…….
d) Bacteria	…….

19. A student was preparing a section of a plant cell to be viewed on a light microscope. Give a reason for each of the following steps:-

(i) Cutting a very thin section **(1mrk)**

(ii) Staining the section **(1mrk)**

(iii) Putting the section in water **(1mrk)**

20.Explain the following terms.

a) Taxonomy **(1mrk)**

b) Species **(1mk)**

21**.** ***State two*** main functions of a microscope. **(2mks)**

(a) What is a cell. **(1mk)**

(b) Define the meaning of the following terms

(i) Entomology **(1mk)**

(ii) Genetics **(1mk)**

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FORM ONE HOLIDAYS SMART PASS
BIOLOGY QUESTION PAPER NO: 06

1. a. Name one product of the light stage during photosynthesis **(1mk)**

b. Name the process by which water molecules are split by light during photosynthesis **(1mk)**

2. What name is given to the process whereby :

a. Red blood cells wrinkle after losing their water to a hypertonic solution? **(1mk)**

b. Plant cells become flaccid after losing their water to a hypertonic solution? **(1mk)**

3. Four equal strips A,B,C and D were cut from a potato whose cells had a sugar concentration of 28.5%.The strips were placed in sugar solutions of different concentrations as follows:

A:10% B 15% C 25% D 35%

i. What changes would you expect in strips A and D? **2mks**

ii. Account for the change in strip D **(3mks)**

4. The figure below shows a small piece of visking tubing which is filled with potassium permanganate solution. Its free ends were tied tightly to prevent leakage .It was then dipped in a beaker full of distilled water. The set up was left for 2 hours .Its was observed that the distilled water was coloured purple.

a. What physiological process was being investigated. **(1mk)**

b. Account for the observation made in (a) above. **(3mks)**

5. a. State three factors that affect enzyme activities. **(3mks)**

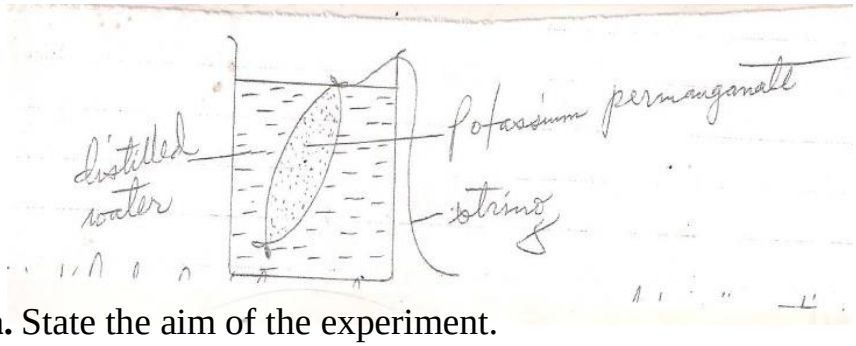
b. Name the structures on an enzyme where substrate molecules fix themselves during an enzyme reaction. **(1mk)**

c. State what would happen to an enzyme molecule if the temperature is:-

i. Raised above 40˚c **(1mk)**

ii. Lowered below 10˚c. **(1mk)**

6. The diagram below represents a set up that was used to investigate a certain process in a plant.



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

b. State a factor that would affect the process. **(1mk)**

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7. State the importance of nucleic acids to an organisms. **(1mk)**

8. State the significance of the following to a leaf:-

a. Thinness **(1mk)**

b. Presence of air spaces **(1mk)**

c. Stomata **(1mk)**

9. What is the role of roof hairs in plants. **(1mk)**

10. What is meant by the term organ systems in organisms? **(1mk)**

11. State three factors that affect the rate of diffusion **(3mks)**

12. What is compensation point. **(1mk)**

13. a. State two properties of monosaccharide. **(2mks)**

b. What is the main function of monosaccharide in organisms? **(1mk)**

14. State the formula for calculating magnification when using the following

a. Hand lens/naked eyes **(1mk)**

b. A light microscopic **(1mk)**

15. Explain why a mule, a product of mating between a horse and a donkey is sterile. **(1mk)**

16. State two factors considered while grouping the organisms in the same species. **(2mks)**

17. Describe how you would carry out food tests to test the presence of starch and reducing sugars on a food sample.

a. Test for starch. **(3mks)**

b. Test for reducing sugar **(4mks)**

18. Explain how surface area to volume ratio idea may be applied to explain rate of diffusion in organisms. **(2mks)**

19. Which organelles in a cell perform the following functions

a. Manufacture of ribosomes **(1mk)**

b. Package cell secretions **(1mk)**

c. Energy production **(1mk)**

d. Synthesis of carbohydrates. **(1mk)**

20. Name the taxonomic unit with:

a. The greatest number of organism. **(1mk)**

b. The least number of organisms **(1mk)**

21.a. Define the term cell **(1mk)**

b. When onion epidermal cells were placed and focused along the diameter of the field of view ,10 cells were viewed and counted. Calculate the length of each epidermal cell in micrometers (1mm = 1000micrometers).Assume the diameter of field of view= 3mm. **(2mks)**

