F1 ENDYEAR ASSIGNMENT

BIOLOGY

10+ HOLIDAY ASSESMENT PAPERS

Dear Students, Make Maximum Utilization of limited time Available to Attempt and Work on these Year-Round Examination Trials.

A Comprehensive Evaluation Analysis of Term 1-3 Questions.

SERIES 1

For Marking Schemes
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MWALIMU AGENCY

FORM 1 EXAMINATION TRIALS

BIOLOGY

PRACTICE EXAM 1

TIME: 2 HOURS

Answer ALL Questions in the spaces provided.

1. Name the branch of Biology involved in each of the following. **(3mks)**

a) Study of inheritance and variations.

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b) Study of cells

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c) Study of parasites

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2. Describe what each of the following branches of Biology involves. **(3mks)**

a) Ecology –

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b) Entomology –

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c) Microbiology -

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3. List four professional occupations in which the study of biology is important. **(4mks)**

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4. Differentiate between growth and development. **(2mks)**

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5. Give four reasons why animals move from one place to another. **(4mks)**

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6. Complete the table below appropriately. **(6mks)**

Branch of biology	***Name of scientist who specializes in***	***Name of study***
i. Zoology	ii.	iii.
i.	ii. Ecologist	iii.
i.	ii.	iii. Study of fungi

7. How does nutrition as a characteristic of living organism differ in plants and animals?

(2mks)

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……

8. State the importance of each of the following in living organisms. **(2mks)**

a) Nutrition –

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b) Excretion –

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9. A car produces energy, moves about and produces waste products yet it is regarded as a non-living thing. Explain this observation. **(4mks)**

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10. Make a well-labeled diagram of a magnifying lens. **(4mks)**

11. (a) Explain the meaning of the term Binomial nomenclature. **(1mk)**

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(b) State the three rules used in Binomial nomenclature. **(3mks)**

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12. Name the taxonomic units of classification in ascending order. **(7mks)**

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13. The scientific name *Lantana camara* refers to a green herbaceous plant. Other related plants include; *Lantana trifoliate* and *Vitex rifoliate* .

a) From the list, identify the plants belonging to the same genus. **(2mks)**

b) From the name *Lantana Camara*, which name represents:-

i) Genus name **(1mk)**

ii) Species name. **(1mk)**

14. State three importance of classification of living organisms. **(3mks)**

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15. (a) Explain why it is important to use scientific names of organisms in biology other than common names. **(1mk)**

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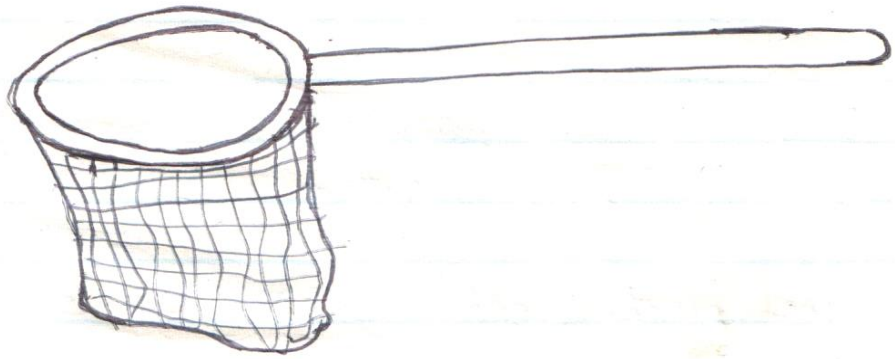
(b) VITEX is a genus of a tree found on Mt. Kenya. The specific name has been latinized to KENESIS. Write down the scientific name of the tree. **(2mks)**

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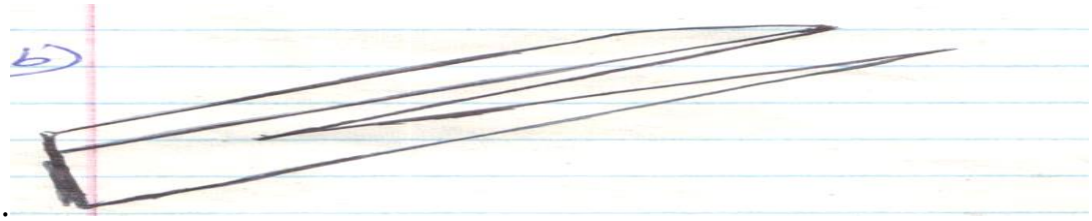
16. State the name and function of each of the following apparatus as used in specimen collection

a)



Name…… **(1mk)**

Function: **(1mk)**



..

Name: ……. **(1mk)**

Function: **(1mk)**

17. State any three precautions when collecting specimens for a biological study. **(3mks)**

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18. A leaf drawn using a hand lens measured 10cm long. The actual length of the leaf was 5cm. Work out the magnification of the drawing**.** **(2mks)**

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19. Kingdom is the largest taxonomic unit of classification with the highest members. List down the 5 kingdoms as used in classification. **(5mks)**

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20. Define the term species. **(1mk)**

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FORM 1 EXAMINATION TRIALS

BIOLOGY

PRACTICE EXAM 2

TIME: 2 HOURS

Answer ALL Questions in the spaces provided.

1) a) Name the main branch of Biology that studies the following. **(2mks)**

i) Organisms such as a Crocodile.

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ii) Organisms seen as a bean plant.

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b) Explain the following biology sub-branches **(5mks)**

i. Mycology

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ii. Ornithology

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iii. Anatomy

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iv. Cytology

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v. Bio chemistry

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c) State any three scientific skills gained through the study of biology **(3mks)**

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2) Explain four reasons why you would encourage your friends in High school to study Biology **(4mks)**

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3) a) Explain the following characteristics of living organisms **(4mks)**

i. Growth

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ii. Development

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……

b) State any two environmental problems that the study of biology tries to solve. **(2mks)**

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c) Name the characteristics of living organisms, illustrated through the following activities. **(4mks)**

A cow giving birth to a calf.

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A student eating "Githeri" in the dining hall

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c) A gazelle running away after spotting Lion from a distance.

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d) A student sneezing after smelling strong perfume.

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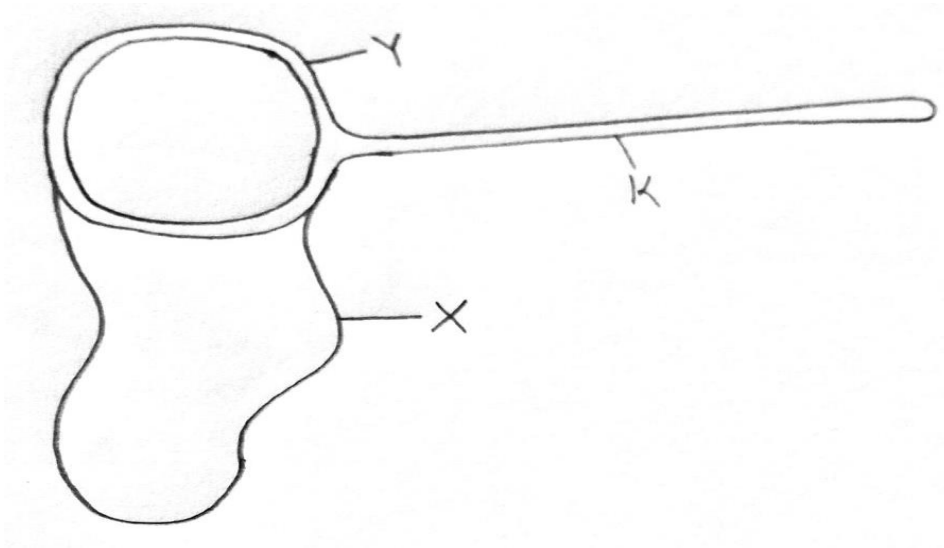
4) Give two significance of locomotion to animals **(2mks)**

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5) a) Below is an instrument used for collection of specimen



1) Name the instrument

(1mk)

Name parts labelled;

X ……..

