FORM THREE HOLIDAYS SMART PASS

BIOLOGY PP1 10 QUESTION PAPERS



FORM 3 HOLIDAYS SMART PASS

BIOLOGY PP1

TEN QUESTION PAPERS

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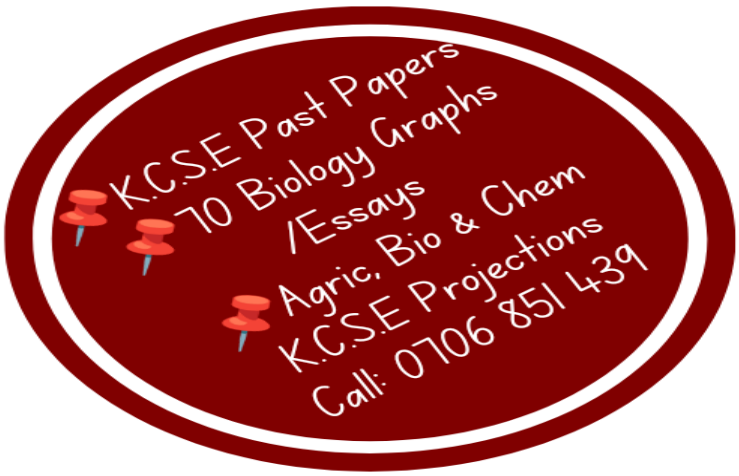
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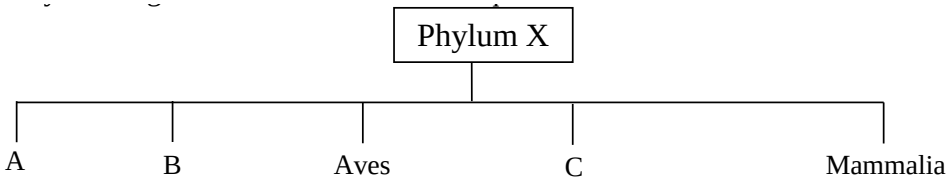






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BIOLOGY PP1 QUESTION PAPER NO: 01

1. Study the diagram below and answer the questions that follow.



a) What is the phylum X? **(1mk)**

b) Name the classes A, B and C. **(3mks)**

c) State **two** distinguishing characteristics of mammalian class. **(2mks)**

2. Name the field of science that specializes in the study of members that belong to the class insect. **(1mk)**

3. What are the functions of bile salts during the process of digestion? **(2mks)**

4. State the importance of each of the following to the life of organisms.

a) Respiration.... **(1mk)**

b) Excretion.. **(1mk)**

5. What are the differences between blood in the pulmonary artery and that in the pulmonary vein? **(2mks)**

6. Name **three** plant tissues that are involved in support. **(3mks)**

7. State the causative agent and method of transmission of cholera. **(2mks)**

(i) Causative agent.....

(ii) Mode of transmission .....

8. Name the products of light stage in photosynthesis. **(3mks)**

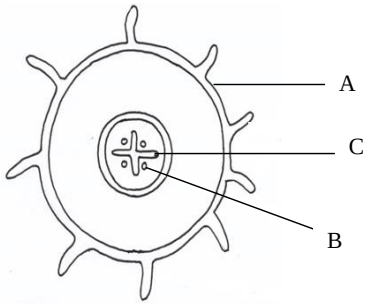
9. What causes the following diseases?

a) Diabetes mellitus. ..... **(1mk)**

b) Diabetes insipidus..... **(1mk)**

10. Name **two** benefits that a parasite derives from the host. **(2mks)**

11. The diagram below represents a cross section of a plant.



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a) From which part of the plant was it obtained? **(1mk)**

b) Name the parts labeled A and B. **(2mks)**

c) State the function of part C. **(1mk)**

12.(a) What is the role of fungi in an ecosystem? **(1mk)**

(b) State four characteristics of fungi. **(4mks)**

13. State the function of the following parts of a light microscope. **(2mks)**

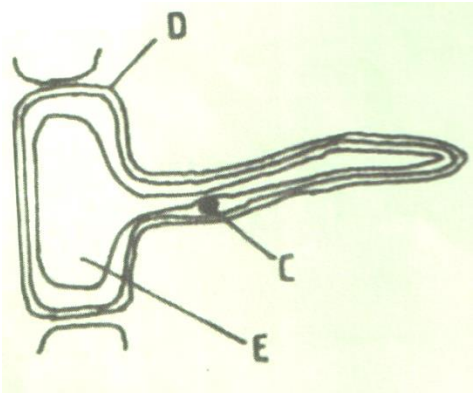
a) Objective lens....

b) Diaphragm....

14. State **four** ways of controlling *schistomiasis*. **(4mks)**

15. Distinguish between predation of and parasitism. **(4mks)**

16. The diagram below shows a specified plant cell.



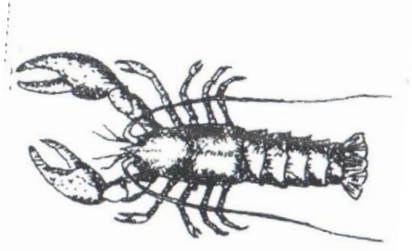
a) Name the cell. **(1mk)**

b) Name the parts labeled A, B, D and E. **(4mks)**

c) State the function of the part labeled C. **(1mk)**

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

18. The diagram below represents a certain organism collected by a student at the sea shore.



a) Name the class to which the organism belongs. **(1mk)**

b) Give **three** reasons for your answer in (a) above. **(3mks)**

19.(a) Name the causative agents of the following diseases in humans. **(2mks)**

i) Typhoid....

ii) Amoebic dysentery...

(b) Name the disease in human caused by *Plasmodium falciparum.* **(1mk)**

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20. The diagram below represents a certain plant.



a) What is the likely habitat for the plant? **(1mk)**

b) Give two reasons for your answer in (a) above. **(2mks)**

21. Describe the **three** characteristics of a population. **(3mks)**

22. Other than using the quadrant, give two methods of estimating population of grass**.** **(2mks)**

23. Name **three** processes that are responsible for loss of energy from one trophic level to the next. **(3mks)**

24. State **two** ways in which aerenchyma tissues in aquactic plants are adapted to their function **(2mks)**

25. What is meant by the following terms?

a) Habitat: **(1mk)**

b) Ecosystem. **(1mk)**

c) Ecology. **(1mk)**

26. *Ascaris lumbricoides* is an example of an endo-parasite.

a) The name Ascaris refers to: - **(1mk)**

b) State the habitat of the organism. **(1mk)**

c) State **three** ways in which the organism is adapted to living in its habitat. **(3mks)**

27.(a) Name the process through which free atmospheric nitrogen is converted into nitrates **(1mk)**

(b) Name the bacteria found in the root nodules of leguminous plants. **(1mk)**

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BIOLOGY PP1 QUESTION PAPER NO: 02

1.Name the organelle that performs the following functions in a cell. **(4mks)**

a) Transport of cell secretions

b) Proteins synthesis.

c) Formation of ATP.

d) Fixation of carbon (IV) oxide.

2.a. Distinguish between taxonomy and taxon **(2mks)**

b.i Arachnids and crustaceans belong to the same phylum. Name the phylum **(1mk)**

ii State three characteristics that makes them to be classified in the phylum you stated in (bi)above **(3mks)**

iii Give one structural feature that can be used to differentiate crustaceans and arachnids **(1mk)**

3. In a certain experiment the field of view of the microscope was determined as 4 MM.If 16 cells were found to span across the diameter of the field of view of the microscope….

a.Calculate the size of one cell in micrometers **(3mks)**

b) If 100 epidermalcells were viewed under magnification * 150,how many cells will be observed at magnification * 450 using the same slide? **(2mks)**

4. Guard cells are specialized epidermal cells.

a. State two structural features which suit them to their functions **(2mks)**

b. Apart from gaseous exchange;give one other function of the stomata **(1mk)**

5. State three ways by which a baby may acquire immunity **(3mks)**

6. Distinguish between residual capacity and vital capacity **(2mks)**

7. Suggest the most suitable biological tool for collecting

a. Ants from a tree trunk **(1mk)**

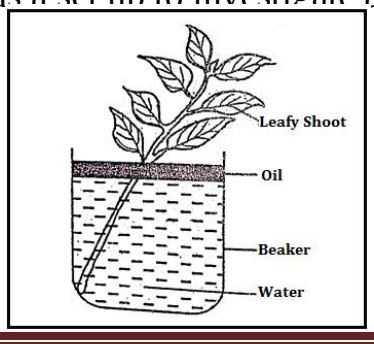
b.Grasshoppers from grassland **(1mk)**

8. a. State the functions of the condenser in a light microscope. **(1mk)**

b. Why is it not likely to use an electron microscope in a school laboratory? **(3mks)**

9. Explain why plant cells do not burst when immersed in distilled water. **(2mks)**

10. An experiment shown below was a set up to investigate a certain physiological processes in plants.



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a.What process was been investigated? **(1mk)**

b.What effect will the following have on the observation made in (a) above?