22. Name the kingdom in which the organisms named below belong.

a. Bacteria(1mk) **b.** Paramecium(1mk) **c.** Yeast(1mk)

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23. State the deficiency disease caused by deficiency of the following vitamins

a. Vitamins A **(1mk)**

b. Vitamin D **(1mk)**

c. Vitamin B_1 **(1mk)**

24. a. State and explain how the ileum is adapted to perform its function. **(4mks)**

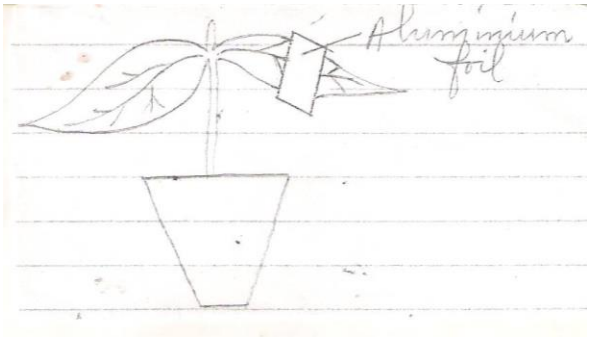
b. State two functions of the colon during digestion. **(2mks)**

25.a. Name two diseases that affect human teeth. **(2mks)**

b.(i) Write the dental formula of an adult human. **(1mk)**

ii) Work out the total number of teeth from the formula above. **(1mk)**

26. In an experiment to investigate a factor affecting photosynthesis, a leaf of a potted plant which had been kept in the dark overnight was covered with aluminium foil as shown in the diagrams below.



The set up was kept in sunlight for three hours after which a food test was carried out on the leaf.

a. Which factor was being investigated in the experiment? **(1mk)**

b. Which food test was carried out? **(1mk)**

c. I) Sate the results of the food test. **(2mks)**

ii) Account for the results in (c) (i) above. **2mks**

d. Why was is necessary to keep the plant in darkness before the experiment? **1mk**

27.a. Distinguish between the term s homodont and heterodont **(2mks)**

b. Name the gap between incisors and premolars in some herbivores and state its function. **(2mks)**

28. State and explain how palisade cells are adapted to perform their function. **(3mks)**

29.a. Define the term active transport. **(2mks)**

b.State four factors that affect active transpiration**.** **(4mks)**

30. State the function of the following parts of a light microscope.

a. Coarse adjustment knob. **(1mk)**

b.Diaphragm(1mk)

c. Condenser(1mk)

31. Name the first four taxa in taxonomy starting from the highest level

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BIOLOGY QUESTION PAPER NO: 07

1. Name the branch of biology involved in the study of

a. Relationships of living with each other and their environment. **(1mrk)**

b. Identification and classification of organisms. **(1mrk)**

2. The binomial name of housefly is MUSCA DOMESTICA.

i) State<u>two</u> mistakes in the way the scientific name is written. **(2mks)**

ii) Re-write the name in correct manner following the rules of binomial nomenclature. **(1mk.)**

3. State the use of each of the following apparatus: **(3mks)**

I) Bait trap

ii) Specimen bottle

iii) Pitfall trap

4. i) Give the functions of thefollowing parts in a light microscope. **(3mks)**

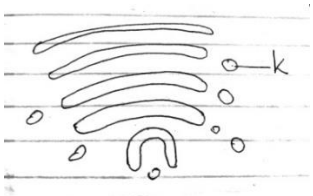
a. Diaphragm

b. Condenser

c. Objective lens

ii) Why is it not likely to use an electron microscope in a school laboratory? **2mks**

5. Study the diagram below and answer the questions that follow:



(a) Identify the organelle. **1mk**

(b) Name the structure labelled K **1mk**

(c) State two functions of the organelle named in (a) above. **2mks**

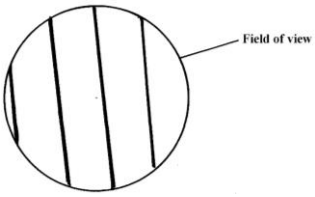
6. (i) What is the importance of carrying out the following procedures when preparing temporary slides in the laboratory? **(3mks)**

(a). Adding water to the specimen.

(b). Staining the specimen.

(c). Using a sharp blade to make sections.

7. A student estimating a cell size of an onion epidermal cells observed the following on the microscope field of view using a transparent ruler.



