THE CELL - STRUCTURE

KCSE QUICK REVISION

Compilation of Possible Questions in Biology Likely to be Examined in KCSE.

A Special Analysis of Prediction Questions that may be Tested in KCSE from this Topic in Form 1.

BIOLOGY

SERIES 1

For Marking Schemes

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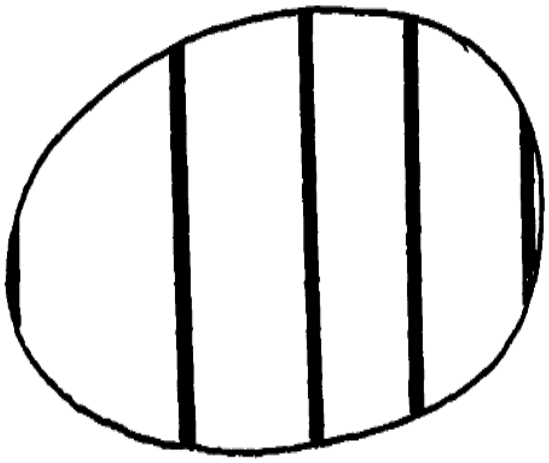
MWALIMU CONSULTANCY

THE CELL – STRUCTURE

1. Name the organelles that perform each of the following functions:
a) Digestion and destruction of worn out organelles.
b) Osmoregulation

2. Explain why the following processes are important during the preparation of temporary
slides :- (a) Staining
(b) Use of a sharp cutting blade

3. In a class experiment to establish the size of an onion cell, a leaner observed the following on the microscope field of view.



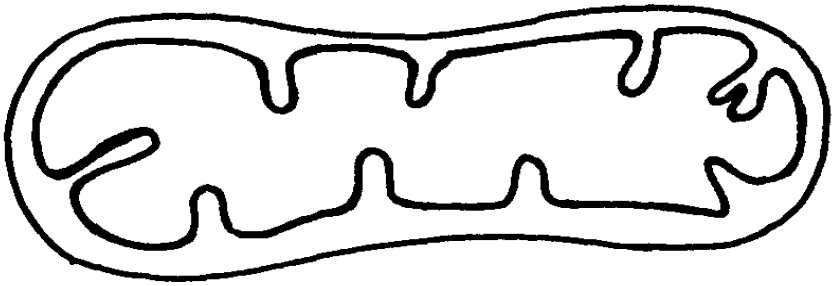
If the student counted 20 cells across the diameter of this field of view, calculate the size of one
cell in micrometers.

4. State the functions of the following cell organelles: (a) Nucleolus.
(b) Plasma membrane

5. What is the of nucleus of a cell made up of?

6. (a) In a laboratory exercise a student observing a drop of pond water under a microscope saw and drew a spirogyra. If the magnification of the eye-piece was x5 and that of the objective lens was x100, what was the magnification of the spirogyra?
(b) If the spirogyra has a length of 5cm at the above magnification, calculate the actual length in micrometers

7. (a) Identify the organelle shown below:-



(b) How is the organelle you have identified in **(a)** above suited to its function