Í) Fanning the shoot **(1mk)**

Íí) Removing all the leaves from the shoot **(1mk)**

Ííí) Placing the set up in the dark. **(1mk)**

11.a) State the role of light in the process of photosynthesis **(2mks)**

b) Name the product of the dark stage in photosynthesis **(1mk)**

c) State two minerals elements that are necessary in synthesis of the chlorophyll **(2mks)**

12.a) In an investigation, the pancreatic duct of a mammals was blocked, it was found that blood sugar regulation remains normal while food digestion was impaired. Explain these observations **(3mks)**

b) State the functions of the bile juice in digestion **(3mks)**

c) State the role of the tongue in mammalian digestion **(2mks)**

d) The action of ptyalin stops at the mouth. Explain **(2mks)**

13. Give reasons for each of the following ;

a) Constant body temperature maintained in mammals **(2mks)**

b) Effects of low blood sugar in the body **(2mks)**

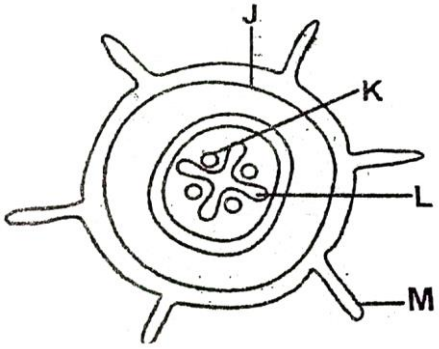
14. People can die when they inhale gases from burning charcoal in a poorly ventilated room. Explain **(3mks)**

15.a) Name the compound found in the root nodule of the leguminous plants **(1mk)**

b) State the association of the bacteria named in (a) above **(1mk)**

16. Name the features that increases the surface area of the mammalian small intestine **(3mks)**

17. The diagram below represents a transverse section of a plant organ



a) From which plant organ was the section obtained ? **(1mk)**

b) Give reason for your answers in (a) above **(2mks)**

c) Name the part labelled J, K and L **(3mks)**

d) State the functions of the part labelled M **(4mks)**

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18. State two ways of preventing malaria **(3mks)**

19. Name the stage in meiosis where chromosome number is reduced by a half. **(1mk)**

20. Name;

a) The protein secreted by the blood platelets necessary for blood clotting **(1mk)**

b) The vitamin involved in blood clotting **(1mk)**

21. State two ways in which the tracheal system in an insect is adapted for gaseous exchange **(2mks)**

22. What are the importance of reproduction? **(2mks)**

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BIOLOGY PP1 QUESTION PAPER NO: 03

1. The scientific name of the cat is *Felis Catus* classify the cat into; **(3mks)**

i) Kingdom…

ii) Genus…

iii) Species…

2. The figure below shows a structure of a tooth:



(a) Identify the tooth: - **(1 mk)**

(b) State how the tooth named in (a) is modified to perform its function:- **(1 mk)**

3.a) Name the hormone secreted in the human body when one takes in a large amount of water:- **(1 mk)**

(b) Which disease results from inadequate production of the hormone named in (a) above? **(1mk)**

4. Give two structural features that can be used to separate a housefly, a millipede, and a tick into their respective classes. **(2mks)**

5. State three main functions of the stomach in human beings:- **(3 mks)**

6. It was found that during germination of bean seeds, 9.2 cm^3 of carbon IV Oxide was produced while 9.0 cm^3 of oxygen was used up.

(a) (i) Calculate the respiratory quotient of the reaction:- **(2 mks)**

(ii) Identify the substrate being met abolished:- **(1 mk)**

(b) In which part of the cell does glycolysis occur? **(1 mk)**

7. State three functions of the mammalian blood other than transport **(3mks)**

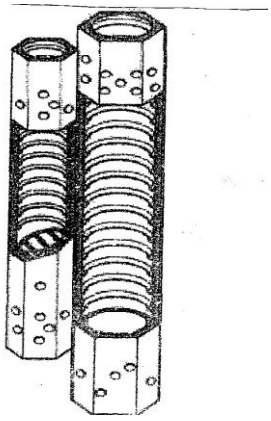
8. Other than sexual intercourse name the other ways by which HIV/AIDS is spread **(3mks)**

9. State three characteristics features of an efficient respiratory surface **(3mks)**

10. State three environmental factors that affect the rate of stomatal transpiration **(3mks)**

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11. The cells shown below are adapted for transport in flowering plants.



(a) Name the tissue in which these cells are found. **(1 mk)**

(b) Identify and explain **<u>two</u>** observable features of these cells that adapt them to their role in transport. **(2mks)**

12. Name two areas in human body where active transport takes place. **(2mks)**

13. State the functions of the following cell organelles: **(2mks)**

(a) Nucleolus.

(b) Plasma membrane

14. Distinguish between guttation and transpiration **(2mks)**

15. What are the functions of the following parts of a light microscope? **(3mks)**

(a) Eye piece lens

(b) Condenser

(c) Diaphragm

16.(a) What is peristalsis? **(1mk)**

(b) Explain how the process above is brought about. **(2mks)**

17.(a) State **three** structural differences between arteries and veins in mammals **(3mks)**

(b) Name a disease that causes thickening and hardening of arteries **(1mk)**

18. Identify **two** forces that help in upward movement of water in plants **(2mks)**

19. State **two** reasons why lipids are rarely used as a respiratory substrate compound to Carbohydrates. **(2mks)**

20. The equation below represents a metabolic process that occurs in the mammalian liver: **(2mks)**

Amino acids = organic compound + urea

(a) Name the process

(b) What is the importance of the process to the mammals?

21.(a) **Define** the term balanced diet. **(2mks)**

(b) **State** the importance of roughage in a diet. **(1mk)**

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22. (a) **How** do the following factors affect the rate of diffusion? **(3mks)**

(i) Surface area to volume ratio

(ii) Diffusion gradient

(iii) Temperature

23. Name any three specialized plant cells. **(3mks)**

24. Name **three** sites where gaseous exchange takes place in terrestrial plants. **(3 mks)**

25. A student in form three caught an organism which had the following characteristics

i) Body divided into two parts.

ii) Simple eyes.

iii) Eight legs.

Classify the organism up to the class level. **(3 mks)**

26.(a) Distinguish between the counter flow and parallel flow system in gaseous exchange **(1mk)**

(b) Which of the two systems mentioned in (a) above is efficient? Give a reason **(2mks)**

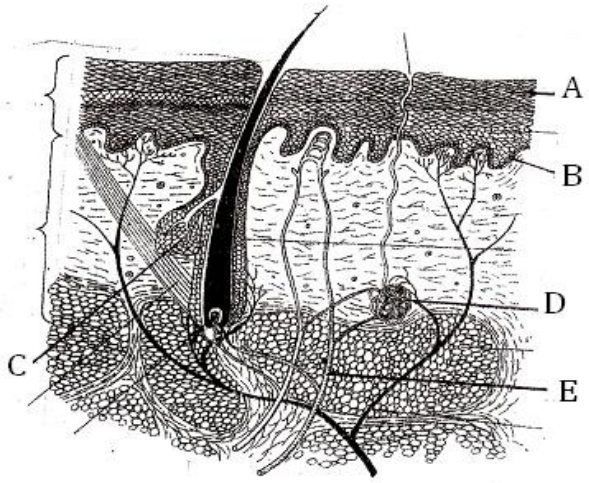
27. Name the enzyme, the vitamin and the metallic ions required in the clotting of blood. (3mks)

(i) Enzyme

ii) Vitamin

iii) Metallic ion

28. The figure below is a photomicrograph of a section of mammalian skin. Study it and answer the questions that follow.



(i) State two functions of the secretion from the gland labeled C **(2mks)**

(ii) Explain the behaviour of structure E when environmental temperature falls to 10^0c. **(2mks)**

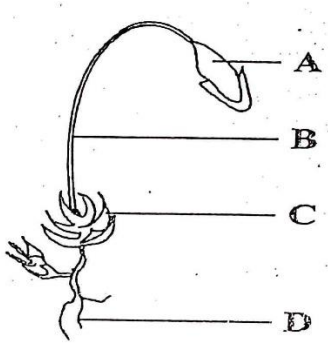
29. Astronauts from the outer space brought a material to earth. Explain how you would establish if the material is living or non-living. **(2mks)**

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BIOLOGY PP1 QUESTION PAPER NO: 04

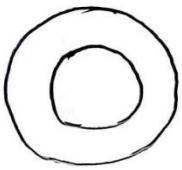
INSTRUCTIONS.