Y ……..

d) Briefly explain how the instrument works **(2mks)**

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b) State two precaution to follow when collecting a spider for biology study. **(2mks)**

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c) State three ways in which plants compensate for their inability to locomote. **(3mks)**

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6) How does nutrition as a characteristics of living organism differ in plants and animals. **(2mks)**

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7) Differentiate between locomotion and movement **(2mks)**

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CLASSIFICATION 1

8) a) Define classification **(2mks)**

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b) State two reasons for classifying organisms **(2mks)**

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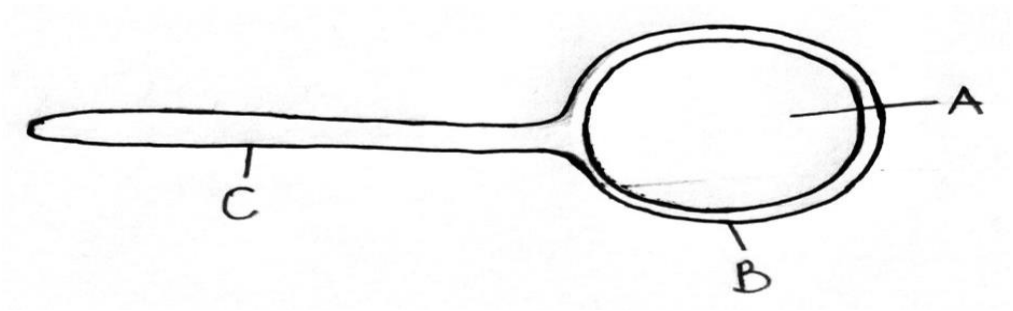
c) Differentiate between taxonomy and taxon **(2mks)**

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9) a) Label parts A, B, C **(3mks)**



A ……..

B ……..

C ……

b) Identify the apparatus above and state its function **(2mks)**

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c) If magnification of a drawing is X8 and the drawing length is 16cm. What is the actual length of the object **(3mks)**

10) **a)** What is binomial nomenclature **(2mks)**

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b) The scientific name for maize is *Zea mays*. Identify the generic and specific name **(2mks)**

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c) State two rules of binomial nomenclature **(2mks)**

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d) A cross between a donkey and a horse produces an infertile offspring called mule. Give a reason **(2mks)**

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11) State the five kingdoms into which living things are placed and its each case give two examples of organisms **(5mks)**

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12) List the seven units of classification in an hierarchical order from the smallest into the largest. **(7mks)**

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13) Define the term cell **(2mks)**

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14) Name two types of microscopes **(2mks)**

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15) Fill the table below

Part	**Function**
(i)	Holding while carrying microscope
Base	(ii)
(iii)	Contains lens for magnifying object
Fine adjustment knob	iv
Mirror	(v)
Condenser	(vi)

16) Mention four rules to be observed when one is using a microscope **(4mks)**

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17) A student observed an animal cell under a microscope which was magnified X675 times using an eye-piece lens magnification power X15. What was the objective lens power? (Show your working) **(4mks)**

FORM 1 EXAMINATION TRIALS

BIOLOGY

PRACTICE EXAM 3

TIME: 2 HOURS

Answer ALL Questions in the spaces provided.

1) Define biology **(1mks)**

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2) Explain the meaning of the following branches of biology. (4mks)

(i) Biochemistry

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(ii) Cytology

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(iii) Anatomy

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(iv) Ecology

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3) A student from Mwalimu Agency Schools was conducting an experiment. He required different specimen state the apparatus he would use to **:** **(3mks)**

a) Collect a stinging scorpion

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b) Trap rats

……

c) Collect housefly

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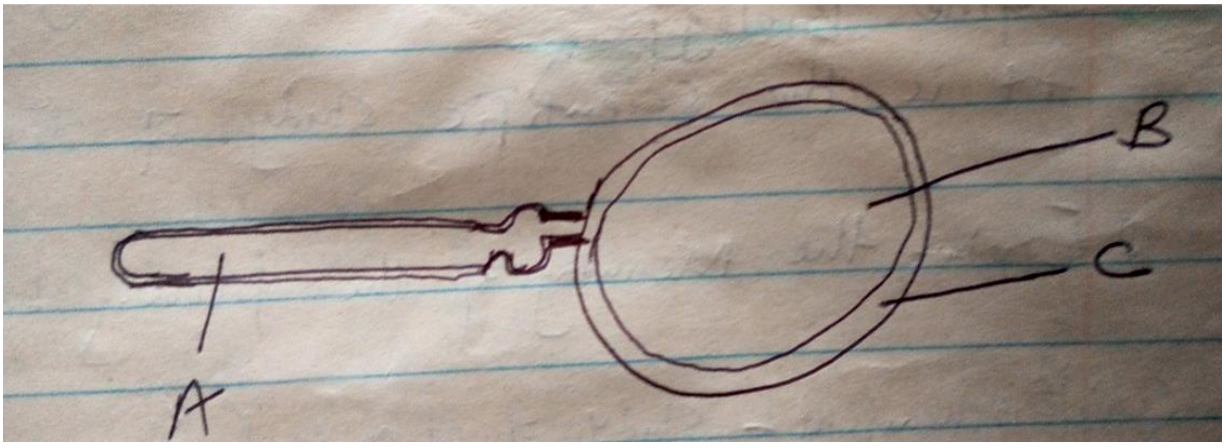
4) Differentiate between growth and development. **(2mks)**

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5) Below is an apparatus used in biological study? Study it and answer the questions that follow.



a) Name the part labeled **(2mks)**

A

B

b) State the functions of the apparatus **(1mk)**

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c) If the student found that it was written x 10 on the part labeled c, what does x 10 mean**(1mk)**

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6) State four scientific skills that a student studying biology would develop **(4mks)**

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7) Name three careers that one can pursue after learning biology. **(3mks)**

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8) A student drew a specimen 10cm long but its actual length was 5cm. he used a hand lens to enlarge the specimen. Calculate the magnification used. **(3mks)**

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9) Both plants and animals shows movement, compare movement in plants and animals.**(2mks)**

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10) A motor vehicle moves produces carbon (IV) oxide fumes and consumes fuel, state three characteristics of living things shown above. **(3mks)**

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11) The scientific name for maize plant is *Zea may*s. Which taxonomic group does the name mays refer to? **(1mk)**

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12) Define species. **(2mks)**

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……

b. Give a reason why a leopard and a lion cannot breed yet they both come from genus panther**.(1mk)**

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13) What name is given to the scientific scientific system of double naming **(1mk)**

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14) List the five kingdoms of classification from the least complex to the most **(5mks)**

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15) Distinguish between common and scientific names. **(2mks)**

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16) What is the relationship between a genus and a species**.** **(1mk)**

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17) Highlight the four principles used in double naming of organisms **(4mks)**

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18) Man is scientifically referred to as homosapiens. Write the scientific name correctly**.(2mks)**

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19) Write the taxonomic units of classification in order from smallest to largest. **(7mks)**

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20) Some of the fish in lake Victoria include *tilapiazilii*,*latesniloticus*(nile perch),*tilapia variabilis*, *oreochromisridicus*and *tilapia leucastica.* ***(3mks)***

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b. What does the name niloticus suggest**?.** **(1mk)**

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21) Why is classification important? **(3mks)**

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22) State the importance of each of the following in living organisms. **(6mks)**

1) Excretion……

……

2) Nutrition……

……

3) Reproduction……

……

23) Give two uses of the energy obtained from respiration in humans**.** **(2mks)**

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FORM 1 EXAMINATION TRIALS

BIOLOGY

PRACTICE EXAM 4

TIME: 2 HOURS

Answer ALL Questions in the spaces provided.