8. Identify the structures of the cells that perform the following functions:-

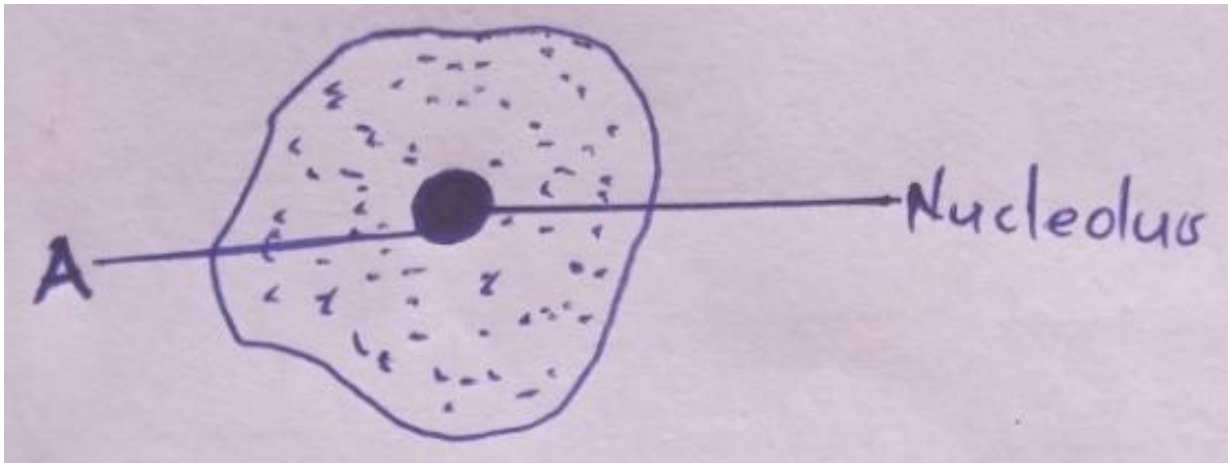
(a) Synthesize ribosomes

(c)Regulate exchange of substances in and out of the nucleus

9. (a) State the roles of enzyme catalase in living cells

(b) Which factor inactivates enzyme?

10. The figure below represents a certain cell organelle:-



(a) (i) Identify the cell organelle

(ii) What is the function of the part labelled **A**

(b) Name the organelles that perform each of the following functions;

(i) Osmoregulation in amoeba

(ii) Carries out digestion and destruction of worn out cell organelles

11. State **three** properties of the cell membrane

12. The diagram below represents a plant cell

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

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

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

13. **What** do you understand by the following terms

a) Anatomy

b) Biochemistry

14. **State** the function of the following parts of a cell

a) Ribosome

b) Chloroplasts

15. a) What is the formula for calculating linear magnification of a specimen when using a hand lens

16. State the function of the following cell structures:-

a) Ribosome ;

b) Centrioles ;

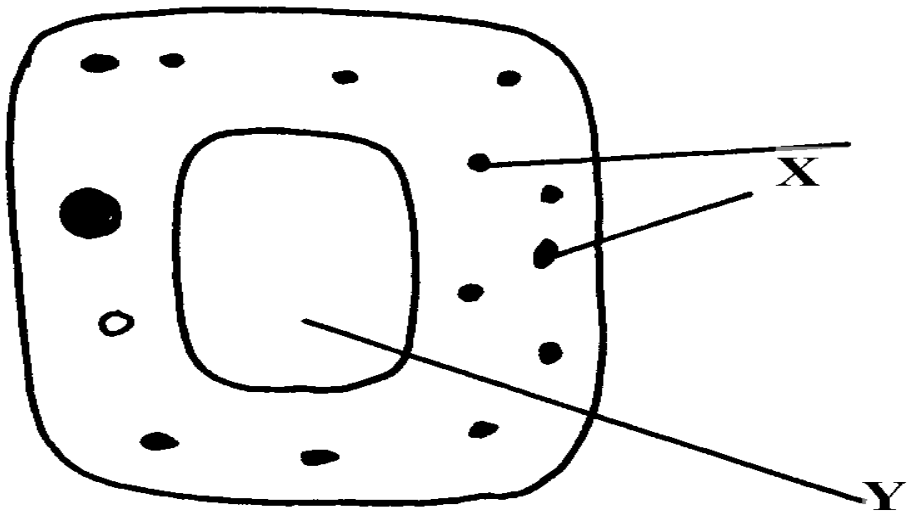
17. What is the main structural component of:-

a) Cell wall

b) Cell membrane

18. State **two** characteristics of the kingdom monera which are prokaryotes

19. The diagram below represents a cell



(a) Name parts labelled **X** and **Y**

b) Suggest why the structures labelled **X** would be more on one side than the other

20. During a practical class, form fours estimated the field of view to be 3.5mm. Using the low power objective, they observed spirogyra cells across the same field of view and counted 8cells.