1. **a)** Name two external features found in class mammalia only. **(2mks)**
   b. Name the taxonomic unit that comes immediately after a phylum in classification. **(1mk)**
2. The diagram below represents a plant in the division Bryophyta.



   i. Name the parts labeled B and D. **(2mks)**
   ii. State one function of the parts labeled A and C. **(2mks)**

3. **a)** A student collected an organism and observed the following features. Simple eyes, four pairs of legs and two body parts.
   I. State the class to which the organism belongs. **(1mk)**
   II. Give an example of an organism in this class. **(1mk)**
   b) Name the kingdom to which plasmodium belongs. **(1mk)**
4. List the three branches of biology. **(3mks)**
5. **a)** Give the formula used to calculate magnification in a light microscope. **(1mk)**
   b. Give the reasons for each of the following steps when preparing a cross-section of a stem or leaf for examination under the microscope. **(3mks)**
   I. Cutting very thin sections
   II. Using sharp razor blade during the cutting.
   III. Placing sections in water
6. The diagrams below show a red blood cell that was subjected to a certain treatment.



At start



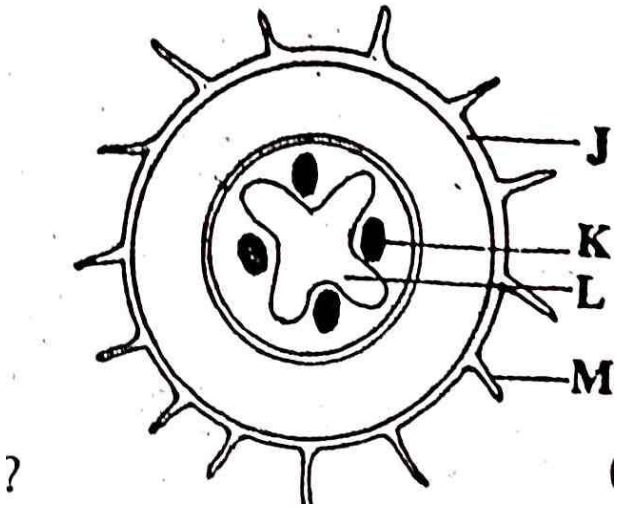
At the end of experiment

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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 appear if subjected to the same treatment. **(1mk)**

7. The diagram below represents a transverse section through a plant organ.



a) From which plant organ was the section obtained. **(1mk)**

b) Give two reasons for your answer in (a) above. **(2mks)**

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

8. a) Give two advantages of being a homoeotherm. **(2mks)**

b. If a person's pancreas is not functional:

i. What hormones may be deficient in the person? **(2mks)**

ii. Name the disease the person is likely to suffer. **(1mk)**

9. Study the word equation below.

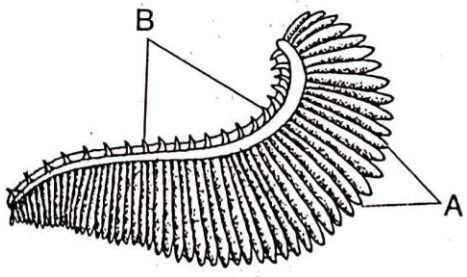
Glucose $\longrightarrow$ Ethanol + carbon (IV) oxide + ATP

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

b) Suggest the organism(s) in which it takes place. **(1mk)**

c) Give two application of the process in industry. **(2mks)**

10. Study the diagram below and answer the questions that follow.



a) Name the parts labeled A and B. **(2mks)**

b) How are the parts labeled A adapted to their functions. **(3mks)**

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11. State one function of each of the following cell organelles.

a) Golgi bodies **(1mk)**

b) Lysosomes **(1mk)**

c) Ribosomes **(1mk)**

12. The following is the dental formula of a certain mammal.

$$\mathbf{i}\ \frac{0}{3}\quad \mathbf{c}\ \frac{0}{1}\quad \mathbf{Pm}\ \frac{3}{3}\quad \mathrm{m}\ \frac{3}{3}$$

a) State the likely mode of feeding for the mammal. **(1mk)**

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

c) Name two dental diseases. **(2mks)**

13. A person whose blood group is AB requires a transfusion. Name the blood groups of possible donors. **(2mks)**

14. Name a vitamin, an enzyme and a mineral element that are involved in blood clotting. **(3mks)**

(i) Vitamin (ii) Enzyme (iii) Mineral element

15. Name the process by which each of the following occurs.

a) Molecules such as amino acids and glucose enter the body cell. **(1mk)**

b) Glucose and mineral salts are re-absorbed into the blood in the kidney. **(1mk)**

c) Water is absorbed from soil by root hairs. **(1mk)**

d) Carbon (IV) oxide moves from the body cells to the blood capillaries. **(1mk)**

16. The diagram below shows part of the respiratory system of a certain animal.

a) Name the structure labeled A and state its functions. **(2mks)**

b) What is the advantage of the ringed structured labeled B. **(1mk)**

17. The equation below shows the oxidation reaction of food substances.

$$5C(s)H_{98}O_6 + 145O_2 \longrightarrow 102CO_2 + 98\ H_2O + \text{energy}$$

a. What do you understand by the term respiratory quotient? **(1mk)**

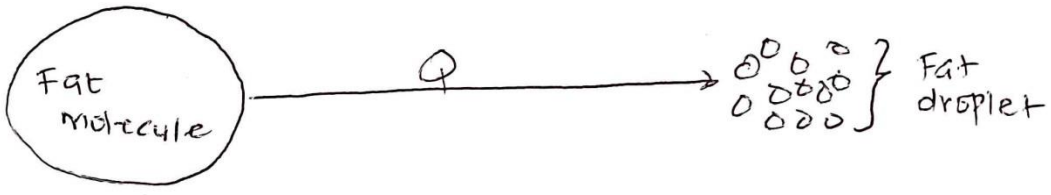
b. Determine respiratory quotient of the oxidation of food substance. **(2mks)**

c. Identify the food substances. **(1mk)**

18.a) Explain why pepsin in stomach of man is secreted in inactive form. **(1mk)**

b. Which gland secrets pepsinogen? **(1mk)**

c. The diagram below illustrated a physiological process that occurs in the alimentary canal of man.



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I. Name the process Q above. **(1mk)**

II. Explain the biological significance of the above process. **(1mk)**

III. Name the substance that helps the process named in (i) above. **(1mk)**

19. Besides venation, state two other external characteristics of leaves that can be used to classify plants. **(2mks)**

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BIOLOGY PP1 QUESTION PAPER NO: 05

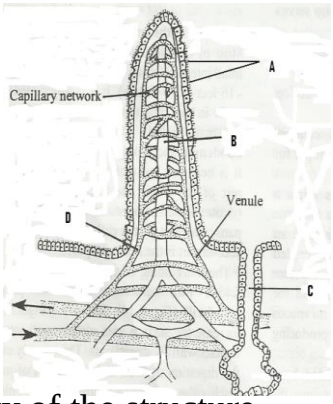
1.a) Lietego school biology student used a microscope with X40 objective lens and X5 eye piece lens which had 2mm radius. Calculate the area of the field of view in micrometers. **(2mks)**

b) What is the average size of the cell in micrometers if there were 5 cells on the field of view **(2mks)**

2. State **three** differences between osmosis and active transport. **(3mks)**

3. The lungs and ileum are adapted for absorption .State **three** features they have in common which facilitate absorption. **(3mks)**

4. The figure below represents a structure obtained from the ileum of a mammal.



a) Give the identity of the structure. **(1mk)**

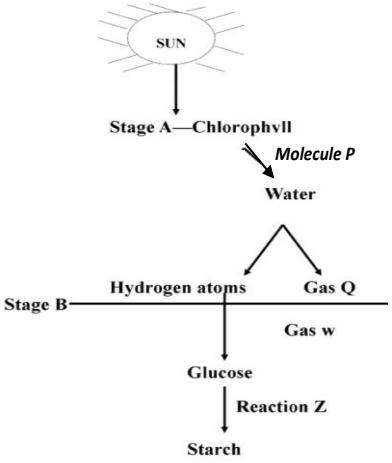
b) What is the importance of the structure named in (a) above? **(1mk)**

c) Name the parts labeled A, B and D. **(3mks)**

d) i) Name the juice secreted by the part labeled C **(1mk)**

ii) List **two** enzymes present in the juice named in d (i) above. **(2mks)**

5. Below is a diagrammatic summary of the main biochemical events in photosynthesis. Study it carefully and answer the questions that follow.



