**NAME ……………………………………………. INDEX NO …………………………..**

**SCHOOL…………………………………………… SIGNATURE …………………..………**

**DATE ……..…………………...**

**231/1**

**BIOLOGY**

**PAPER 1**

**(Theory)**

**2 HOURS**

**CATHOLIC DIOCESE OF KAKAMEGA EVALUATION TEST**

**AUG/SEPT EXAM 2022**

*Kenya Certificate of Secondary Education (K.C.S.E)*

**INSTRUCTIONS TO CANDIDATES**

* Write your name and Index Number in the spaces provided above.
* Sign and write date of examination in the spaces provided above.
* Answer **ALL** questions in the spaces provided.

**FOR EXAMINERS USE ONLY.**

|  |  |  |
| --- | --- | --- |
| **Question** | **Maximum Score** | **Candidates Score** |
| 1 – 28 | 80 |  |

1. Name the antigens present in red blood cells of a person whose blood group is B positive. (2mks)

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2. Give reasons for the following structural modifications in axial skeleton of humans

(i) Fused sacral vertebrae (1mk)

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(ii) Long transverse process in lumbar vertebrae. (1mk)

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3. (a) What is adaptive radiation? (1mk)

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(b) State two ways in which Homo sapiens differs from Homo habilis (2mks)

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4. State three characteristics of class Reptilia. (3mks)

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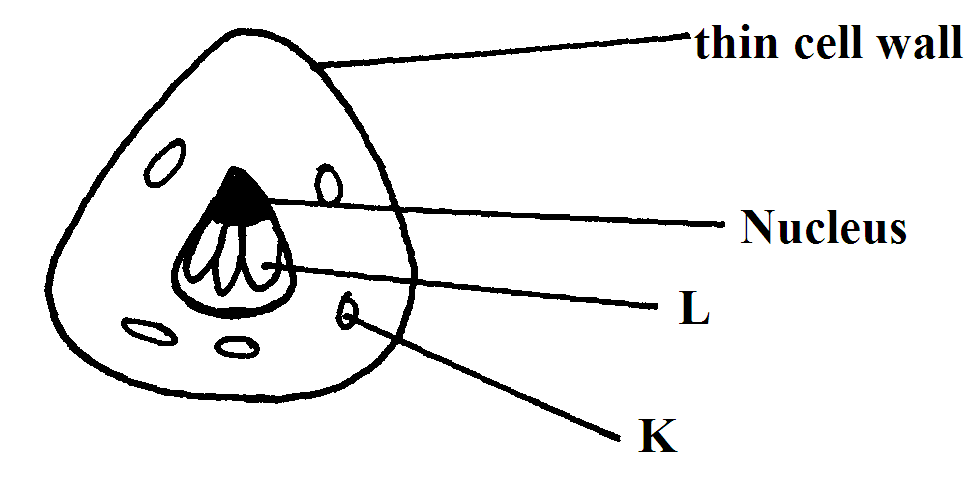
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5. The diagram below represents the structure of a yeast cell as seen under a light microscope.



(a) Name parts labeled (2mks)

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K……………………………………………………………………………………………..

6. (a) Which part of plant normally shows

(i) Increased growth at lower auxin concentration (1mk)

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(ii) Decreased growth at lower auxin concentration (1mk)

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

(i) Fine adjustment knob (1mk)

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(ii) Condenser (1mk)

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8. Give a reason for the following features present in human trachea

(i) Ring of cartilage (1mk)