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)**

……

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

……

……

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

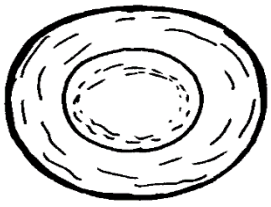
i) Plants. **(1mk)**

……

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)**

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……

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)**

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

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

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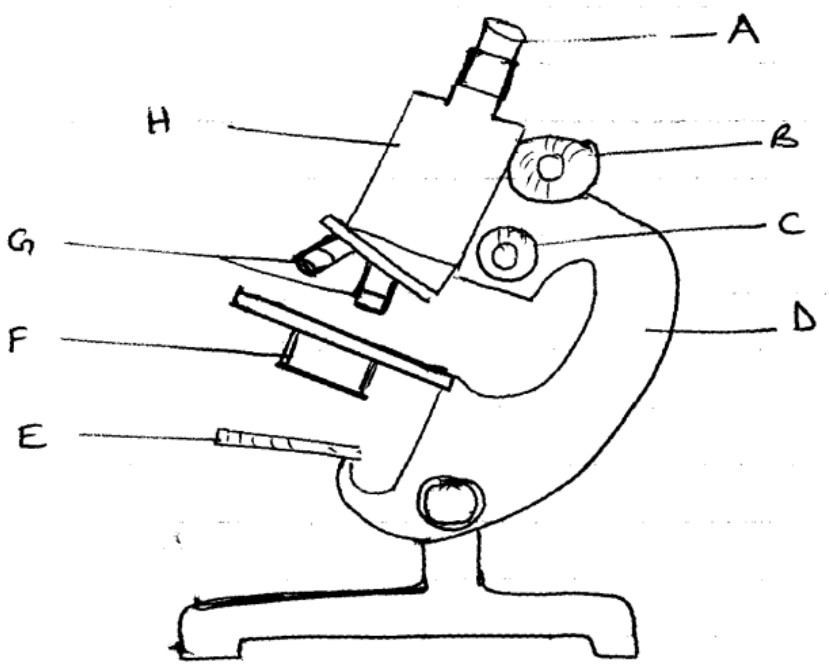
8. Distinguish between hypertonic and hypotonic solutions. **(2mks)**

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



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

A…….

B…….

C…….

D…….

E…….

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

E…….

F…….

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 taxon does the term phoseodus represent. **(1mk)**

……

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

……

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

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

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

(7mks)

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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 **(1mrk)**

……

……

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

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

……..

……..

(b) Define the meaning of the following terms

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

……

……

(ii) Genetics **(1mks)**

……

……

FORM 1 EXAMINATION TRIALS

BIOLOGY

PRACTICE EXAM 5

TIME: 2 HOURS

Answer ALL Questions in the spaces provided.

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

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

……

……

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

……

……

2) The binomial name of housefly is MUSCA DOMESTICA.

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

……

……

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

……

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

I)Bait trap

……

Specimen bottle

……

Pitfall trap

……

4) Give the functions of the following parts in a light microscope. **(3mrks)**

Diaphragm

……

……

Condenser

……

……

Objective lens

……

……

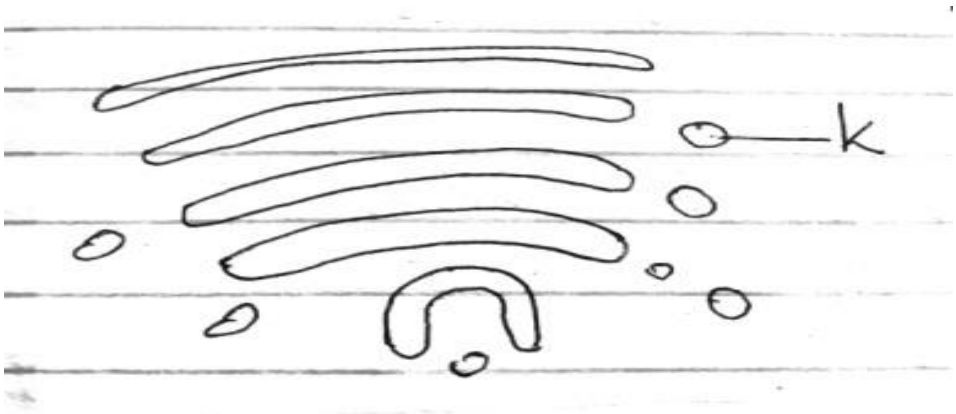
b) Why is it not likely to use an electron microscope in a school laboratory? **2mks**

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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**

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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.

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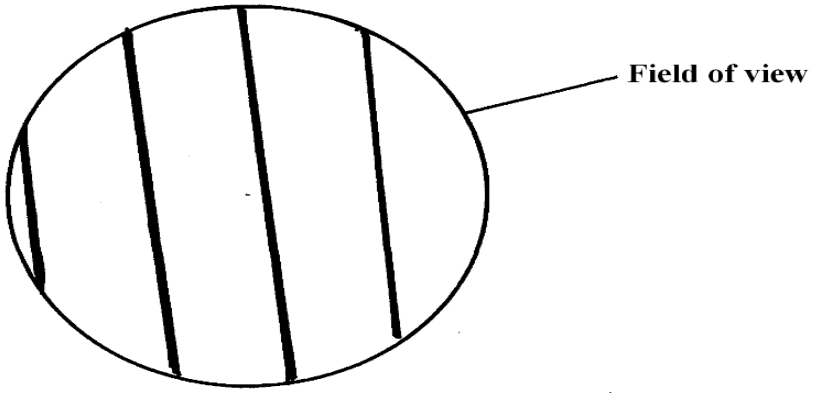
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(c). Using a sharp blade to make sections.

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(ii)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 in Micrometers (show your working) **(3mks)**

7) Define the term physiology **(1mrk)**

……

……

8) (a)Name the principal components of cell membrane **(3mrks)**

……

……

……

……

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

……

……

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

……

……

……

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

……

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……

9) Define the following terms **(6mrks)**

Isotonic solution

……

……

Hypotonic solution

……

……

Hypertonic solution

……

……

10) What is meant by the following biological terms?