The student identified 20 cells across the field of view. Calculate the size of the cell inMicrometers (show your working) **(3mks)**

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10. Define the term physiology **(1mk)**

11.(a) Name the principal components of cell membrane **(3mks)**

(b)(i) Why would a cell allow some substances to pass through it but not others? **(1mks)**

(ii) Other than the property of semi- permeability stated in b (i) above, state two other properties of a cell membrane **(2mks**

(c) Explain what would happen to the red blood cells if placed in concentrated salt solution. **3mks**

12. Define the following terms **(6mks)**

a. Isotonic solution

b. Hypotonic solution

c. Hypertonic solution

13. What is meant by the following biological terms?

(i) Crenation **(2mk)**

ii) Haemolysis **(2mk)**

14. What role does osmosis play in plants? **(2mks)**

15. Distinguish between diffusion and active transport **(2mks)**

16. Define the term nutrition **(2mks)**

17. Name and explain the two types of nutrition **(4mks)**

18. Differentiate between Chemotropism and Phototropism **(4mks)**

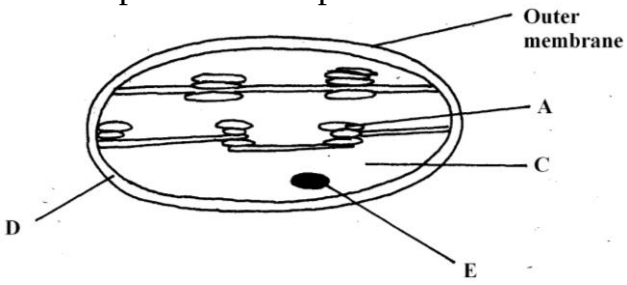
19. Draw a well labelled diagram of a leaf showing the external features. **(3mks)**

20. Define the term photosynthesis **(2mks)**

21. What four conditions are needed for photosynthesis to occur? **(4mks)**

22.(i) What is the importance of photosynthesis in nature? **(2mks)**

(ii) The organelle below is importantin the process of Nutrition.'



a) Identify the organelle. **(1mk)**

b) Name the part labeled **A** & **C** **(2mk**

23. Name the part where the following stages of photosynthesis occur **(2mks)**

i) Light independent stage **ii)** Dark stage

24. State the role of light in the processes of photosynthesis **(1mk**)

25. Name the building blocks of ; **(3mks)**

(I) Proteins **(ii)**Carbohydrates **(iii)** Fats

26. What are enzymes? **(1mks)**

27. State the main properties of enzymes **(2mks)**

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BIOLOGY QUESTION PAPER NO: 08

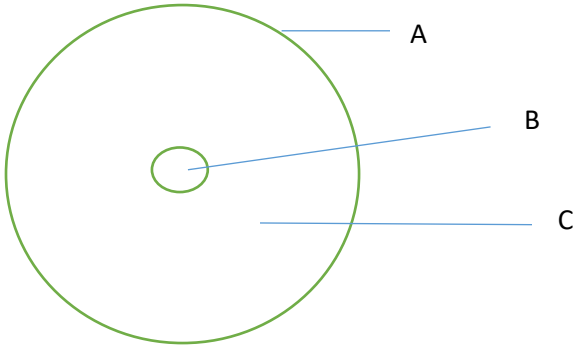
1. Differentiate between Botany and Zoology **(2mks)**

2. Motor vehicle move, use energy and produce carbon iv oxide and water similar characteristics occur in living organisms yet motor vehicles are not classified as living organism. Explain

3. List skills that are gained on studying Biology **(2 mks)**

4. Give three difference between the light and electron microscopes

5. The diagram above was obtained from a certain organism.



i) Identify the structure **(1mk)**

ii) Which type of microscope was used to view the structure **(1mk)**

iii) Name the parts labelled B & C **(2mks)**

iv) State the function of the part labelled **A** **(2mks)**

6. State the functions of the following parts of a light microscope

a) Diaphragm **(1 mk)**

b) Objective lens **(1 mk)**

7. Explain the importance of doing the following when testing a leaf for starch **(4 mks)**

i) Boiling the leaf in water

ii) Boiling the leaf in methlylated spirit

iii) Boiling the methylated spirit in water bath

iv) Placing a potted plant in the sun for 5 hours

8. Describe what happens during the light stage of photosynthesis **(3 mks)**

9. State **two** factors that affect enzymatic activities **(2 mks)**

10. State a function of the large intestine in humans **(1 mk)**

11. State the role of

i) Vitamin C in human **(1 mk)**

ii) Iron in humans **(1 mk)**

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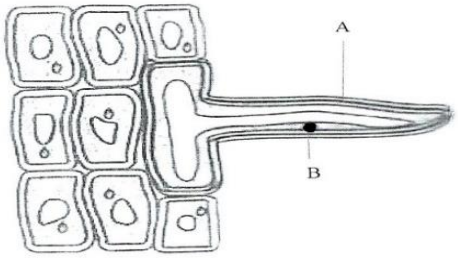
12. State two roles of **HCL** in the stomach **(2 mks)**