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a) Suggest the identify of molecule P. **(1mk)**
b) Name the gases represented by the letters **Q** & **W** **(2mks)**
c) Name the specific site for the reactions in stage B **(1mk)**
d) Name reaction Z. **(1mk)**

6.(a) What is the importance of the following substances in blood clotting process in man?
(i) Vitamin K: … **(1mk)**
(ii) Thrombin: … **(1mk)**
(b) Comment on:
(i) Disadvantage of having blood group O. **(1mk)**
(ii) Advantage of having blood group AB. **(1mk)**

7. (a) State the reasons for the following adaptations of the xylem vessels. **(2mks)**
(i) Narrow lumen:
(ii) Lack of cross walls:
(b) State **two** distinguishing features of the phloem sieve tubes. **(2mks)**

8.(a) State **two** functional differences between arteries and veins in mammals. **(2mks)**

9. a) List down **three** respiratory diseases in human beings **(3mks)**
b) State the **three** theories that explain the mechanisms of opening and closing the stomata **(3mks)**

10. Name the nitrogenous wastes excreted by a fresh water fish **(1mk)**

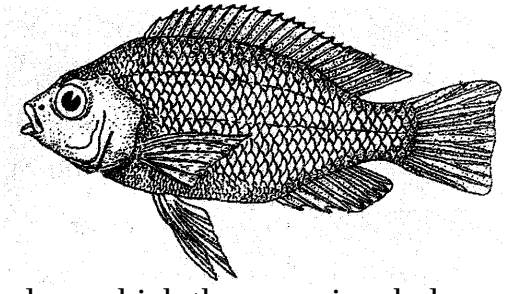
11. State the function of septum in the heart **(1mk)**

12. The equation below represents a metabolic process that occurs in the mammalian liver.

Amino Acids $\longrightarrow$ Organic compound + Urea

(a) Name the process (1mk)
(b) What is the importance of the process to the mammal? **(2mks)**

13. Below is a diagram of an organism



a) i) State the class which the organism belongs to **(1mk)**
ii) State two observable characteristics used to classify the organism in the class you have mentioned in (i) above **(2mks)**
b) Name **two** classes of phylum arthropoda with cephalothorax. **(2mks)**

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14. In mitosis in animals chromatids failed to separate and move to opposite poles

a) Name the organelle that the cell was lacking **(1mk)**

b) Name **two** regions in plants where cells actively undergo mitosis **(2mks)**

15. a) What is the meaning of the following terms **(2mks)**

i) Autecology

ii) Synecology

b) The number and distribution of stomata on three different leaves are shown in the table below.

Leaf	Number of stomata	
	Upper epidermis	**Lower epidermis**
A	**450**	**0**
B	**185**	**270**
C	**03**	**15**

Suggest the possible habitats of the plants from which the leaves **A, B** & **C** were obtained **(3mks)**

c) Apart from predation, state **two** other biotic factors that will influence the distribution of an organism in an ecosystem. **(2mks)**

16. What is the function of the following structures in the human reproductive organs?

a) Prostate gland **(1mk)**

b) Uterus **(1mk)**

c) Epididymis **(1mk)**

17. Define the term **oxygen debt** as used in biology **(1mks)**

18. a) Differentiate between incomplete and complete metamorphosis. Give example in each case. **(4mks)**

19. State **two** adaptations of a seed to its functions. **(2mk)**

20. Name the causative agent of cholera **(1mk)**

21. Define the term resolution power as used in microscopy **(1mk)**

22. What is haemolysis **(1mk)**

23. a) Name the compound that stores energy released during oxidation of glucose**,** **(1mk)**

b) A goat weighing 15.2kg requires 216KJ while a rat weighing 50g requires 2736KJ per day. Explain. **(2mks)**

24. Explain why plants do not require complex excretory organs. **(3mks)**

25. Name the instrument used in measuring wind velocity **(1mk)**

26. What is ecdysis **(1mk)**

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FORM THREE HOLIDAYS SMART PASS
BIOLOGY PP1 QUESTION PAPER NO: 06

SECTION A

1a. Distinguish between homoiotherms and poikilotherms **{2mks}**

Homoitherms- Poikilotherms

b)(i) How is energy stored in a cell? **{1mk}**

(ii). How is the energy released when the cell needs it? **{1mk}**

2. Name three kingdoms apart from Plantae and Animalia in order of decreasing complexity **{3mks}**

3. When preparing a temporary slide of black jack stem, Kamau was asked to carry out the following steps. Give a reason why each step was carried out.

a). Use a sharp razor to obtain a thin slice of the stem **{1mk}**

b), Place a drop of water on the slice on the microscope slide **{1mk}**

c). Add a drop of methylene blue dye on to the specimen on the microscope slide **{1mk}**

d) Lower the cover slip gently onto the place over the slice of the stem **{1mk}**

4. List down two factors that maintain populations of animals carrying capacity **{2mks}**

5. State three ways in which atmospheric nitrogen can be"fixed" into nitrates **{3mks}**

6(a). Reproduction is a characteristic of living things. State two importance of it in living things **{2mks}**

(b) State two ways in which flowering plants prevent self-pollination **{2mks}**

(c) What is the importance of cross pollination? **{1mk**}

7. List down four symptoms of diabetes mellitus **{4mks}**

8. Why are plants able to accumulate most of their waste products for long **{2mks}**

9.List down four roles of liver in homeostasis in the human body **{4mks}**

10.(a) Give one physiological difference between a plant cell wall and a cell membrane **(1mk)**

(b) State two structural differences between a cell wall and a cell membrane **(2mks)**

11. (a) Give reasons why muscle cells, sperm cells and kidney cells have large numbers of mitochondria. **(2mks)**

(b) State the role of cristae found in the mitochondria. **(1 mk)**

(c) Name the chemical reaction in which glucose is broken down to form pyruvic acid **(1mk)**

12.a) What is the significance of diffusion to plant pollination **(1 mk)**

b) Explain why movement of air molecules is not energy driven process **(1mk)**

13.A student added equal amounts of blood to equal volumes of salt solutions of different concentrations. She observed and counted the red blood cells under the microscope at the beginning of the experiment and at the end of the experiment. The results were as shown

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below.

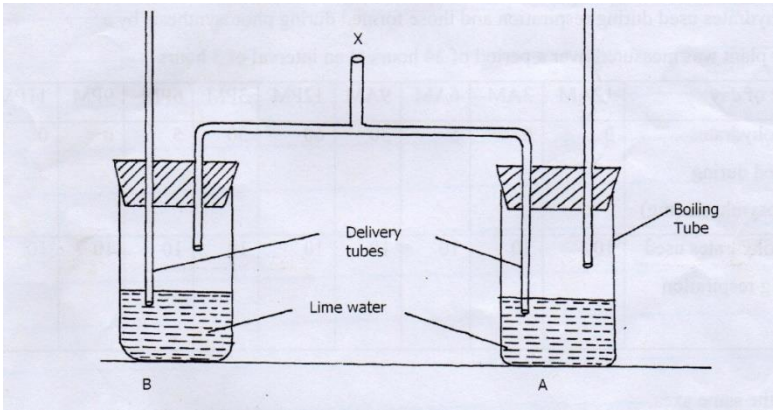
Set up	Concentration of salt	Beginning	After 30 min.
A	0.1%	Normal	Normal but small
B	0.05%	Normal	Very few but large

Account for the results in set up.