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

……

……

ii) Haemolysis **(2mk)**

……

……

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

……

……

12) Distinguish between diffusion and active transport **(2mks)**

……

……

……

13) Define the term nutrition **(2mrks)**

……

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14) Name and explain the two types of nutrition **(4mrks)**

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15) Differentiate between Chemotropism and Phototropism **(4mrks)**

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16) Draw a well-labelled diagram of a leaf showing the external features. **(3mrks)**

17) Define the term photosynthesis **(2mrks)**

……

……

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18) What four conditions that are needed for photosynthesis to occur? **(4mrks)**

……

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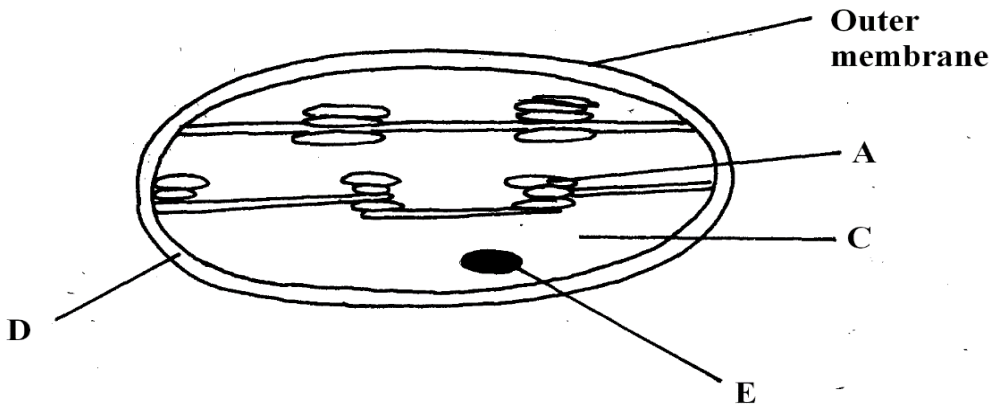
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19) (i)What is the importance of photosynthesis in nature?(2mrks)

(ii)The organelle below is important in the process of Nutrition.



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

……

b) Name the part labeled **(2mk**

i) A

ii) C

21) Name the part where the following stages of photosynthesis occur **(2mrks)**

Light independent stage

……

Dark stage

……

22) State the role of light in the processes of photosynthesis **(1mrk)**

……

……

23) Name the building blocks of **;** **(3mrks)**

(I) Proteins

(ii) Carbohydrates

(iii) Fats

24) What are enzymes**?** **(1mrks)**

……

……

25) State the main properties of enzymes **(2mrks)**

……

……

FORM 1 EXAMINATION TRIALS

BIOLOGY

PRACTICE EXAM 6

TIME: 2 HOURS

Answer ALL Questions in the spaces provided.

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

a) Insects

……

b) 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)**

……

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……

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

……

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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)**

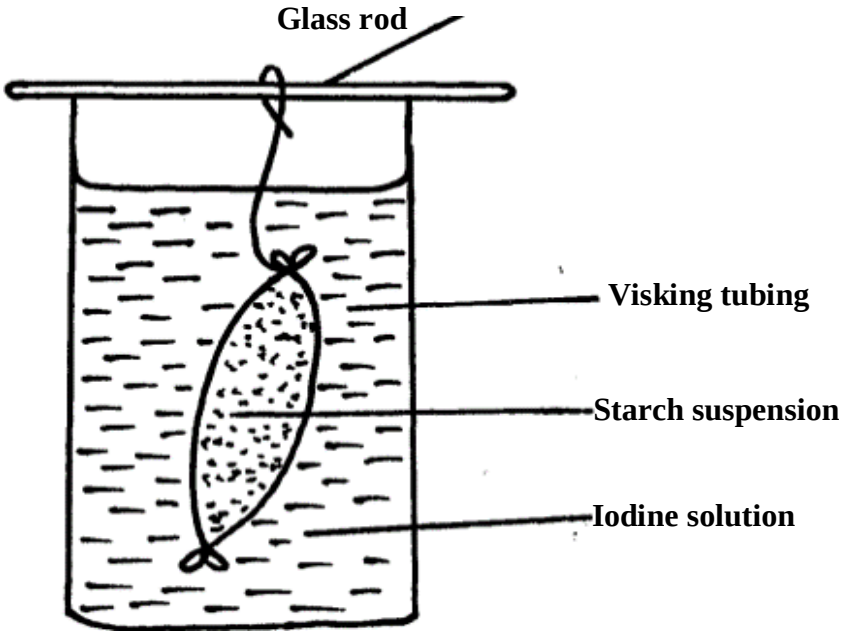
(i) Light Microscope

……

(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)**

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

……

……

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

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……

(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 formulae of this mammal. **(1mk)**

……

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

……

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)**

……

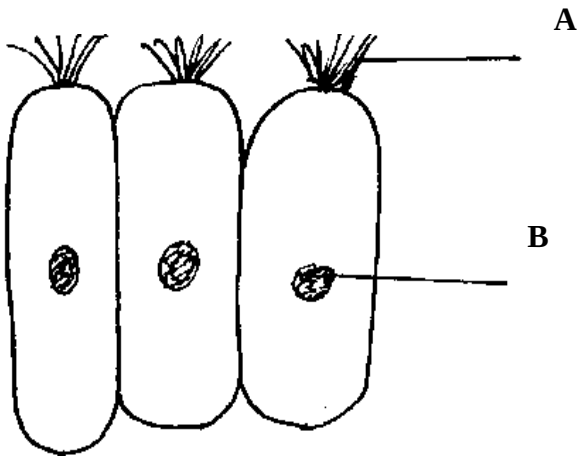
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(b) Light intensity **(1mk)**

……

……

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



4) State the name of structure **A**.

(1mk)

……

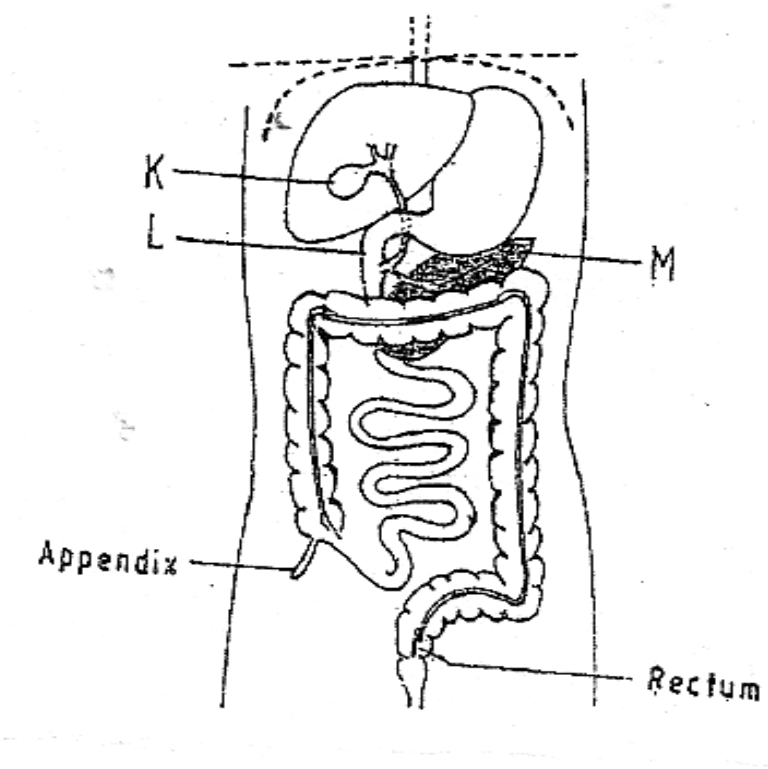
……

5) 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)**

L: ……

M: ……..