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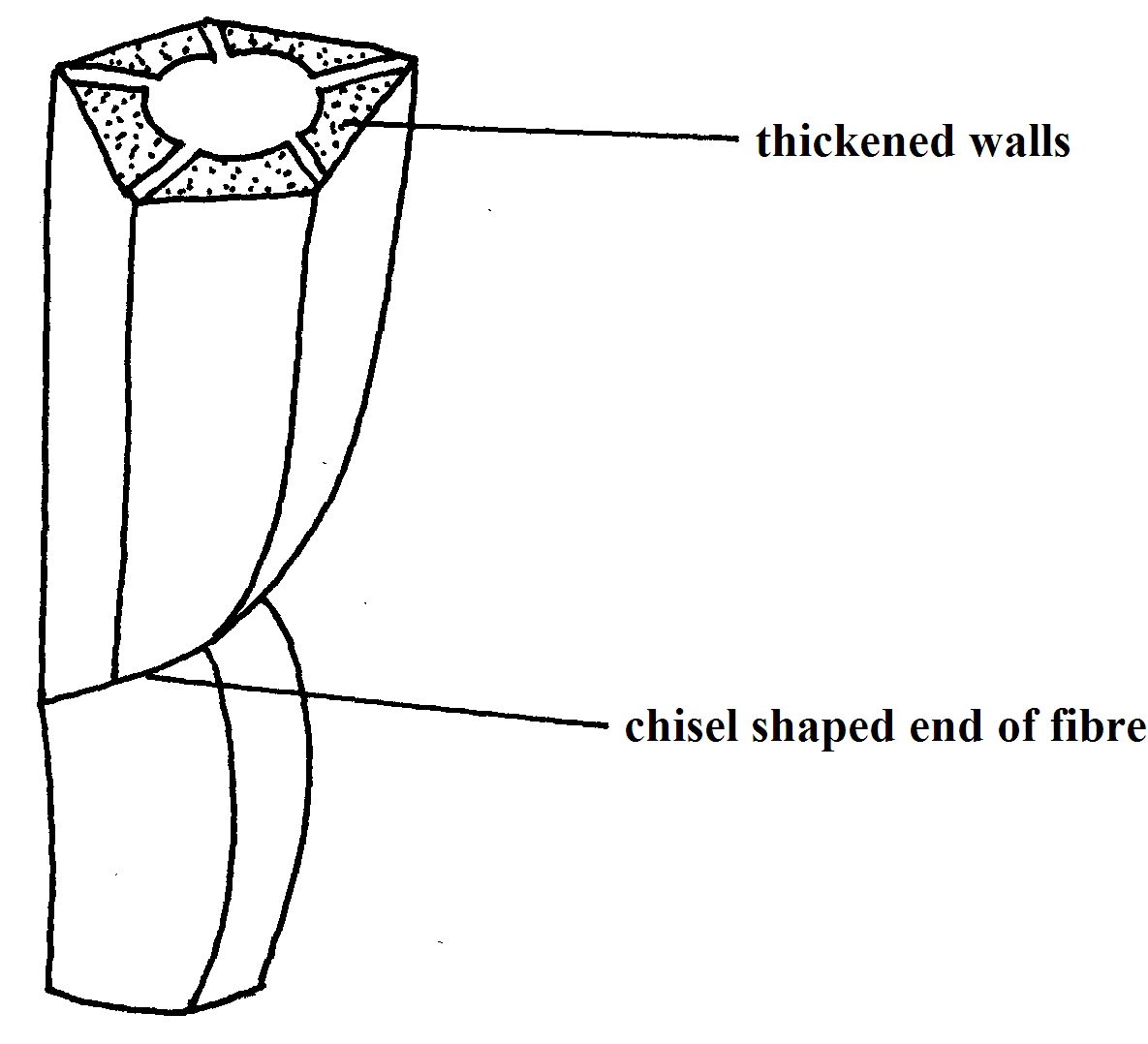
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(ii) Presence of cilia (1mk)

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9. The diagram below shows a plant supportive tissue



(a) Identify the tissue (1mk)

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(b) State two similarities between tissue named in 9(a) above and one conducting water in

dicotyledonous plant. (2mks)

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10. A wild beast in Masai Mara National Park was found to be infested with a lot of ticks. State the trophic level occupied by the following organisms:

(a) (i) Wild beast (1mk)

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(ii) Ticks (1mk)

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(b) Sketch a pyramid of numbers to represent above feeding relationship. (1mk)

11. (a) Name the causative agent of the following diseases in humans.

(i) Bilharziasis (1mk)

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(ii) Syphillis (1mk)

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(b) Describe the following defects:

(i) Varicose veins (1mk)

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(ii) Thrombosis (1mk)

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12. The flow chart below shows the movement and fate of carbohydrate synthesized by green plants.

Photosynthetic tissues in a leaf

Meristematic tissues

Storage tissues

(a) Name the type of carbohydrate that is

(i) Transported from leaf to other parts of plant (1mk)

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(ii) Found in storage tissues (1mk)

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(b) Name two main photosynthetic tissues found in a leaf (2mks)

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13. State the roles of the following cell organelles in a cell

(a) Lysosomes (2mks)

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(b) Centrioles (1mk)

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14. Name the physiological process involve in the movement of the following substances in and out of the cell.

(a) Mineral salts (1mk)

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(b) Water (1mk)

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15. Below is the dental formula of an organism



(i) Calculate the total number of teeth in the jaw of the animal (2mks)

(ii) With a reason, identify the type of dentition for the organism (2mks)

