NAME: ……..... SIGNATURE: …….

MILLENIUM SCIENCE CAFE

S.3 BIOLOGY NOVEMBER ASSESSMENT TEST

TOPICS: NUTRITION & CELL DIVISION & GENETICS

TIME: 90 MINUTES INSTRUCTIONS: Attempt all questions.

SECTION A

1. The chamber of the herbivore stomach from which food is returned to the moth for rechewing is called
   A. Omasum B. Abomasum C. Rumen D. Reticulum
2. In a certain organism the bile duct was blocked so that the flow of bile was cut off. Which of the following would happen as a result of the above?
   A. Storage of glycogen in the liver would not be possible
   B. The hepatic portal vein would nolonger carry food
   C. Digestion of fats and oils would not proceed normally
   D. The absorption of digested food would be decreased.
3. The table below shows a student's results in an experiment to determine the amount of ascorbic acid.
   Contents in four different fruit juices F, G,H and I using 0.15% DCPIP

Fruit juice	% Ascorbic acid	No. of drops needed to decolorize cm^3 of DCPIP
F	0.20	21
G	0.60	7
H	N	30
I	0.30	14

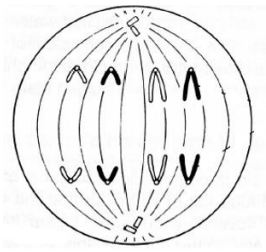
   From the results, what is the ascorbic acid content of fruit juice H given as n?
   A. 0.36% B. 2.57% C. 0.14% D. 0.63%
4. Although saliva is swallowed together with food, digestion of starch which is started in the mouth does not continue in the stomach for long. This is because
   A. In the stomach there is mostly absorption of food
   B. The temperature of the stomach is not suitable for action of enzymes in the saliva.
   C. Gastric juice in the stomach deactivate the enzymes in the saliva
   D. In the stomach there is only chuming of food and digestion.
5. A healthy potted bean plant was kept in a dark room for about 48 hours with one of its leaves partly enclosed in a flask containing sodium hydroxide. Then the whole plant was left in bright sunlight for a few hours. The leaf which was partly enclosed in the flask was tested for starch. the colour of the part of leaf enclosed within the flask was
   A. Blue-black B. Green C. Colourless D. Yellow-brown
6. 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

7. Lack of calcium in the human diet causes
   A. Anaemia B. Goiter C. Scurvy D. Rickets

8. Which one of the following human characteristics exhibits discontinuous variation?
   A. Height B. Blood groups C. Weight D. Skin colour

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



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

10. When preparing to test for starch in a leaf, the leaf is boiled in alcohol in order to
    A. Burst chloroplasts
    B. Remove coloured material in a leaf
    C. Quicken the reactions of starch with Iodine.
    D. Soften the leaf

11. Which one of the following statements is **NOT** correct about photosynthesis?
    A. Water is required C. oxygen is a by-product
    B. Sugar is produced D. Carbon dioxide is produced

12. The hardest part of the tooth is;
    A. Enamel B. Dentine C. Pulp cavity D. Gum

13. What is the main function of the phloem in green plants?
    A. Transporting water. C. Transporting mineral salts.
    B. Supporting the plant. D. Transporting manufactured food.

14. 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.

15. 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. ***(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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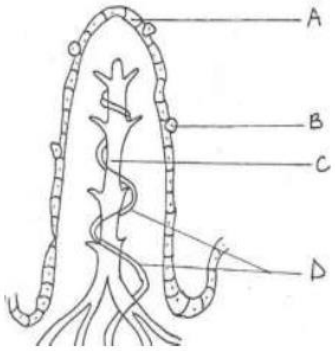
2. The diagram below shows the structure of a villus. Use it to answer the question that follow.



(a) Name the parts labeled A-D (02 marks)

A…… B…… C…… D…….…….

(b) What food substance enter (02 marks)

(i) A? .....

(ii) C? .....

(c) State two factors that make a villus an effective absorbing structure. (02 marks)

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(d) Give the blood vessel into which structure b (i) carries its contents (01 mark)

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(e) Which part of the alimentary canal has the highest number of the structure above? (01 mark)

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(f) State four adaptations of the part of the alimentary canal in the figure above to its functions. (04 marks)

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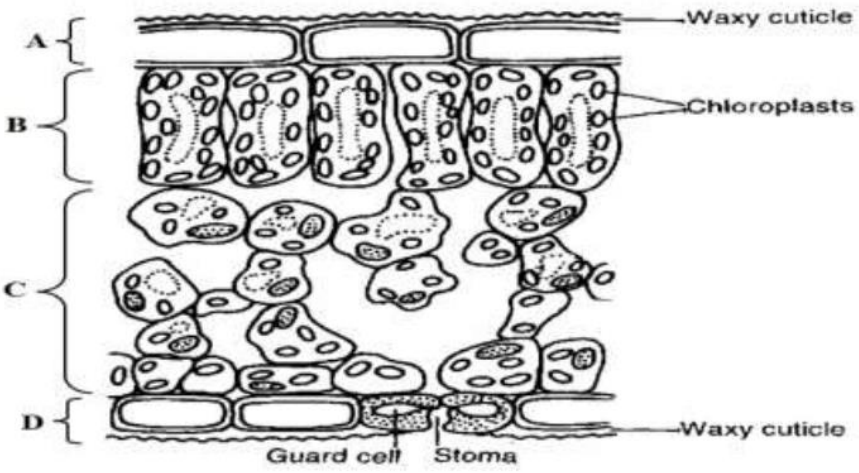
3. The diagram below shows a cross section of a typical leaf



(a) Name the layer labeled A to D (02 marks)

A…….. C……

B…….. D……

(b) Which of these layers has the highest rate of photosynthesis? Give a reason for your answer. (02 marks)

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(c) Give three differences between layers B and C. ***(03 marks)***

Layer b	**Layer c**

(d) Using evidence from the diagram, describe how the structure of a leaf is suited for photosynthesis. ***(04 marks)***

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(e) What is the importance of wax on layer (a)? ***(01 mark)***

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4. A plant with yellow leaves was crossed with a plant with green leaves. The gene for yellow leaves is recessive to that of green leaves. Using genetic symbols

(a) Show the possible genotypes and phenotypes of the F_1 offspring. ***(05 marks)***

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(b) (i) What is the genetic ratio if F1 is selfed? Show your working. ***(05 marks)***

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(ii) What is the phenotypic ratio of F2? ***(01 mark)***

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END!!!!

"What men have done, men can do"

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