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

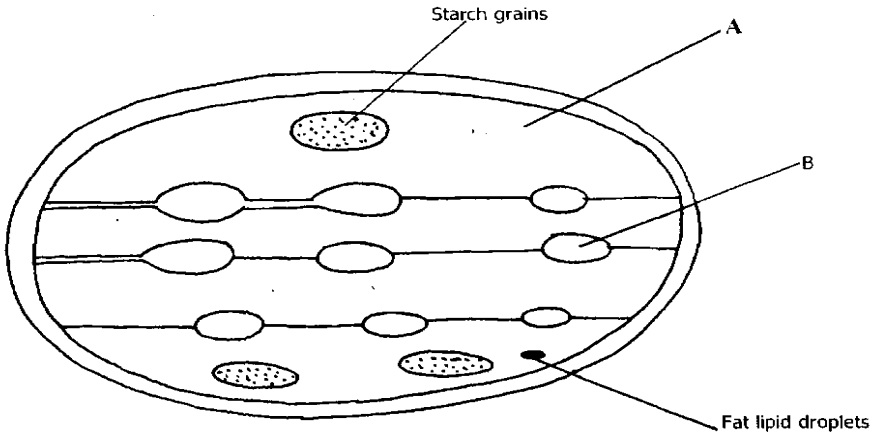
i) Flying insects ..... **(1mark)**

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

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

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

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



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

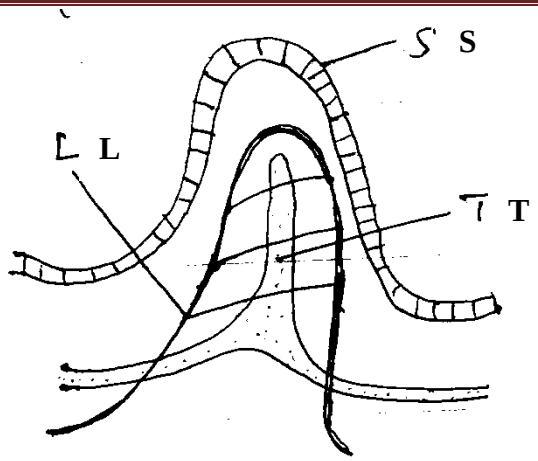
……

……

……

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 marks)**

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



Identify the structure shown in the diagram. **(1 mark)**

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

S .....

T .....

L .....

Name products of digestion which are absorbed into; **(2 marks)**

L .....

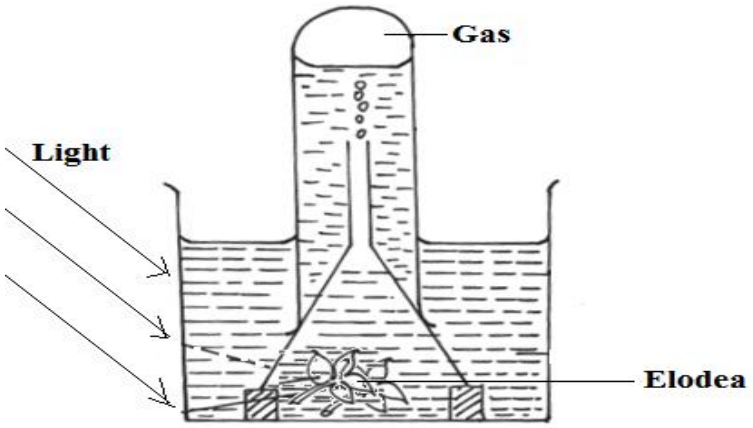
T .....

18) State how the above structure is adapted to its function. **(2 marks)**

.....

.....

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



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

……

……

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

……

……

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

……

……

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

Mirror

……

……

Diaphragm

……

……

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? **(2marks)**

.....

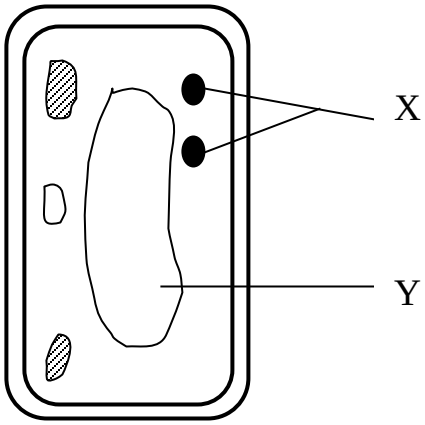
.....

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

.....

.....

24. The diagram below represents a cell



iii. Name the parts labeled X and Y **(2marks)**

X .....

Y .....

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

.....

.....

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

.....

.....

.....

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

.....

.....

FORM 1 EXAMINATION TRIALS

BIOLOGY

PRACTICE EXAM 7

TIME: 2 HOURS

INSTRUCTIONS

Answer all the questions in the spaces provided.

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

……

……

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

……

……

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

……

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

……

……

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

……

……

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

……

……

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

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)**

……

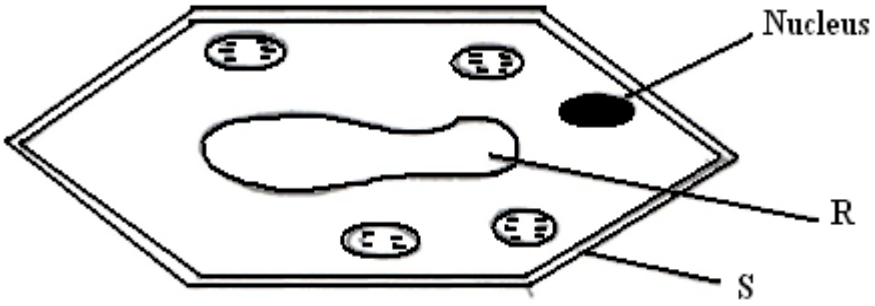
……

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. **(1mark)**

……

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

……

……

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

……

……

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

……

……

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

……

……

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

……

……

11. Give two reasons why classification is important in biology. **(2marks)**

……

……

……

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

……

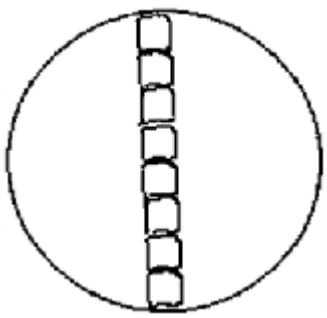
……

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

……

……

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 marks)**

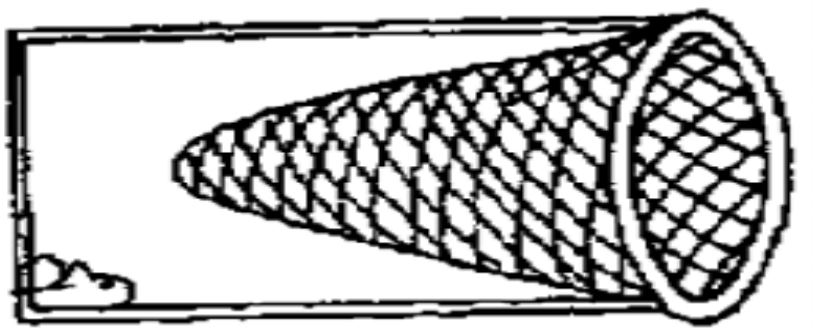


14. **a)** What is meant by the term Entomology. **(1 mark)**

……

……

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



(i) Name the apparatus above. **(1 mark)**

……

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

……

15. Black jack (<u>Bidens</u> <u>pilosa</u>) belongs to the family Compositae.

What is it's:

Genus. **(1 mk)**

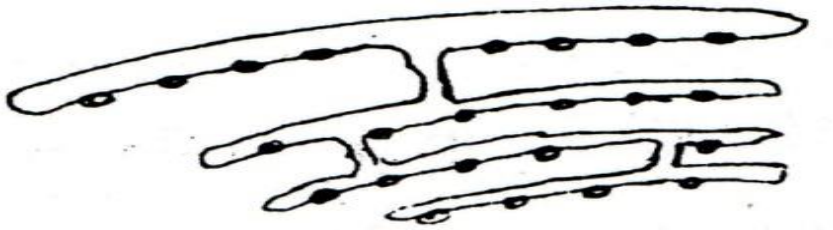
Species. **(1 mk)**

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 Mark)**

……

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)**

……

……

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 4 other characteristics common in living things. **(4mks)**