13.a) Complete the table given below **(3 mks)**

Eye –piece lens magnification	Objective lens magnification	Total magnification
X 5	_____	X20
X 10	X5	_____
_____	X10	X100

b) State **two** activities of the cell that are controlled by nucleus **(2 mks)**

c) Identify the specialized cell illustrated below **(1 mk)**



i)Name the parts labelled **A** & **B** **(2 mks)**

ii) What is Binomial nomenclature **(1 mk)**

14. Name the organelles that would be found in large numbers in cells of a:

i) Rapidly respiring tissue **(1 mk)**

ii) Secretory gland **(1 mk)**

15. State the function of each of the following tissues

i) Meristematic **(1 mk)**

ii) Blood **(1 mk)**

16. Differentiate between plasmolysis and crenation **(2 mks)**

17. The scientific name of an onion is ***Allium cepa*** Identify the genus and the species to which the organism belongs **(2 mks)**

a) genus**…….** species**…….**

b)Outline three functions of carbohydrate in living organism **(2 mks)**

c) What are the building blocks of proteins **(1 mk)**

d)Give **two** factors that determine energy requirement in human beings **(2 mks)**

e) Name the monosaccharides that make up the following substances

i) Sucrose **(1 mk)**

ii) Lactose **(1 mk)**

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18. The table below shows the number of teeth in the jaws of an animal

	Canines	Incisors	Premola	Molars
Upper jaw	0	0	6	4
Lower jaw	8	0	6	6

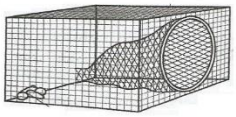
a) Write the dental formula of the organism **(1 mk)**

b) i) State the mode of feeding of this animal **(1 mk)**

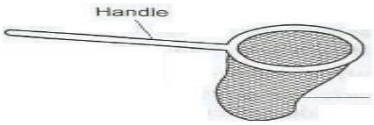
ii) Give **two** reasons for your answer **(2 mks)**

iii) Name any **two** dental diseases **(2 mks)**

iv) The diagrams below represents common equipment used by Biologists



O



P



Q

a) Identify the equipment **O, P** & **Q** **(3mks)**

19.a) Give the uses of the following apparatus **(2 mks)**

i) Speciment bottle

ii) Pooter

b) State **two** necessary precautions to be observed when collecting specimens **(3 mks)**

c) Name the carbohydrate that is

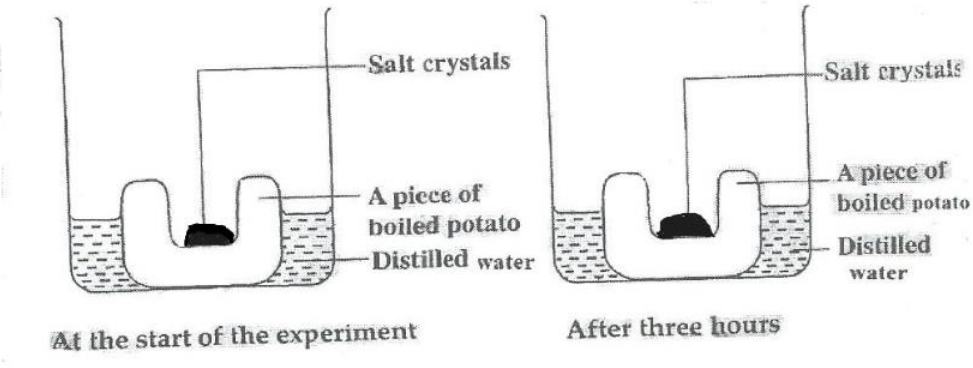
i) Stored in plant seeds **(1 mk)**

ii) Stored in mammalian muscles **(1 mk)**

iii) Most abundant in human blood **(1 mk)**

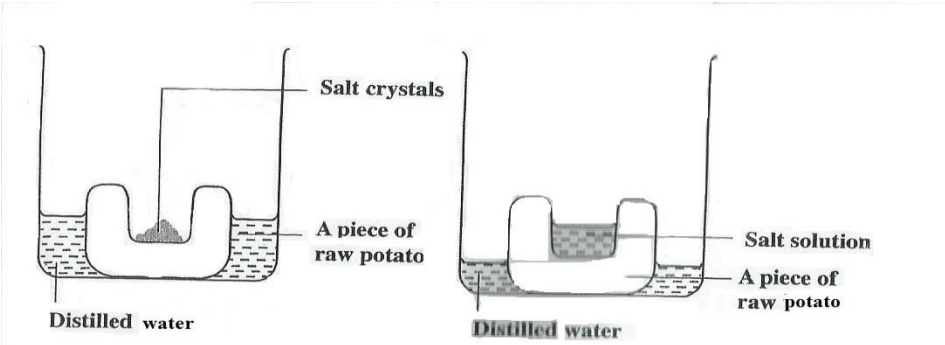
20. A group of students set up the experiment below to investigate a certain physiological process