(i) Set up **A** **(2mk)**

(ii) Set up **B** **(2mk)**

14. An experiment was set up as show below.



(a) A student blew air in and out through point X. Using arrows indicate how air gets in and out of the set up **[2mks]**

(b) [i] In which of the tube would lime water turn milky first. **[1mk]**

ii] Give a reason. **[1mk]**

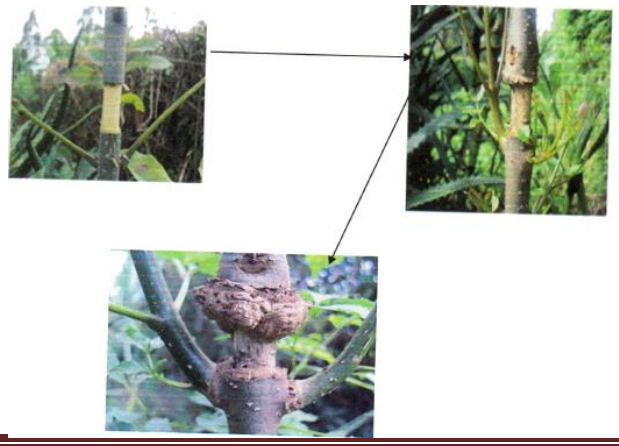
15. Photosynthesis is an enzyme controlled process which occurs within the chloroplasts in plant cells. Where in the chloroplast**;**

i) Is chlorophyll located? **(1mk)**

ii) are enzymes located? **(1mk)**

iii) in what form are carbohydrates transported in the phloem? **(1mk)**

16.study the photographs below and answer the questions that follow.



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

ii) Name the plant tissue involved in the physiological process illustrated above. **(1mk)**

iii) Name the physiological process involved in the process illustrated above **(1mk)**

iv) list one adaptation of the tissue named in (ii) above **(1mk)**

SECTION B

17. You are provided with photographs of plants labeled E, F, G, H, I, J and K
Use them to answer question that follows.















(i). Complete the dichotomous key below using observable features in the photograph given. **(4mks)**

1(a] simple leaf……..go to 2

(b) Compound leaf…….. go to 5

2(a) Leaf with parallel veins…… Poaceae

(b) _____……..... go to 3

3[a] leaf notched at the base ……. Phaseolus

b] Leaf not notched at the base……..…… go to 4

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4 (a) Leaf with smooth margin……. Nyctaginaceae

(b) _____..... Rosaceae

5(a) Leaf palmate……..…….. Euphorbiaceae

(b) _____ ……..…….. go to 6

6(a) _____…….…… Fabaceae

(b) Leaflets rounded at the …… Bignoniaceae

(ii) Use the completed dichotomous key to identify the plant **(7 mks)**

Specimen	**Steps Followed**	**Identify**
E	……..	……..……
F	……..……..	……
G	……..	……

18. Below are the only types of human teeth found in an individual. Use them to answer the questions that follow

A  **B**  **C** 

a) Write the order in which the teeth appear from front to back. **1mk**

b) What is the role of teeth in human digestion? **2mks**

c) Are the teeth above from a nursery pupil or a secondary school student? **1mk**

d) The pancreas of a patient was surgically removed. What was the effect on

i) Food digestion? **2mks**

ii) Blood sugar regulation? **2mks**

19. a) Name the essential parts of a flower. **(2mks)**

b)i) At what stage of mitosis do chromosomes replicate to form daughter chromatids **(1mark)**

ii) State three differences between mitosis and meiosis **(3mks)**

c) How are female parts of wind pollinated flowers adapted to perform their function? **(2mks)**

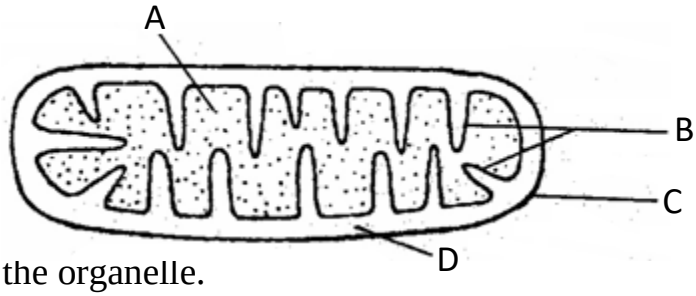
20. Describe how xerophytic plants are structurally adapted to their habitat. **(20mks)**

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BIOLOGY PP1 QUESTION PAPER NO: 07

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

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



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

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

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

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

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

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

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

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

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

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

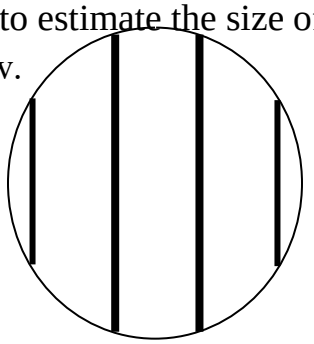
9. What is the role of light energy in autotrophic nutrition in spermatophyte? **(2 mks)**

10. How is fur important to desert animal, other than in the regulation of their body temperature? **(1mk)**

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

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

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



(a) Define the term resolving power. **(1 mk)**

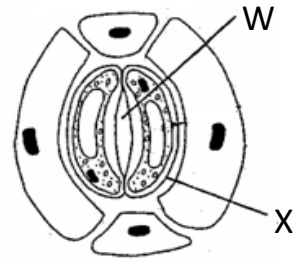
(b) If the student counted 20 cells across the field of view calculate the size of one cell in micrometers. **(2 mks)**

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

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

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



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

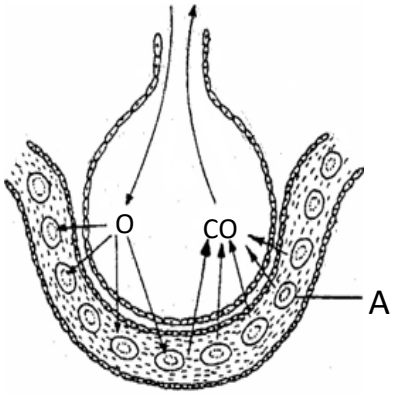
17. Why is the liver part of the digestive system? **(2 mks)**

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

19. State any two characteristics of populations. **(2mks)**

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

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

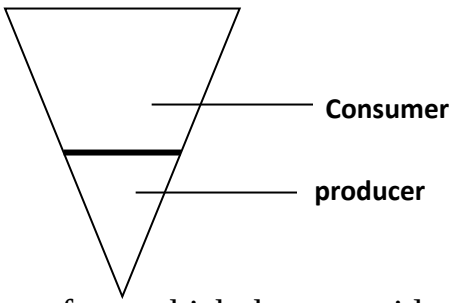


(a) State how the alveoli are adapted to their function. **(3 mks)**

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

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

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



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

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

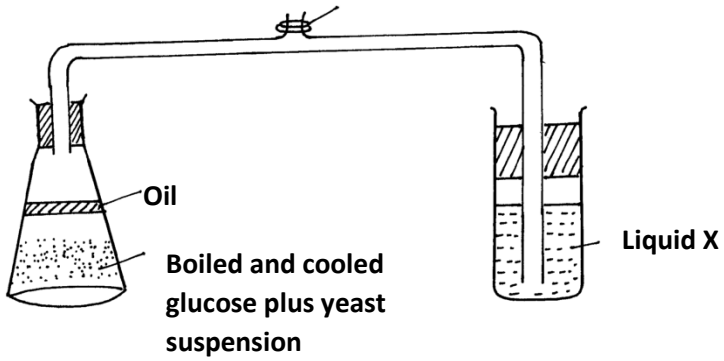
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24. Suggest two reasons for the appearance of glucose in the urine of a man. **(2 mks)**

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

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

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



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

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

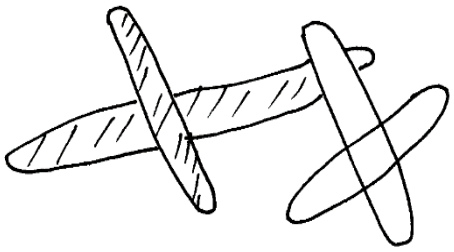
(c) In the above set up, why was it important to boil and cool glucose before adding yeast? **(1mk)**

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

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

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

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



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

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

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

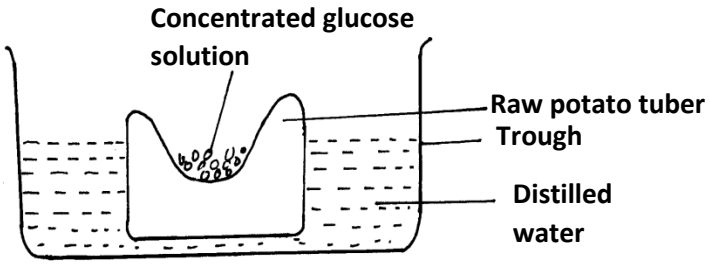
32. How do pathogens that enter the body through the respiratory tract in man prevented from causing diseases? **(1mk)**

