NAME: ……..... SIGNATURE: …….

S.3 BIOLOGY ASSESSMENT TEST 3

TIME: 90 MINUTES INSTRUCTIONS: Attempt all questions.

## SECTION A

1. If a plasmolysed plant cell is transferred into water. What is likely to happen to the cell if it is left in water for 1½ hours?
   A. It will lose water to the surrounding and decrease in size.
   B. It will absorb water from the surrounding and increase in volume.
   C. It will not experience any change in size.
   D. The vacuole will shrink and disappear altogether.
2. Phagocytosis is a process whereby
   A. white blood cells ingest and destroy bacteria.
   B. white blood cells cause the bacteria to stick together.
   C. red blood cells dissolve the outer coats of invading bacteria and so destroying them.
   D. antibodies fight antigens.
3. A man's urine gave a positive test with Benedict's solution. What is the best deduction about this man?
   A. He had been eating a lot of sugar
   B. There was too much insulin in his blood
   C. He was suffering from diabetes
   D. There was too much glycogen in his blood
4. Which one of the following sets of organisms belong to the same group?
   A. Butterfly, beetle and starfish. C. Scorpion, mite and spider.
   B. Crab, tapeworm and liver fluke. D. Jelly fish, slug and spider.
5. Which of the following parts of a plant cell provides shape and rigidity?
   A. Protoplasm B. Nucleus C. Cell wall D. Cell membrane
6. Lack of Iodine in the human diet causes
   A. Anaemia B. Goiter C. Scurvy D. Rickets
7. Which of the following farming practices would control soil erosion?
   A. Application of artificial fertilizers. C. Terracing
   B. Addition of compost manure D. Mixed farming.
8. The results of an experiment to determine the percentage of humus in a soil sample are shown below.

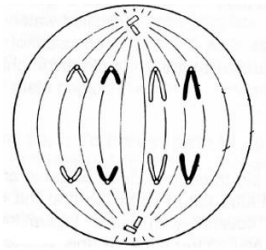
   *Mass of crucible = 20g*
   *Mass of crucible + soil =40g*
   *Mass of crucible + soil (after drying) = 33g*
   *Mass of crucible + soil (after heating to red hot) = 30g*

   What is the percentage of humus in the soil sample?
   A. 85.7 B. 33.0 C. 8.8 D. 15.0
9. Which one of the following takes place by the process of active transport in plants?
   A. up-take of water C. intake of $CO_2$
   B. Transpiration D. uptake of mineral salts

10. Photosynthesis is said to have a pair of raw materials, a pair of conditions and a pair of products. Which of those is the correct set?
    A. Carbon dioxide and light, oxygen and sugar, water and chlorophyll
    B. Water and Carbon dioxide, light and Chlorophyll, Oxygen and Sugars
    C. Water and light, Carbon dioxide and Chlorophyll, sugars and oxygen.
    D. Sugars and chlorophyll, water and oxygen, Carbon dioxide and Light.
11. In an experiment a stem of a young herbaceous plant was cut into four equal strip pieces and each placed in a solution.
    *1st into 5% salt solution.*
    *2nd into 2.5% salt solution.*
    *3rd into 1% salt solution and*
    *4th into 0.5% salt solution and left for 1 hour.*
    Which of the pieces is likely to be shortest and the most plasmolysed?
    A. 1st piece B. 2nd piece C. 3rd piece D. 4th piece
12. The kind of solution which would make a fully turgid plant cell placed in it to shrink is:
    A. More dilute than the cell content
    B. Of the same concentration than the cell content
    C. More concentrated than the cell content
    D. Less in quantity than the cell sap.
13. Which one of the following events occurs during osmosis?
    A. Solute molecules move from more to less concentrated solution.
    B. Solvent molecules move from more to less concentrated solution.
    C. Solvent molecules move from less to more concentrated solution.
    D. Solute molecules move from less to more concentrated solution.
14. The following are passive processes except ?
    A. Osmosis B. Diffusion C. Plasmolysis D. Active transport
15. Osmosis is inhibited in?
    A. Dilute solutions separated by partially permeable membranes
    B. Concentrated solution separated by partially permeable membranes
    C. Living tissues
    D. Killed tissues
16. When an animal cell is placed in a hypotonic solution it becomes
    A. Flaccid B. Turgid C. Crenated D. Haemolysed
17. The role of phloem in plant stem is to;
    A. Transportation of food substance from leaves to other parts of the plant
    B. Transportation of water and mineral salts from leaves to other parts of the plant
    C. Transportation of food and mineral salts from leaves to other parts of the plant
    D. Transportation of mineral salts and water from roots to other parts of the plant
18. Which one of the following has no effect on the rate of diffusion?
    A. Density of diffusion C. Length of diffusion pathway.
    B. Size of diffusing molecules. D. Concentration gradient.
19. Which one of the following human characteristics exhibits discontinuous variation?