Calculate the size of each cell and give your answer in micrometer

21. A student caught an animal which had the following characteristics:-

- Body divided into two parts
- Simple eyes
- Eight legs

a) To what class does the animal belong?

b) State **two** distinctive characteristics of members of the phylum from which the animals in this question (15) belongs

22. Distinguish between the following terms :-

a) Magnification and resolution of a microscope

b) Mounting and staining of a specimen

23. Name the organelle that performs **each** of the following functions in a cell.

(a) Transport of packaged glycoproteins

(b) Destruction of worn out cell organelles

(c) Synthesis of proteins

24. Why are the following procedures done when preparing sections to be observed under a light microscope?

(a) Making of thin sections

(b) Using a sharp blade to make the sections

(c) Staining

25. What are the functions of the following parts of a light microscope?

(a) Eye piece lens

(b) Condenser

(c) Diaphragm

26. Given that the diameter of the field of view of a light microscope is 2000um. Calculate the size of a cell in mm if 10 cells occupy the diameter of the field of view

27. State the importance of the following processes in microscopy:

(a) staining

(b) sectioning

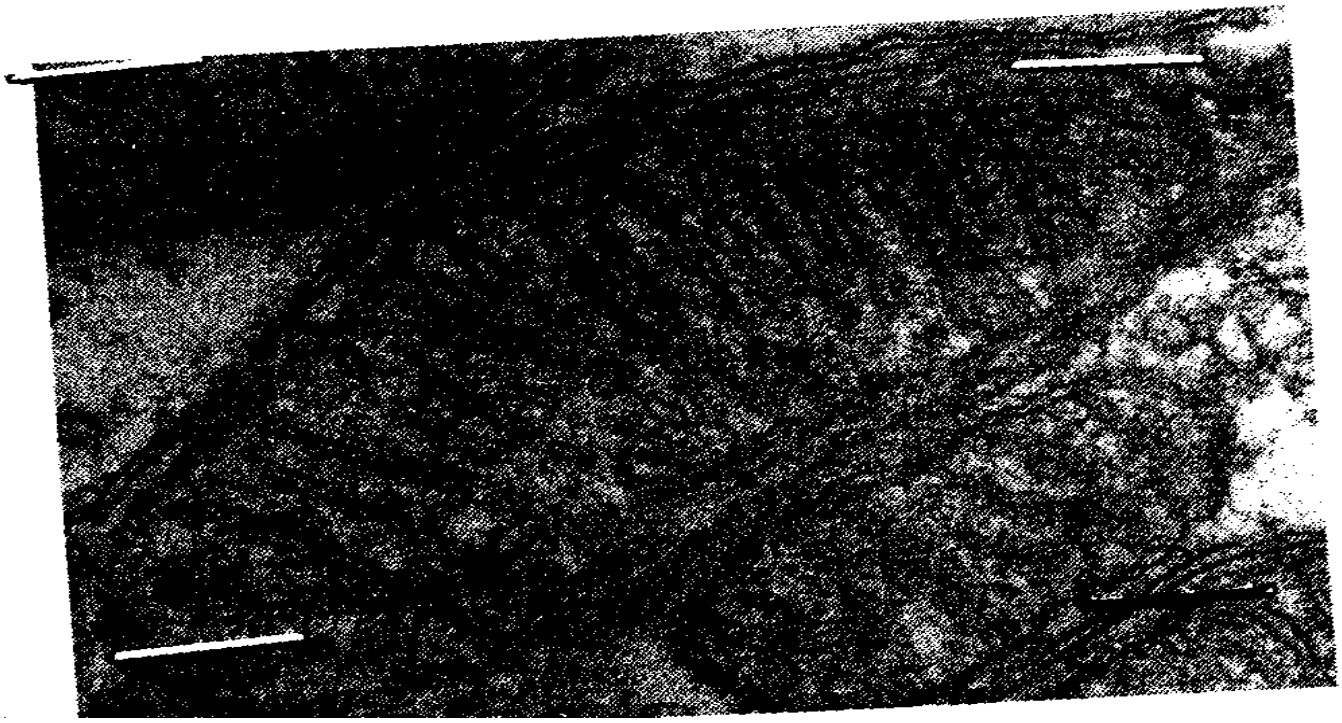
28. A cell was found to have the following under a light microscope; cell membrane, irregular in shape, and small vacuoles. Identify the type of the cell above

29. State the functions of the following organelles;
(a) Lysosomes
(b) Golgi apparatus

30. Name the class in phylum arthropoda which has the largest number of individuals

31. State the functions of each of the following parts in a microscope.
(a) The eye piece lens
(b) The objective lens

32. The figure below represents an electron micrograph of an organelle that is found in many cells;



(a) Identify the organelle
(b) State the function of the organelle
(c) What is the importance of infoldings in the inner membrane.
(d) Give **two** examples of tissues where you would expect many such organelles in animal body.

For Marking Schemes/Answers

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