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

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

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



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

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

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

36. Name the causative organism of the following diseases

(i) Malaria **(1mk)**

(ii) Bilharzia **(1mk)**

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BIOLOGY PP1 QUESTION PAPER NO: 08

1. a) Define the term Wilting **(1mk)**

b) How is wilting important to a seedling **(1mk)**

2. Give the name of the enzymes that undertake the following **(2mks**

i) Digestion of sucrose

ii) Conversion of prothrombin to thrombin

3. a) Explain why a person of blood group **O** can not receive blood from a donor of blood group **B** **(2mks**

b) Give **ONE** precaution observed before blood transfusion **(1mk**

4. Name the instruments used during the following activities in an ecological study

a) Suction of small insects from the bark of trees **(1mk**

b) Determine the depth of penetration of light in a fish pond **(1mk**

5. While studying onion cells under a light microscope, Susan observed 10 cells along the diameter of field of view with a radius of 3mm

a) What is field of view? **(1mk**

b) Determine the diameter of one cell observed **(2mks**

c) If the actual diameter of one cell is 0.0003mm, determine the total magnification Susan used **(2mks**

6. Explain how the following help in the process of photosynthesis

i) Guard Cells **(1mk**

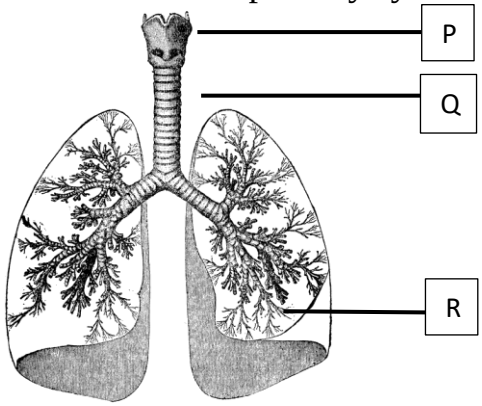
ii) Stomata **(1mk**

7. Differentiate between the following terms:

i) Synecology and autecology **(2mks**

ii) Innate immunity and acquired immunity **(2mks**

8. The diagram shown below represents the human respiratory system



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a) Name the structure found in region **P** that prevent entry of food bolus into region **Q** during swallowing? **(1mk**

b) Give **TWO** adaptations of part **Q** to its function **(2mks**

c) Name the actual site of gaseous exchange found in the organ labelled **R** **(1mk**

9. The diagram shown below is a common organelle in cells



i) Name the organelle shown above **(1mk**

ii) Give **TWO** functions of the organelle **(2mks**

10. Consider the specimen provided below together with their family names



Carabidae



Ixodidae



Formicidae

a) Give a reason why the organisms shown above belong to Phylum Arthropoda **(1mk**

b) Use the features shown above and in the same order to construct a dichotomus key to identify the families of the organisms shown above **(2mks**

1. Antennae

2. Wings

11. a) Name the organisms that act as the following for Malaria disease **(2mks**

i) Cause:

ii) Vector: b) Give **TWO** measures used to control Malaria by targeting the vector **(2mks**

12. The photograph shown below represents one way of environmental pollution

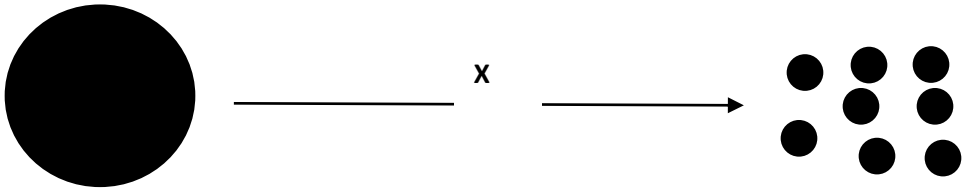


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a) Give **TWO** ways by which the above affects life of fish in Lake Victoria **(2mk**

b) Name **TWO** pollutants that cause acid rain **(2mk**

13. The sketch shown below represents a process in the mammalian body



Large Fat droplet Small Fat Droplets

a) Where does process **X** occur?

b) State the significance of this process in digestion **(1mk**

14. Explain the significance of the following:

a) The testes are found hanging outside the body of males **(1mk**

b) It is advisable to use the fine adjustment knob to focus image when the high power objective lens is in position **(1mk**

15. How are the following prevented naturally in the human body

a) Blood clotting in uninjured blood vessels **(1mk**

b) Corrosion of stomach lining by hydrochloric acid secreted by glands in the stomach **(1mk**

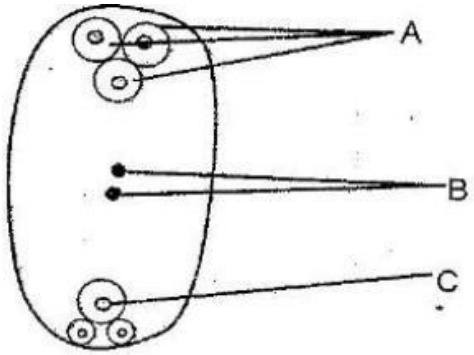
c) Ovulation during pregnancy **(1mk**

16. James wrote the scientific name of human being as HOMO SAPIENS

a) Name this system of naming organisms **(1mk**

b) Write the scientific name in the correct manner (**1mk**

17. The following diagram represents the embryo sac of a flower



a) Which letter represents parts that form the following after fertilization

i) Zygote **(1mk**

ii) Endosperm. **(1mk**

b) Plants like banana and pineapples form fruits without fertilization. Which term describes this phenomenon? **(1mk**

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18. Three potato strips each measuring 2.0mm were placed in three separate solutions and after 20minutes their lengths were as follows

SOLUTION	LENGTH OF STRIP
A	3.2mm
B	1.8mm
C	2.0mm

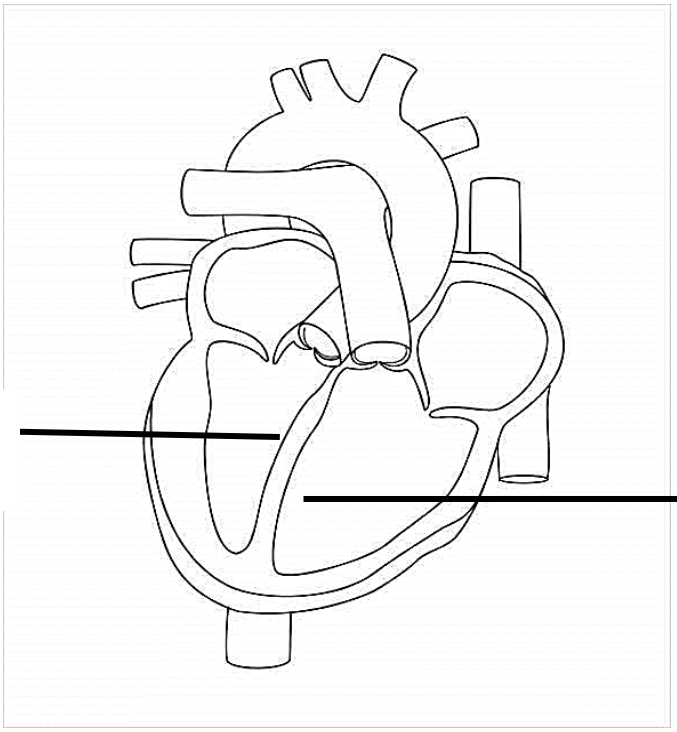
a) Which of the solutions is:

i) Isotonic. **(1mk**

ii) Hypertonic. **(1mk**

b) Account for the change in potato strip placed in solution **B** (2mk

19. An illustration of the mammalian heart is shown below



a) i) Identify the heart chamber labelled **Z** **(1mk**

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

b) State the importance of part **W** **(1mk**

c) Name a class in Phylum Chordata where all members have the type of heart shown above **(1mk**

20.a) Describe the role of prothoracic gland in growth and development of insects **(2mks**

b) Why is internal fertilization advantageous? **(1mk**

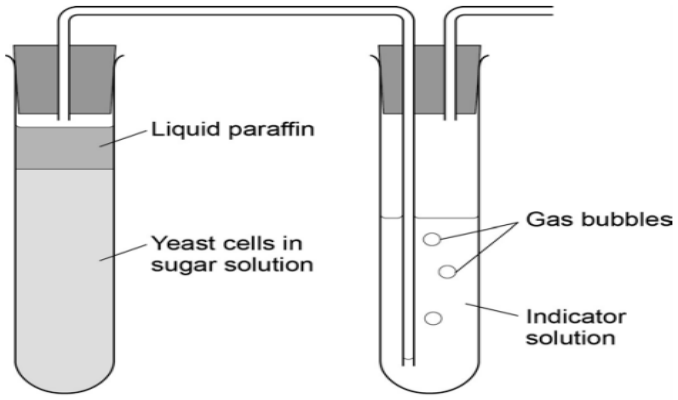
21. During a field study, a group of students captured **500** cockroaches, labelled them with a dye and released them back to the building**. 24** hours later, the students captured **600** cockroaches and realized **350** lacked the dye.