Set up A



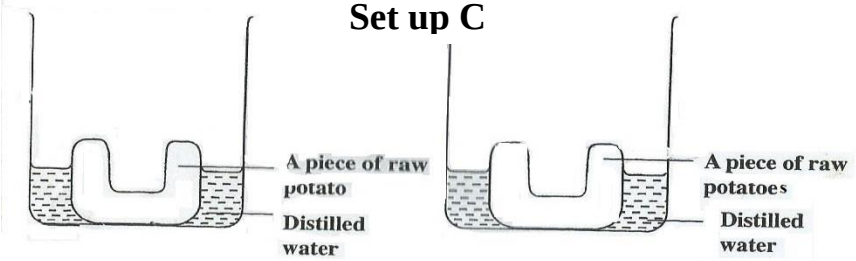
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Set up B



At the start of the experiment *After three hours*

Set up C



At the start of the experiment *After three hours*

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

ii) Account for the results in set-up A and B **(2 mks)**

iii) What was the purpose of set-up **C**? **(1 mk)**

21. Name **two** structures found in plant cell that are absent in animal cell **(2 mks)**

a) Define active transport **(1 mk)**

b) What is the significance of active transport in living organisms **(2 mks)**

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BIOLOGY QUESTION PAPER NO: 09

1. i) State **one** process that takes place during the light stage and **one** that takes place in the dark stage of photosynthesis. **(2mks)**

ii) Name three products of the light stage of photosynthesis **(3mks)**

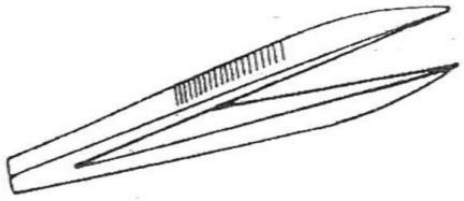
iii) Name **three** types of cells in the leaves where photosynthesis occurs **(3mks)**

2. Name **one** example of the specialized cells in plants and one example in animals.

(i) Plants **(1mk)**

(ii) Animals **(1mk)**

3. Identify the following apparatus and state its functions. 1. **(2mks)**



4. A student measured the length of a mitochondrion on a photomicrograph whose magnification was X 40000 and found it to be 1mm. Calculate the actual size of the mitochondrion. **(3mks)**

5. State the type of solution that makes the plant cell. **(2mks)**

i) Flaccid **ii)** Turgid

6. Name the carbohydrate stored in:

i) Cell wall. **(1mk)**

ii) Mammalian liver. **(1mk)**

7. Name the monosaccharides that make up the disaccharides below

a) Sucrose **(1mk)**

b) Lactose **(1mk)**

c) Maltose **(1mk)**

8. (a) Name **three** characteristics of living organisms **(3mks)**

(b) Apart from Plantae and Animalia, name **three** other kingdoms. **(3mks)**

9. Draw a well labeled diagram show the external parts of a simple leaf **(6mks)**

10. Give two characteristics that distinguish scientific names from common names. **(2mks)**

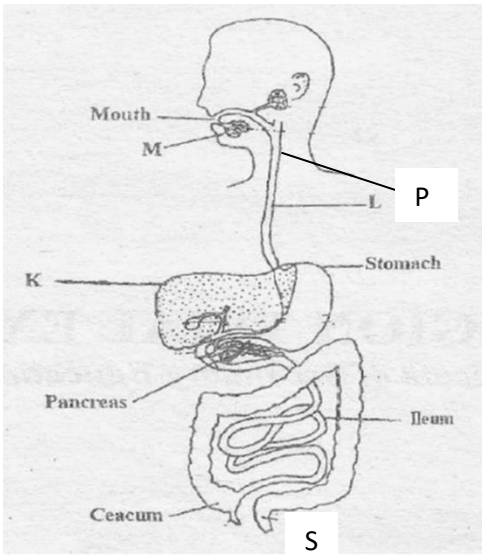
11. (a) What is cell specialization **(1mk)**