……

……

……

……

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

a)Cutting very thin sections

……

……

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

……

……

c)Placing the sections in water

……

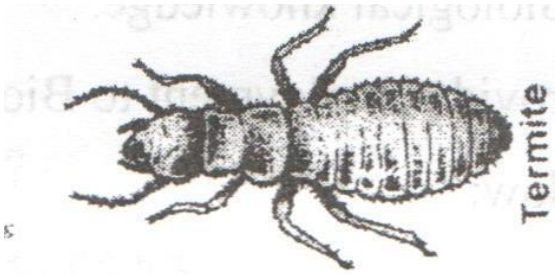
……

d)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)**

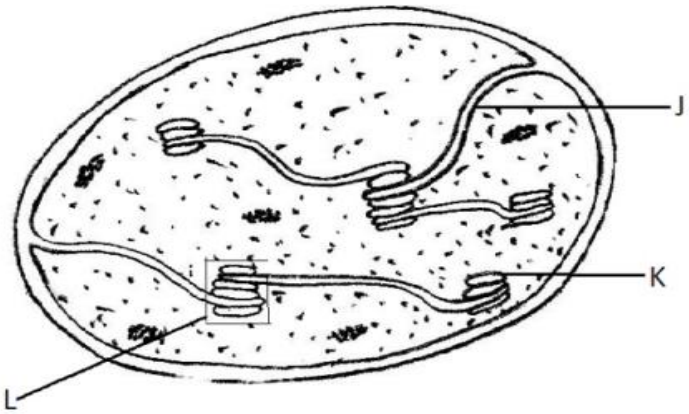
……

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……

23.Below is a structure found in plants.



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

……

What is the role of the organelle you have named in (a) above. **(1 mk)**

……

……

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

……

……

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

……

……

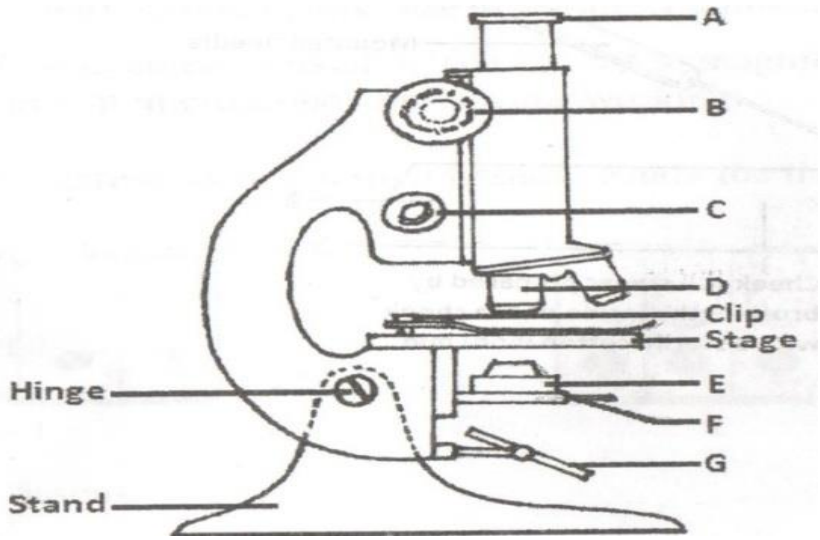
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25. The diagram below represents the structure of a light microscope. Study it and answer the questions that follow.



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)**

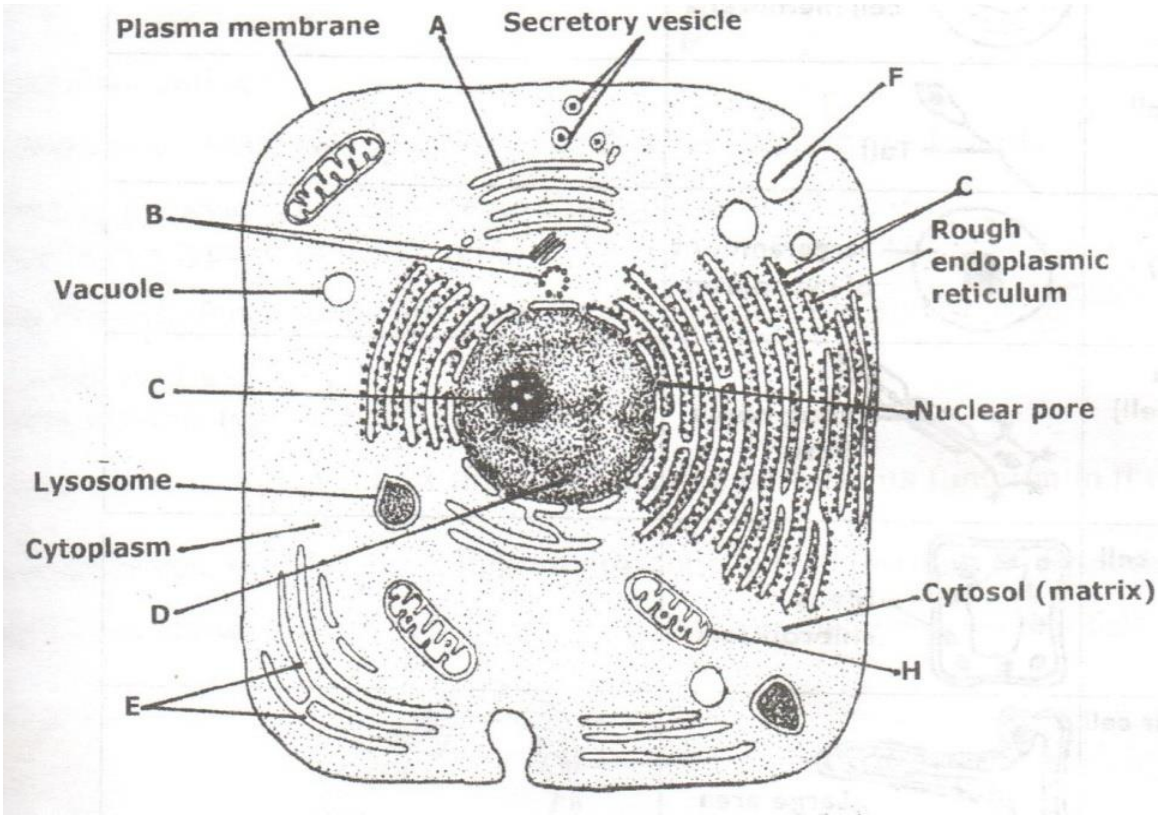
……

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.



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

……

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

……

……

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

……

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

……

……

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

……

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……

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

……

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

……

……

……

FORM 1 EXAMINATION TRIALS

BIOLOGY

PRACTICE EXAM 8

TIME: 2 HOURS

Answer ALL Questions in the spaces provided.

