S.3 BIOLOGY ASSESSMENT TEST 2

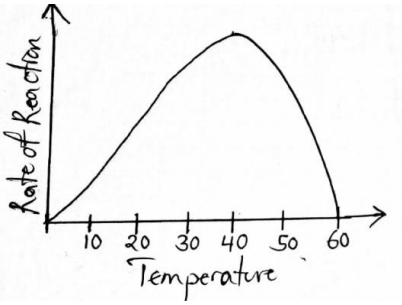
TIME: 90 MINUTES INSTRUCTIONS: Attempt all questions.

SECTION A

1. 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.
2. 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.
3. Which of the following parts of a plant cell provides shape and rigidity?
   A. Protoplasm B. Nucleus C. Cell wall D. Cell membrane
4. Lack of Iodine in the human diet causes
   A. Anaemia B. Goiter C. Scurvy D. Rickets
5. 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.
6. 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
7. **Figure 2** below showing the effect of temperature (^{0}C) on the rate of reaction.



   The optimum temperature of the enzyme in reaction shown in the figure 2 above is;
   A. 20^{0}C C. 40^{o}C
   B. 60^{o}C D. 30^{0}C
8. Which of the organism is not a heterotroph?
   A. Algae B. Mushroom C. Grass hopper D. Tick
9. Hydrolysis of proteins results into
   A. maltose B. glucose C. amino acids D. fatty acids and glycerol

10. The hardest part of the tooth is;
    A. Enamel B. Dentine C. Pulp cavity D. Gum
11. Which part of the leaf has the most chloroplasts?
    A. Upper epidermis C. Spongy mesophyll layer
    B. Palisade mesophyll layer D. Upper epidermis
12. Which of the following vitamins are soluble in fats.
    A. A,C,D,E B. A,B,C,K C. A,B,C,E D. A,D,E,K
13. Which one of the following food substances are not changed by the gut enzymes?
    A. Lipids and vitamins C. Minerals and disaccharides
    B. Minerals and vitamins D. Lipids and lactose
14. 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. There was too much glycogen in his blood
    D. He was suffering from diabetes
15. Which of the following mineral elements are for bone formation?
    A. Iodine, sodium and calcium C. Phosphorous, sodium and fluorine
    B. Iron, fluorine and calcium D. Calcium, fluorine and phosphorous
16. What mode nutrition is used by *Rhizopus?*
    A. Heterotropism C. Parasitism
    B. Autotrophism D. Saprophytism
17. Which of the following are the end products of the digestion one malt sugar?
    A. Glucose and fructose C. Fructose and galactose
    B. Glycerol and fructose D. Galactose and glucose
18. One of the major functions of vitamin C in the human body is
    A. To provide body resistance against diseases.
    B. To provide resistance against blood cells.
    C. To add bulk to food eaten.
    D. To increase the rate of heartbeat.
19. 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.
20. 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.

SECTION B

1. The table below shows a summary of food nutrients required in the body. Fill in the missing spaces to complete it. ***(10 marks)***

FOOD NUTRIENT	MAJOR FUNCTION	FOOD SOURCE	DEFICIENCY
Vitamin A	Clear vision	…….	……
…….	……...	…….	Kwashiorkor
…….	Major energy source	…….	……
Iron	Formation of haemoglobin	…….	……

2. (a) Name two types of dentition known to exist in mammals. ***(01 mark)***

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The diagram in figure 2 below shows a section through a tooth of a mammal. Study it and answer the questions that follow.

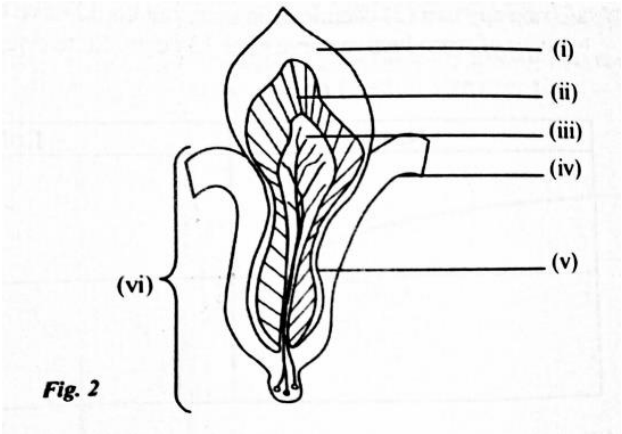

Fig. 2

(b). (i). Name the parts labeled (i) to (vi) ***(03 marks)***

(i)…… (iii)…….. (v)……..……..