(b) Name **three** types of tissues found in animals **(3mks)**

(c) Name **three** main types of lenses found on a light microscope **(3mks)**

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12. The diagram below represents the digestive system in man. Study the diagram and answer the questions that follow



(a) Label the part K ,L, S and salivary glands M and P **(5mks)**

(b) Name **three** hormones which are secreted along the alimentary canal **(3mks)**

13. List down **four** differences between a light microscope and an electron microscope **(4mks)**

14. List down **four** factors that determines energy requirements in human being: **(4mks)**

15. Define the following branches of Biology. **(2mks)**

i) Genetics

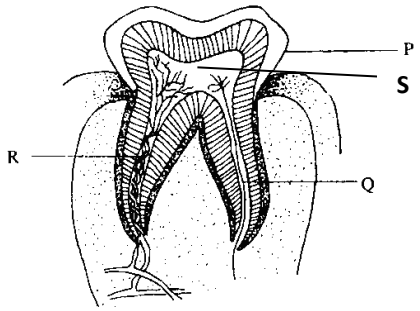
ii) Entomology

16. State the functions of each of the following organelles.

a) Nucleolus **(1mk)**

b) Golgi apparatus **(2mks)**

17. The diagram below represents a longitudinal section of a human tooth.



(a) Identify the type of tooth. **(1mk)**

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

(c) State one function of the tooth. **(1mk)**

(d) State the function of the part labeled Q **(1mk)**

e) Name the parts labeled P, Q, R, and S **(3mks)**

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BIOLOGY QUESTION PAPER NO: 10

SECTION A (60MARKS)

1. State the importance of each of the following in living organisms

a) Nutrition **(1mk)**

b) Excretion **(1mk)**

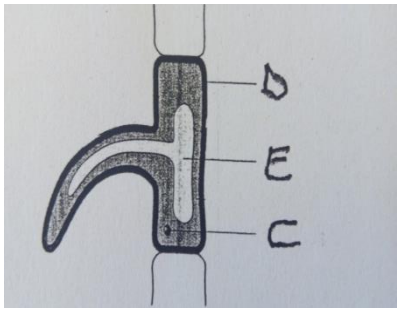
2. State two functions of cell sap **(2mks)**

3. Which organelle would be abundant in: **(2mks)**

a) Skeletal muscle cell

b) Palisade cell

4. The diagram below shows a specified plant cell



i. Name the cell **(1mk)**

ii. Name the parts labelled D and E **(2mks)**

5. State the functions of the following parts of alight microscope. **(2mks)**

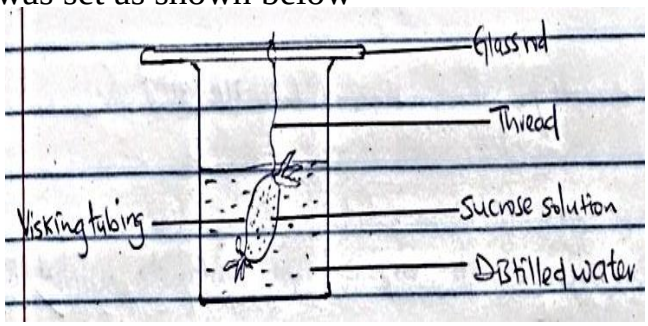
a) Objective lens

b) Diaphragm

6. Using a microscope, a student counted 55 cells across a field of view whose diameter was 6000μm. Calculate the average length of cells. Show your working. **(2mks)**

7(a) Distinguish between diffusion and osmosis **(2mks)**

b) An experiment was set as shown below



The set up was left for 30 minutes.

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(i) State the expected results **(1mk)**

(ii) Explain your answer in b(i) above **(3mks)**

8. State four factors that increase the rate of diffusion **(4mks)**

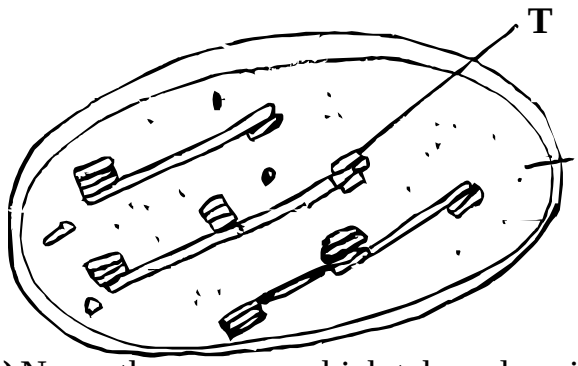
9. What is meant by the following terms?