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 :

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

……

……

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%

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

……

……

……

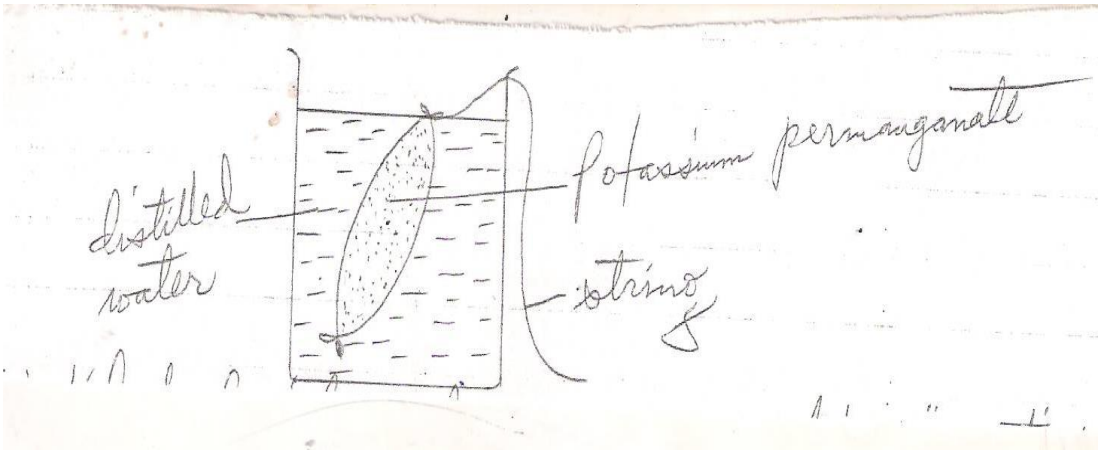
Account for the change in strip D **(3mks)**

……

……

……

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)**

……

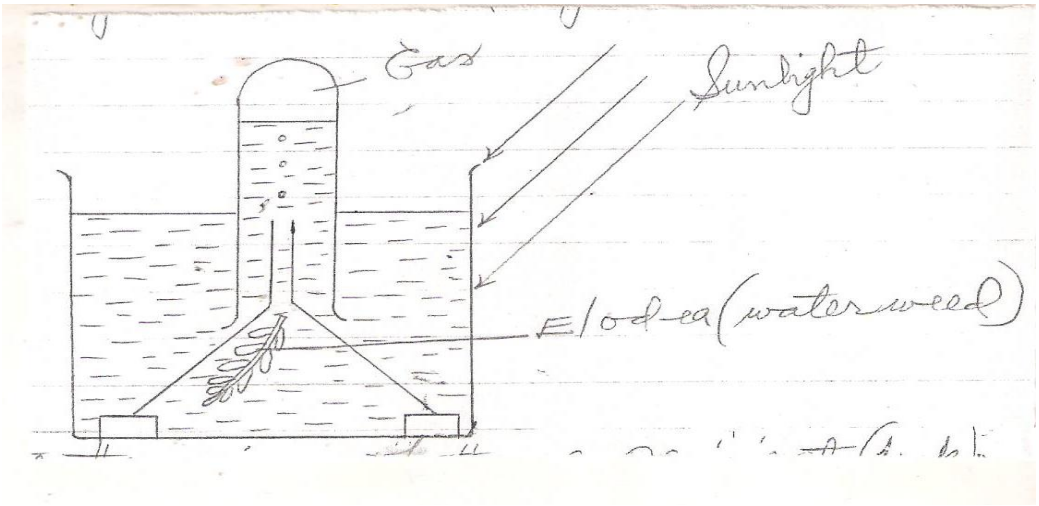
……

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)**

……

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

……

……

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

Thinness **(1mk)**

……

……

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

……

……

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

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

……

……

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.

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

……

……

……

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

Manufacture of ribosomes **(1mk)**

Package cell secretions **(1mk)**

Energy production **(1mk)**

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

20) Name the taxonomic unit with:

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

……

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.

Bacteria **(1mk)**

……

Paramecium **(1mk)**

……

Yeast **(1mk)**

……

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

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

……

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

……

c.Vitamin $\mathbf{B_1}$ **(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)**

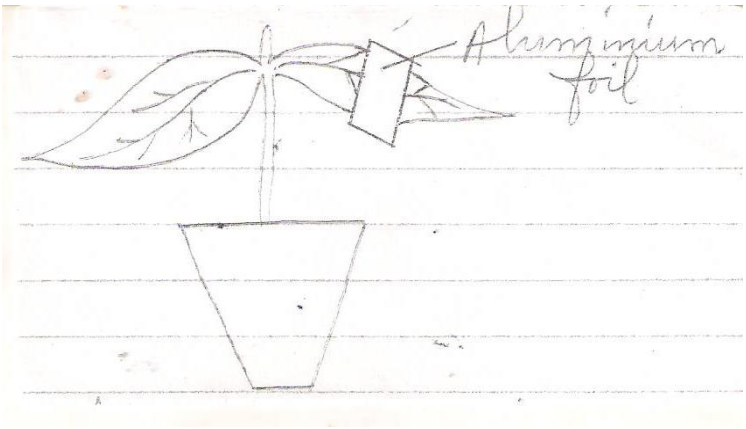
……

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.

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

……

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

……

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

……

……

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

……

……

19) 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.Condense**r** **(1mk)**

……

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

……

……

……

……

FORM 1 EXAMINATION TRIALS

BIOLOGY

PRACTICE EXAM 9

TIME: 2 HOURS

Answer ALL Questions in the spaces provided.

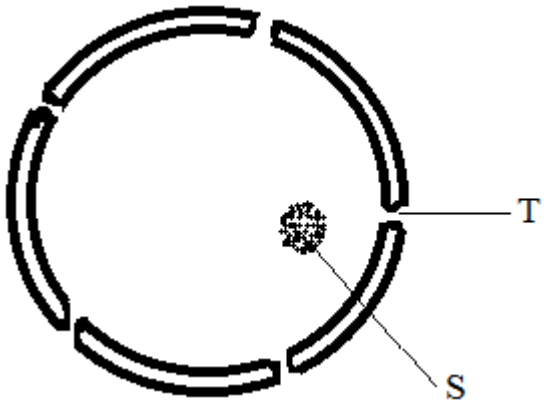
QUESTIONS

1. State two advantages of using a coverslip when preparing a specimen for observation using the light microscope. **(2mks)**

……..

……..

2. The diagram below is a nucleus.



(i) What is the function of a nucleus? **(1mk)**

……..

(ii) Name the structure labeled T and S. **(2mks)**

T-

S –

(iii) State the function of part T. **(1mk)**

……..

……

3. How are the following specialized cells specialized for their functions?

a) Root hair cell. **(1mk)**

b) Nerve cell **(1mk)**

c) Muscle cell. **(1mk)**

4. Define the following terms.

i) Organ. **(1mk)**

……..

……..

ii) Organ system **(1mk)**

……..

……..

iii) Arrange the following from the smallest to the largest **(1mk)**

Cell, organ, tissue, organ system, organelle, organism;

iv) State the function of the following tissues. **(2mks)**

a) Parenchyma tissue. **(1mk)**

……..

b) Epithelial tissue **(1mk)**

……..

5. a) What is the purpose of the following during preparation of temporary slide.

i) Cutting thin sections. **(1mk)**

……..

ii) Using a sharp razor blade **(1mk)**

……..

iii) Staining **(1mk)**

……..

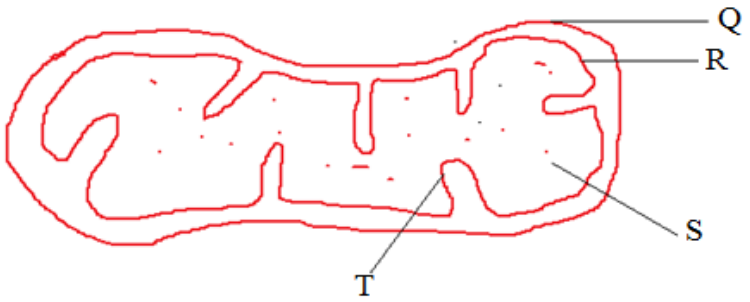
…….....

b) Name two commonly used stains. **(2mks)**

……..