A. Height B. Blood groups C. Weight D. Skin colour

20. What stage of cell division is represented in the figure 2 below?

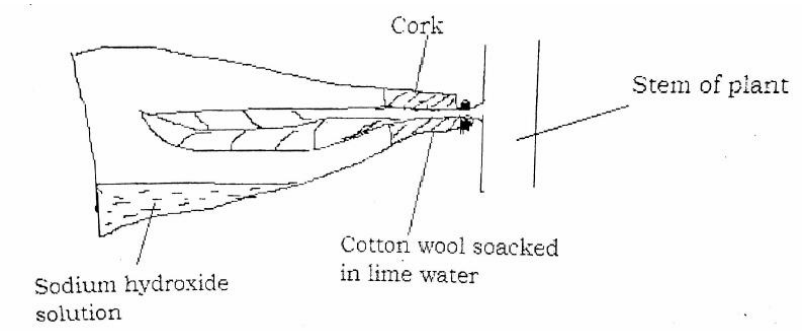


A. Anaphase
B. Prophase
C. Metaphase
D. Telophase

21. Which one of the following is the correct sequence of events that occur during mitosis?
A. Prophase, metaphase, anaphase and telophase.
B. Prophase, anaphase, metaphase and telophase.
C. Metaphase, anaphase, telophase and prophase.
D. Telophase, anaphase, metaphase and prophase.

# SECTION B

***1.*** **The figure 3** below shows an experimental setup to investigate the conditions for photosynthesis. The plant is in light but was previously kept in the dark for 24 hours.




***(a)*** Which condition is being investigated ***(01 mark)***

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***(b)*** Why;

***(i)*** Is it necessary to keep the plant in the dark overnight? ***(01 mark)***

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***(ii)*** Is the leaf attached to the plant? ***(01 mark)***

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***(c)*** What is the purpose of sodium hydroxide in the flask? ***(01 mark)***

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***(d)*** Explain how the factor being investigated affects the rate of photosynthesis. ***(03 marks)***

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***(e)*** Apart from that factor being investigated, state three other factors affecting the rate of photosynthesis. ***(03 marks)***

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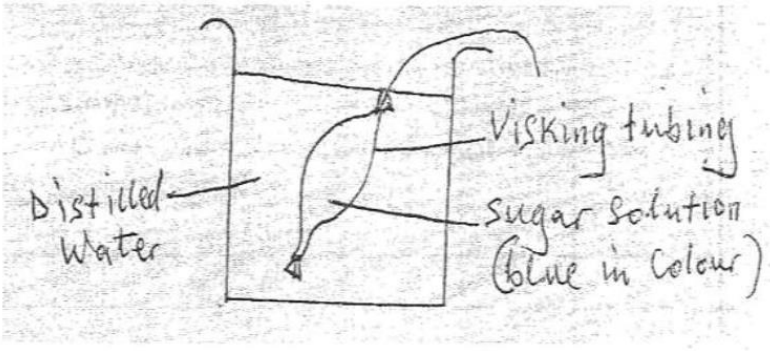
***2.*** In an experiment, a visking tubing was half filled with concentrated sugar solution containing methylene blue dye. Both ends were tied well to prevent leakage. It was rinsed with distilled water and immersed in a beaker containing distilled. The setup is shown in figure below. After 6 hours, the water in the beaker turned blue and visking tubing was swollen with more solution.




(a). Explain why the visking tubing was swollen with solution at the end of the experiment. ***(04 marks)***

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(b). Name the process through which Water in the beaker turns blue ***(01 mark)***

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(c). Distinguish between cytosis and active transport. ***(02 marks)***

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(d). State 3 roles of active transport in the human body. ***(03 marks)***

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***3.*** ***(a)*** What you understand by the terms:

***(i)*** Continuous variation ***(01 mark)***

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***(ii)*** Discontinuous variation ***(01 mark)***

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***(iii)*** Meiosis ***(01 mark)***

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***(iv)*** Mitosis ***(01 mark)***

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***(b)*** Where do meiosis and mitosis occur? ***(02 marks)***

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(c) Give two examples of characters which exhibit;

(i) Continuous variation ***(02 marks)***

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(ii) Discontinuous variation ***(02 marks)***

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## SECTION C

***1.*** (a) Describe the chemical digestion of proteins as food passes along the alimentary canal of a person. ***(06 marks)***

(b) How are products of digestion of starch and proteins utilized by the human body? ***(04 marks)***

(c) Explain the adaptations of the villi for their function. ***(05 marks)***

## END!!!!

***"What men have done, men can do"***

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