(i) Crenated cell **(1mk)**

(ii) Flaccid cell **(1mk)**

10. Distinguish between heterotrophism and autotrophism **(2mks)**

11. Study the diagram below



a) Name the process which takes place in the organelle **(1mk)**

b) Name the pigment in the structure labelled T and state its function **(2mks)**

c) Name three cells of a leaf where the above structure is found **(3mks)**

12. State four external factors that affect the rate of photosynthesis **(4mks)**

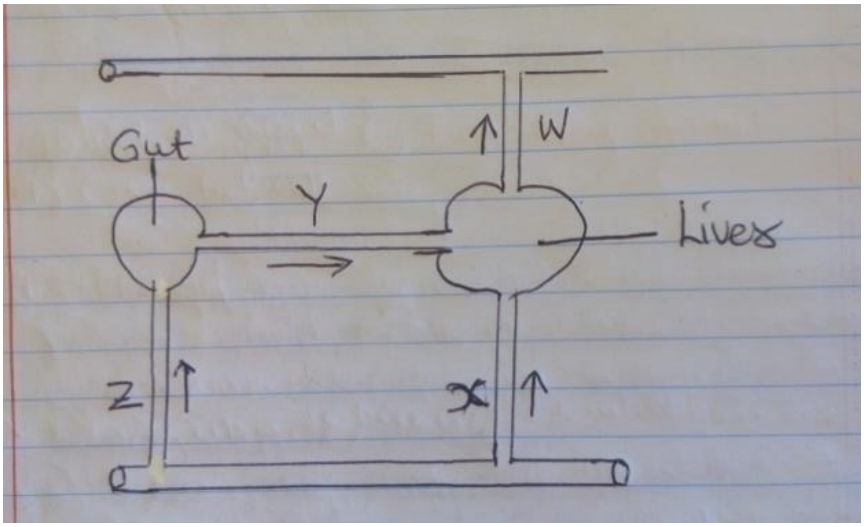
13. State three properties of monosaccharide **(3mks)**

14. Discuss four adaptations of the carnivores to their mode of feeding **(4mks)**

15 a) What is the importance of mastication during digestion? **(1mk)**

b) State three roles of saliva during digestion **(3mks)**

16. The diagram below shows part of a mammalian circulatory system



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a. Name the blood vessels marked Y and Z **(2mks)**

b. A student took a meal rich in proteins and carbohydrates. It was found that the glucose level in blood vessel W was lower than blood vessel Y. Explain **(1mk)**

17.

a) What is active transport? **(1mk)**

b) Give four roles of active transport **(4mks)**

18. During a Biology practical lesson, the teacher provided students with the following apparatus; a porter, a scalpel, specimen bottle, a pair of forceps, sweep net and chloroform.

a) Give four precaution that a biology teacher gave the students before the practical when collection of specimen began **(4mks)**

b) What was the function of the following apparatus **(4mks)**

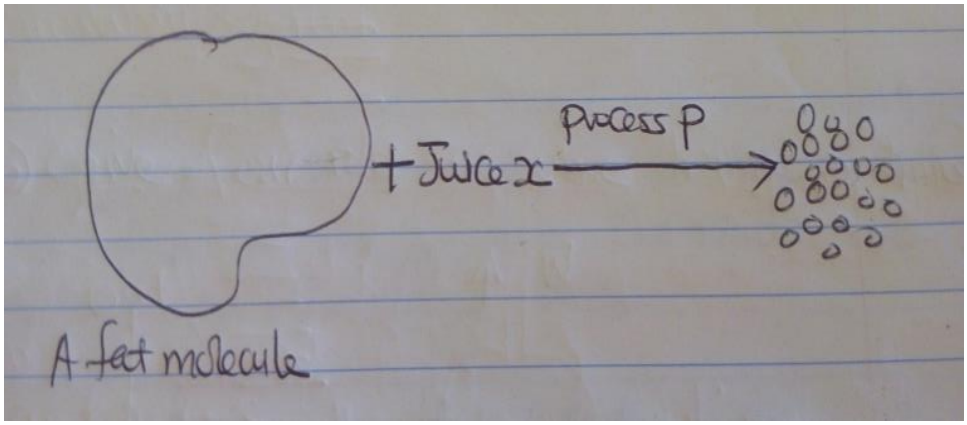
i. Pooter

ii. Sweep net

iii. Chloroform

iv. A pair of forceps

19. The following is an illustration of a certain process that occurs in mammals.



a) Name process P **(1mk)**

b) Name the juice involved in process P **(1mk)**

c) Give a reason why liver damage leads to impaired digestion of fats **(1mk)**

d) What would be likely effect on digestion if the small intestine of a human being is reduced in an operation **(1mk)**

20. Name two specialized tissue in mammals **(2mks)**

SECTION B: 40 marks

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

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TEMPERATURE (^{O}C)	RATE OF REACTION IN MG OF PRODUCTS PER UNIT TIME
5	0.2
10	0.5
15	0.8
20	1.1
25	1.5
30	2.1
35	3.0
40	3.7
45	3.4
50	2.8
55	2.1
60	1.1

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

b. When was the rate of reaction 2.6 mg of product per unit time? **2mks**

c. Account for the shape of the graph between

(i) 5^{o}cand 40^{o}c **2mks**

(ii) 45^{o}c and 60^{o}c **3mks**

d. Other than temperature name two ways in which the rate of reaction between 5^{o}c and 40^{o}c could be increased. **2mks**

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

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

e. The acidic conditions (e) (ii) above are later neutralized.