……

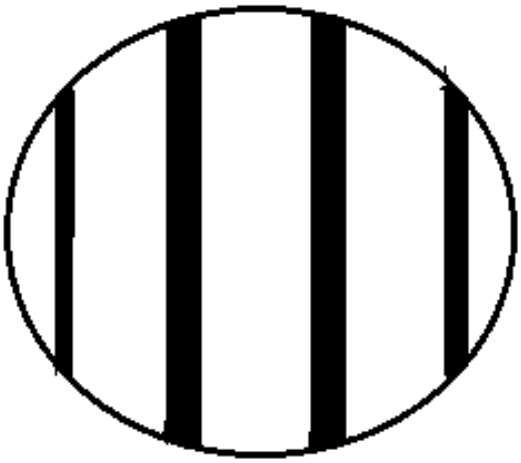
6. Name the parts labeled Q, R, S and T in the diagram below. **(4mks)**



Q- R-

S- T-

7. In a class experiment to establish the size of onion cell, a learner observed the following on the microscope field of view.



If the student counted 20 cells across the diameter of the field of view, calculate the size of one cell in micrometers. **(3mks)**

8. State the function of the following parts of a microscope.

a) Diaphragm. **(1mk)**

……..

……..

b) Mirror. **(1mk)**

……..

……..

9. (a) Explain what is meant by haemolysis**.** **(1mk)**

……..

……..

10. Three potted plants were dipped in solutions of potassium ions at different concentrations of oxygen. Below is a table showing how potassium ions were absorbed at different percentages of oxygen concentration.

Percentage concentration of oxygen	3.7	15	21
Relative absorption of potassium ions	22	96	100

(a) Explain the relationship between oxygen concentration and absorption of potassium ions **(3mks)**

……..

……..

……

11. The study of biology enhances international cooperation, as countries work together to solve environmental problems. Name two biology related international conventions that help solve environmental problems. **(2 marks)**

……..

……..

……

12. Name the field of science that specializes in the study of chemical substances in an organism and the reactions in which they take part. **(1mk)**

13. The specific name of mango tree is *Indica* and its genus name *Mangifera*

(i) State **one** mistake in the way the specific name is written. **(1mk)**

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

14. A scientist discovered a new organism and decided to assign it a scientific name. What rules should be put in consideration while assigning the name**?** **(4mks**

……..

……..

……..

……..

15. Draw and state the function of the following apparatus**:** **(8mks)**

i) Pooter

……..

……..

……..

……..

ii) Sweep net-

……..

……..

……..

……..

iii). Pitfall trap

……..

……..

……..

……..

iv) Pair of forceps

……..

……..

……..

……..

16. Complete the table **below** **(5mks)**

Branches of biology	**description**
Parasitology	
	Study of inheritance and variation
	Study of cells
Anatomy	
	Study of living organisms in their surroundings;

17. a) What is the formula for calculating magnification of a specimen when using a hand lens **(1mk)**

b.) Draw and label a hand **lens** **(4mks)**

18. State the importance of the following characteristics of living things **(3mks)**

a) Respiration

b) Reproduction

c) Locomotion

19. Explain the factors that affect the process of diffusion**.** **(20 mks)**

FORM 1 EXAMINATION TRIALS

BIOLOGY

PRACTICE EXAM 10

TIME: 2 HOURS

Answer ALL Questions in the spaces provided.

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

Light stage;

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Dark stage;

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

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

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

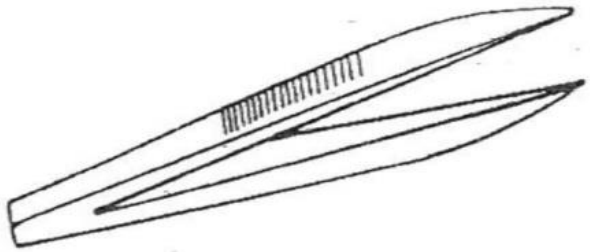
(i) Plants **(1mk)**

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

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3. Identify the following apparatus and state its functions.



i) Name……. **(1mk)**

ii) Function **(1mk)**

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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)**

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

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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)**

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

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

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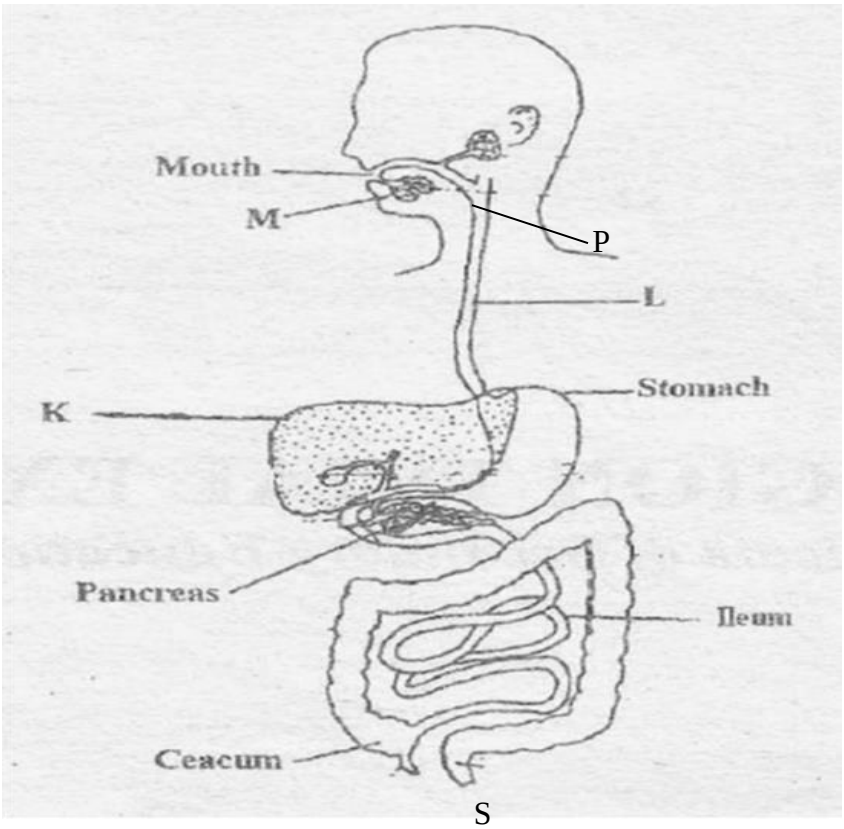
(c) Name **three** main types of lenses found on a light microscope **(3mks)**

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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)**

K …… **L……..**

S …… **M…….**

P……

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

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

Light Microscope	Electron Microscope

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

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

i) Genetics

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ii) Entomology

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

a) Nucleolus **(1mk)**

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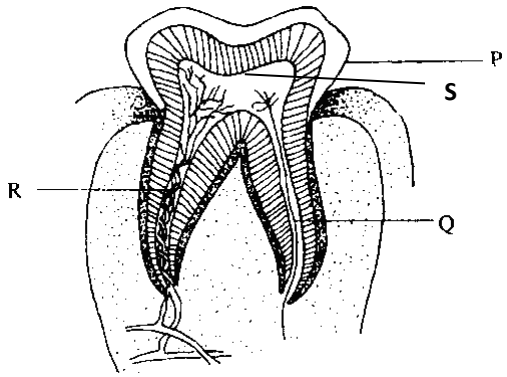
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b) Golgi apparatus **(2mks)**

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



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

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

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

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

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

P.....

Q.....

R.....

S.....