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a) Determine the population of cockroaches in the building **(2mks**

b) Give **TWO** assumptions of this method of population estimation **(2mk**

22. The set up shown below was used to investigate a physiological process



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

b) Why is it advisable to boil the sugar solution before the experiment? **(1mk**

c) State the importance of the physiological process being investigated in agriculture **(1mk**

23.a) What is Seed dormancy? **(1mk**

b) Explain the importance of Oxygen during seed germination **(1mk**

24. The diagram below represents a cross-section of a leaf



a) Identify the habitat of the plant from which the leaf was obtained **(1mk**

b) Identify a reason for your answer in a) above **(1mk**

c) How does part **F** adapt the plant to its habitat? **(1mk**

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25. The table below shows the composition of blood, glomerular filtrate and urine of a patient

Component	Blood	Glomerular Filtrate	Urine
Salts	1.60%	1.45%	1.40%
Glucose	2.00%	0.70%	0.60%
Urea	0.03%	0.04%	2.00%
Ammonia	0.06%	0.04%	0.04%
Proteins	1.80%	0.00%	0.00%
Water	90.0%	88.0%	85.0%

a) Account for the following

i) Absence of proteins in the glomerular filtrate **(1mk**

ii) Increased concentration of Urea in the Urine **(1mk**

b) Which disease is the patient likely to be suffering from? **(1mk**

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

26. The equation for respiration of a certain substrate is shown below

$$2C_{51}H_{98}0_6 + 145O_2 \longrightarrow 102CO_2 + 98H_20$$

a) Calculate the Respiratory Quotient **(2mks**

b) Identify the type of respiration that took place **(1mk**

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BIOLOGY PP1 QUESTION PAPER NO: 09

1. a) State two characteristics that are specific to plants **(2mks)**

b) Name **three** mechanisms that ensure cross pollination takes place in flowering plants. **(3mks)**

2. a) State **two** differences between complete and incomplete metamorphosis. **(2mks)**

b) State the importance of moulting to an insect. **(2mks)**

3. A student collected an organism and observed the following features: simple eyes, four pairs of legs and two body parts.

a) State the class to which the organism belongs. **(1mk)**

b) Give an example of an organism in this class**.** **(1mk)**

c) Name the kingdom to which plasmodium belongs **(1mk)**

4. Name the **three** end products of anaerobic respiration in plants. **(3mks)**

5. State **two** reasons why accumulation of lactic acid leads to an increase in heart beat. **(2mks)**

6. Name the flower parts that produces gametes. **(2mks)**

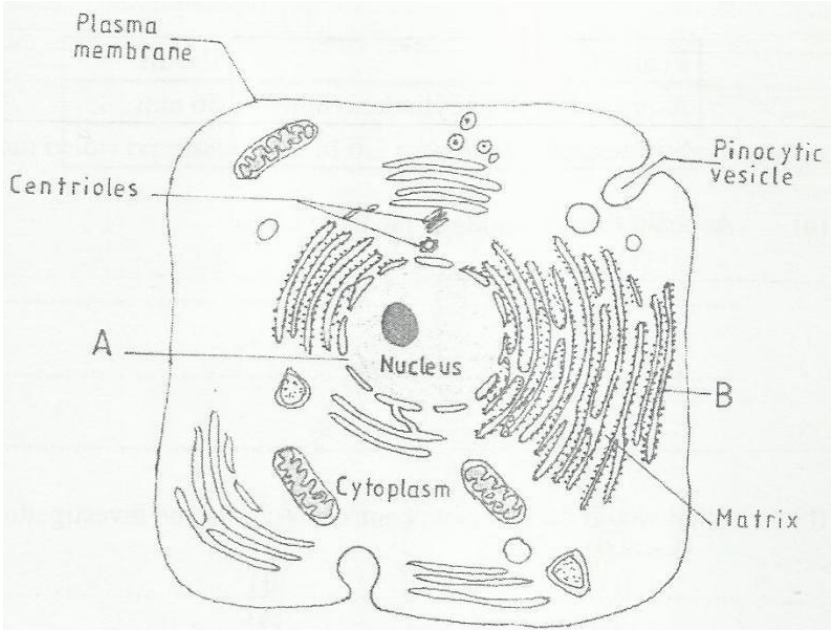
7. What is meant by the following terms? **(2mks)**

(a) Ecology

(b) Carrying capacity

8. How is the human sperm cell structurally adapted**?** **(2mks)**

9. The figure below is a fine structure of a generalized animal cell as seen under an electron microscope.



(a) Name the parts labeled A and B. **(2mks)**

(b) How is the structure labeled B adapted to its function? **(2mks)**

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10. What name is given to a group of hormones that controls the development of secondary sexual characteristics in a human male? **(1mk)**

11. Name two substances that leave the foetal blood through the placenta **(2mks)**

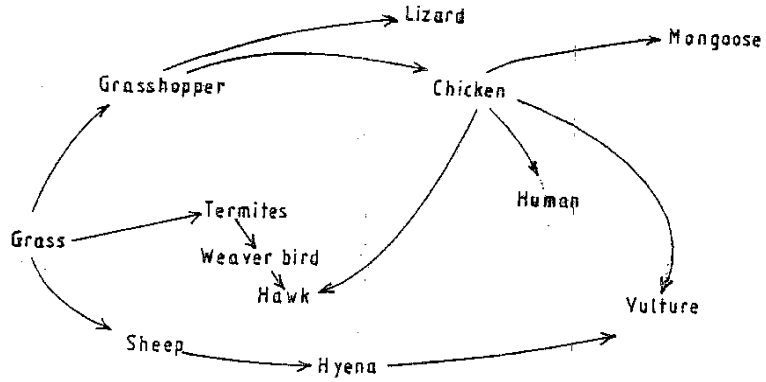
12. Name two nutrients that are absorbed without being digested by enzymes in humans. **(2mks)**

13. State one use for each of the following apparatus in the study of living organisms**.** **(2mks)**

(a) Pooter

(b) Pitfall trap

14. The figure below illustrates a food web in a certain ecosystem.



From the food web:

(a) Draw the shortest food chain; **(2mks)**

(b) Identify the organisms with the highest

(i) Number of predators **(1mk)**

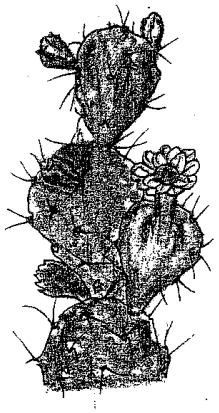
(ii) Biomass **(1mk)**

15. State two functions of the following parts of a light microscope.

a) Fine adjustment knob **(2 mks)**

b) Stage **(2 mks)**

16. The diagram below represents a certain plant.



(a) What is the likely habitant of the plant? **(1 mk)**

(b) Give two reasons for your answer in (a) above. **(2 mks)**

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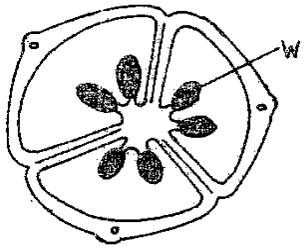
17. The number of stomata on the lower and upper surface of two leaves from plant **X** and **Y** were counted under the field of view of a light microscope. The results were as shown in the table below.