(ii)…….. (v)……. (vi)……..

(ii). State the function of part labeled (iii). ***(01 mark)***

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(c). State the type of digestion performed by the teeth in mammals. ***(01 mark)***

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(d). Explain what would happen to a carbohydrate food sample the moment it reaches in the region where the above structure is found. ***(03 marks)***

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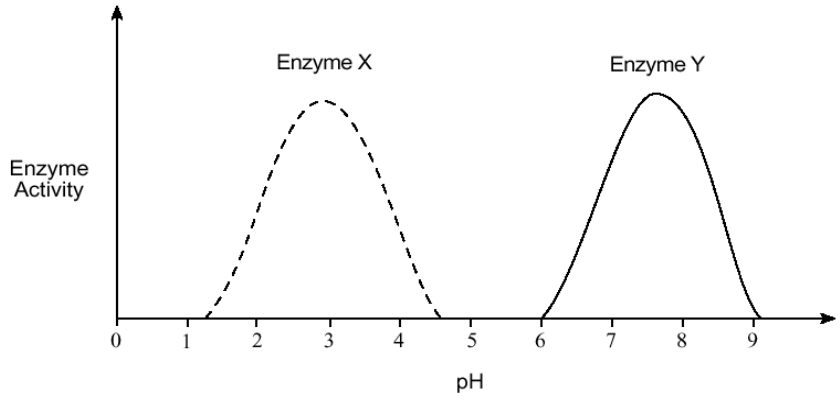
3. The graph below shows the effect of pH on the activity of enzymes X and Y.



(a) What is an enzyme? ***(02 marks)***

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(b) (i) Define the term optimum pH of an enzyme. ***(01 mark)***

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(ii) State the optimum pH for each enzyme. ***(02 marks)***

Enzyme X: …… **Enzyme Y**: ……

(c) (i) Give a reason for the pH of an enzyme being optimum. ***(01 mark)***

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(ii) Explain the effect of deviation from the optimum pH for each enzyme. ***(03 marks)***

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(d).Give any four properties of enzymes ***(04 marks)***

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4. An S3 student of Millennium SS carried out an experiment to find out the percentage of humus in a soil sample.

He recorded the following results;

(i) Weight of evaporating dish = 6g
(ii) Weight of Soil sample + evaporating dish (before heating) = 36g
(iii) Weight of Soil sample + evaporating dish (after heating gently) = 24g
(iv) Weight of Soil sample + evaporating dish (after heating strongly) = 20g

(a) (i). Why was the soil sample heated gently in the first time? ***(01 mark)***

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(ii) Why was the soil sample heated strongly in the second time? ***(01 mark)***

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(b) Calculate the;

(i) Weight of water in the soil sample ***(02 marks)***

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(ii) The percentage of water in the soil sample ***(01 marks)***

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(c) Calculate the percentage of humus in the soil sample? ***(03 marks)***

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(d) Define the following terms;

(i) Gravitational water ***(01 mark)***

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(ii) Capillarity water ***(01 mark)***

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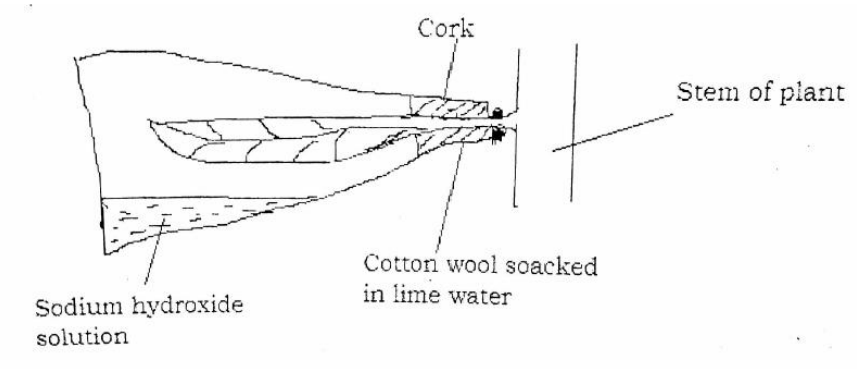
5. **The figure 3** below shows an experimental setup to investigate the conditions for photosynthesis. The plant is in light but was previously kept in the dark for 24 hours.



(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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END!!!!

"What men have done, men can do"

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