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

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

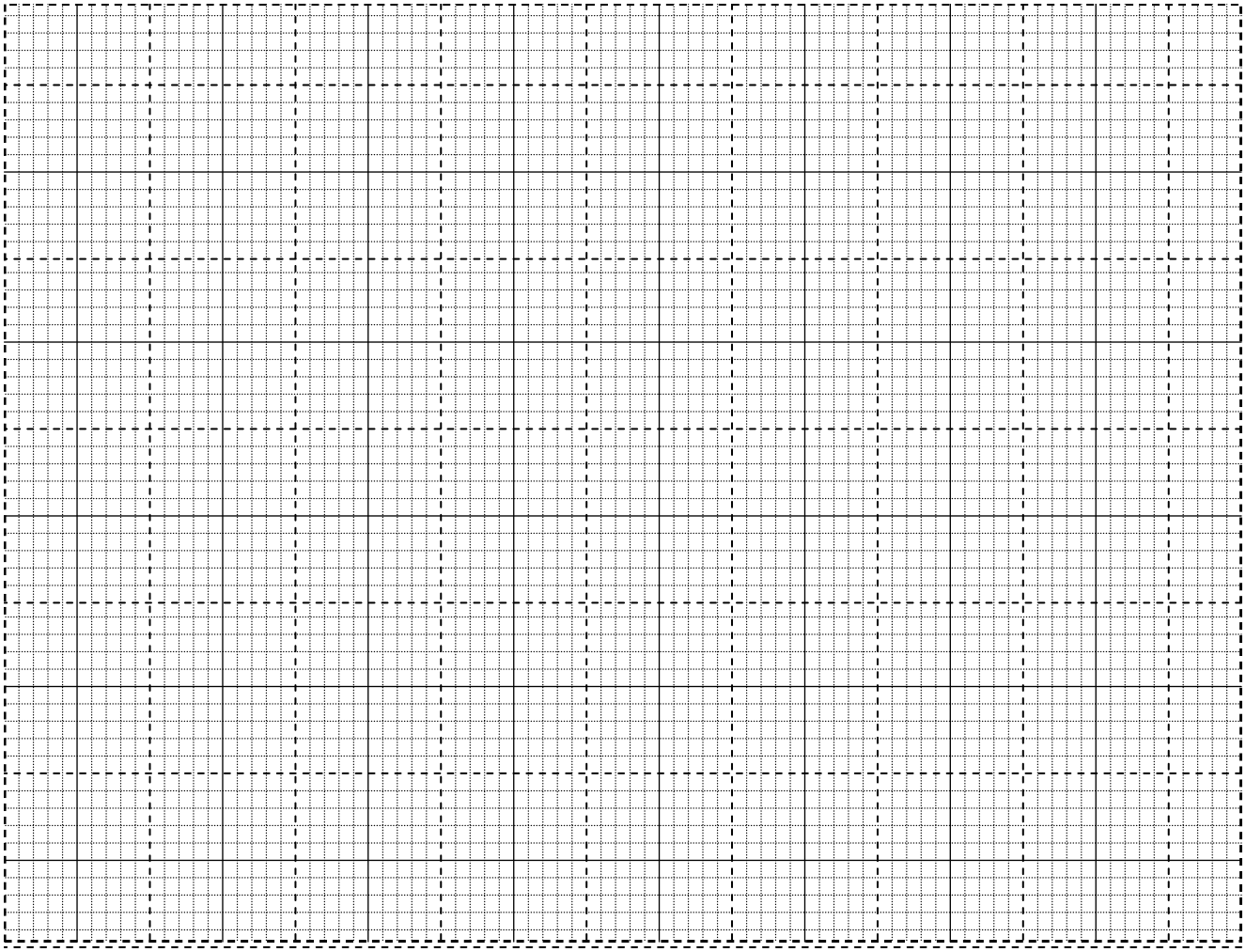
iii. Describe how water moves from the soil to the leaves of a tree **(10mks)**

23.

i. Explain how the mammalian intestines are adapted to perform their function **(5 mks)**

ii. Describe how environmental factors increase the rate of transpiration in terrestrial plants **(5 mks)**

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