Leaf	Number of stomata	
	Upper surface	Lower surface
X	4	12
Y	20	23

(a) Which of the leaves would be expected to have a lower rate of transpiration**?** **(1 mk)**

(b) Given a reason for your answer in (a) above **(2 mks)**

18. The diagram below represents a transverse section of an ovary from a certain flower.

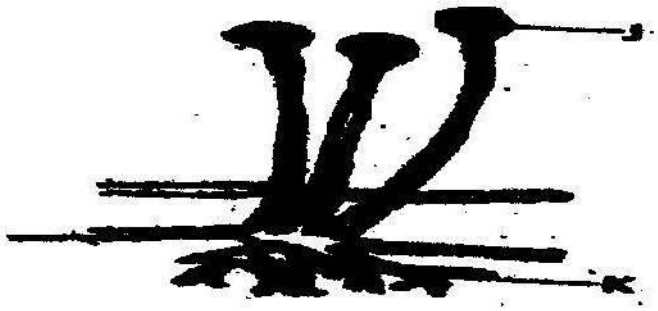


(a) (i) Name the structure labeled W **(1mk)**

(ii) Name the type of placentation illustrated in this diagram**.** **(1mk)**

(b) Give an example of a fruit that show the type of placentation illustrated in this diagram. **(1mk)**

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



a) Name the part labeled **J** **(1 mk)**

b) State the function of the structure labeled **K** **(2 mks)**

20. What is meant by the following term?

a) Habitat; **(1 mk)**

b) Ecosystem **(1 mk)**

21. State two ways by which acquired Immune deficiency syndrome (A.I.D.S) Virus is transmitted. **(2 mks)**

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22. Figures 1 and 2 below represent reproductive organ of plants and an animal respectively.

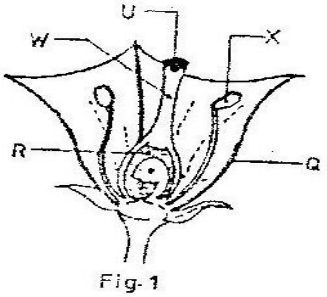


Fig. 1

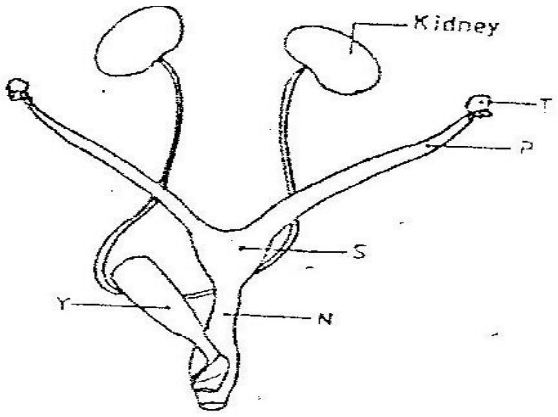


fig 2

(a) Which letters in figures 1 and 2 represents the organs that produce female gametes? **(2mks)**

Figure 1……

Figure 2……

(b) What is the function of the structure labeled S? **(2mks)**

(c) Name the structure labeled W **(1mk)**

(d) Which letters in figures 1 and 2 represents the structures where fertilization takes place **(2mks)**

(e) Which letter in figure 1 represents the structure where male gametes are produced **(1mk)**

23. What is the function of the following structures in the human reproductive organ?

a) Fallopian tubes. **(2 mk)**

b) Epididymis **(1 mk)**

c) Scrotal sac **(2 mk)**

24. State any **three** fruit and seed dispersal mechanisms **(3mks)**

25.A student observing a leg of an insect under a hand lens made a drawing of the leg whose length was 4cm a width magnification of X2.what was the actual length of the leg? **(3mks)**

26. Give two reasons why mitosis is important to organisms. **(2mks)**

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BIOLOGY PP1 QUESTION PAPER NO: 10

1. Name the disease in humans that is caused by lack of vitamin C. **(1mk)**

2. State **three** characteristics that cause cross- pollination to take place in flowering plants.**(3mks)**

3. Name **two** structures used for gaseous exchange in plants. **(2mks)**

4. When are two organisms considered to belong to the same species? **(2mks)**

5. State the functions of the following cell organelles **(2mks)**

(a) Golgi apparatus....

(b) Ribosomes.....

6. State **three** ways in which xylem vessels are adapted to their functions. **(3mks**

7. A person who found to pass out large volumes of dilute urine frequently.

a) Name the disease the person was suffering from **(1mk)**

b) Name the hormone that was deficient. **(1mk)**

8. State any **three** pieces of evidence that support the theory of evolution. **(3mks)**

9. Why are people with blood group O universal donors. **(2mks)**

10. Which organelle would be abundant in

(a) Skeletal muscle cell..... **(1mk)**

(b) Palisade cell..... **(1mk)**

11. In an experiment, it was found that when maggots are exposed to light, they move to dark areas. Name

a) The type of response exhibited by maggots..... **(1mks)**

b) The advantages of the response to the maggots..... **(1mk)**

12. State **two** ways by which the human immune deficiency (H.I.V) is transmitted other than through sexual intercourse. **(2mks**

13. Suggest **three** reasons why green plants are included in a fish aquarium. **(3mks)**

14. State **three** ways in which some fungi are beneficial to human. **(3mks)**

15. Why is oxygen important in the process of active transport in cells. **(2mks)**

16. State **two** disadvantages of metamorphosis to the life of insects. **(2mks**

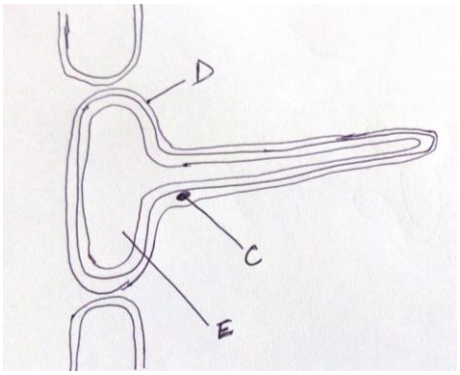
17. A person whose blood group is AB requires a blood transfusion. Name the blood groups of the donors. **(1mk)**

18. State **two** functions of muscles found in the alimentary canal of mammals. **(2mks)**

19. Name **three** types of chrosomal mutations. **(3mks)**

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20. The diagram below shows a specialized plant cell.



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

b) Name the parts labeled D and E. **(2mks)**

c) State the function of the part labeled C. **(1mk)**

21. Distinguish between haemolysis and plasmolysis. **(2mks)**

22. Explain why it is not advisable to be in poorly ventilated room with a burning charcoal stove. **(3mks)**

23. What is the role of bile salts in digestion in human's. **(2mks)**

24.(a) The following is the dental formula of a certain mammal.

$$\mathbf{I}\ \frac{0}{3}\ \ \mathbf{c}\ \frac{0}{1}\ \ \mathbf{pm}\ \frac{3}{3}\ \ \mathbf{m}\ \frac{3}{3}$$

(i) State the likely mode of feeding for the mammal **(1mk)**

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

(b) State the changes that occur in arterioles in the human skin during thermoregulation **(2mks)**

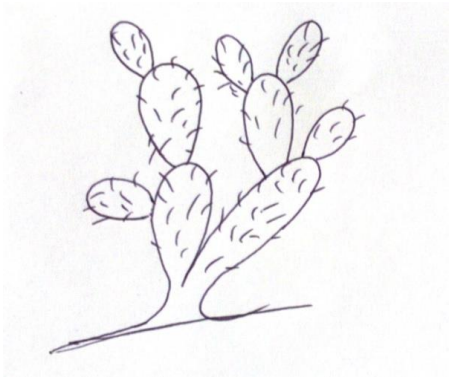
(c) Name the site of anaerobic respiration in a cell. **(1mk)**

25.(a) What is meant by convergent evolution? **(1mk)**

(b) State **two** limitations of fossils as an evidence of evolution. **(2mks)**

(c) Apart from the lungs, name two gaseous exchange surfaces in a frog. **(2mks)**

26. (a) The diagram below represents a certain plant.



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(i) What is the likely habitat for the plant. **(1mk)**

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

(b) What would be the expected results from a test cross. **(2mks)**

27.(a) State one economic importance of each of the following plant excretory products. **(3mks)**

(i) Tannin

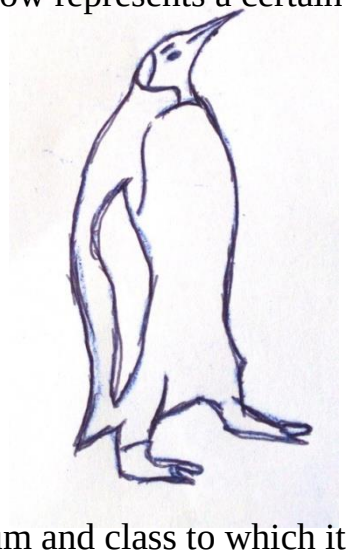
(ii) Quinine

(iii) Caffeine

(b) Name three salivary glands in humans. **(3mks)**

(c) Name **two** dental diseases **(2mks)**

28. The diagram below represents a certain organism



State the phylum and class to which it belongs **(2mks)**

29. What is meant by the flowing terms. **(2mks)**

(a) Ecology

(b) Carrying capacity

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