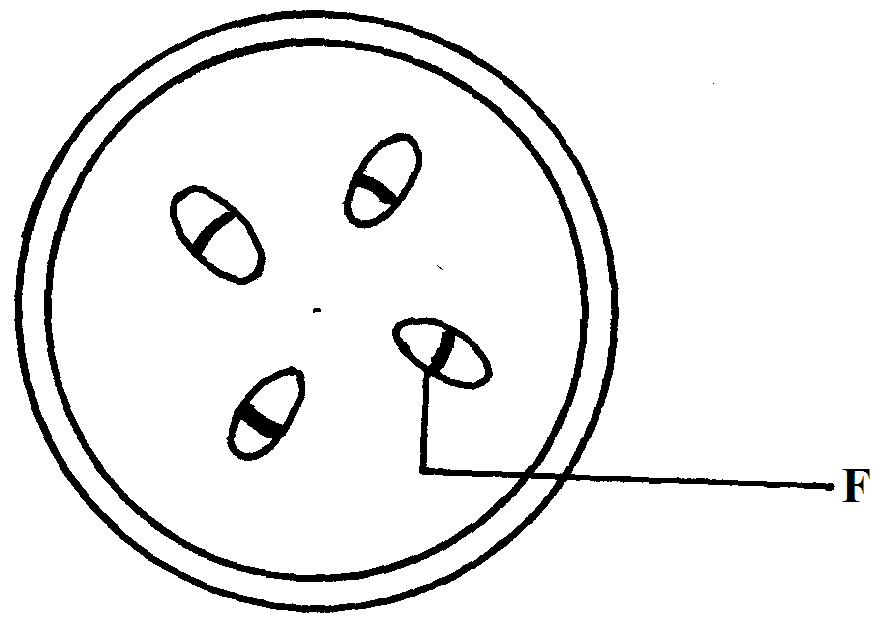
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16. The diagram below shows a section through a plant organ



(a) (i) Name the class of the plant from which the section was obtained (1mk)

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

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17. (a) Name two structures for gaseous exchange in aquatic plants. (2mks)

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(b) State one adaption of the above named structures. (1mk)

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18. During a biological trip, plants that had flowers drew the attention of students

(a) Name the subdivision of the plants (1mk)

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(b) Name two possible characteristics that students would use to conclude that they were

insect pollinated. (2mks)

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19. Define the following terms

(a) Homologous structures (1mk)

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(b) Vestigial structures (1mk)

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20. Name the type of responses exhibited by the following

(a) Pollen tube growth towards the embryo sac (1mk)

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(b) Maggot moving from the lit part of boiling tube to the part painted black (1mk)

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(c) Folding of the leaves of the **Mimosa Pudica** plant on touch (1mk)

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21. Insulin is a hormone synthesized using bacteria DNA. It is possible to obtain from hospitals because of the new technology

(a) Name the technology used in the case above. (1mk)

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(b) Why were bacteria preferred in the medicine production (2mks

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22. (a) State the role of the following parts of ear in the hearing process

(i) Ear drum (1mk)

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(ii) Cochlea (1mk)

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(b) Explain why the body temperature of a healthy human being may rise up to 390C on a hot

humid day. (3mks)

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23. Explain what happens to human body when glucose level is above normal (3mks)

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

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25. State the functional difference between sensory and motor neurons (1mk)

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26. Give two reasons why class insecta is the most numerous among members of phylum arthropoda. (2mks)

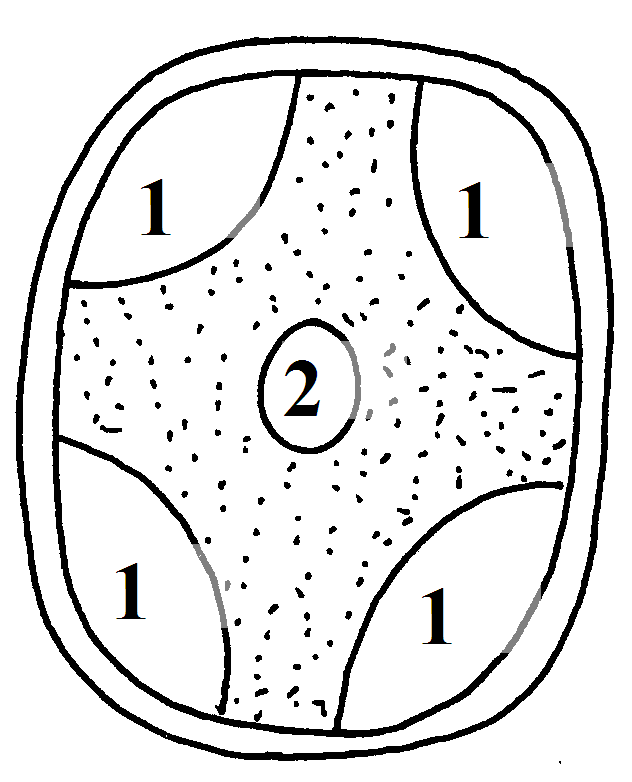
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27. The diagram below shows the appearance of a plant cell after it had been placed in a strong salt solution



(a) Name the process that occurred in the cell shown above. (1mk)

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(b) (i) Which substance is present in the regions marked 1? (1mk)

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(ii) Give reasons for your answer in b(i) above (2mks)

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28. State two roles of a fruit to a plant (2mks)

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29. What is the importance of the following in an ecosystem?

(i) Bacteria and fungi (1mk)

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(ii) Predators (1mk)

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30. Outline three roles of active transport in the human body. (3mks)

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