S.3 BIOLOGY ASSESSMENT TEST

TIME: 90 MINUTES TOPIC: RESPIRATION

INSTRUCTIONS: ***Attempt all questions***

SECTION A

1. Which one of the following food substances is the main source of energy in the body?
   A. Proteins B. Glucose C. Fats D. Vitamins
2. Under what condition is lactic acid likely to be accumulated in man?
   A. During sleep
   B. When engaged in a vigorous physical exercise.
   C. After breathing in excess and carbon dioxide.
   D. After consuming a lot of malt.
3. Which one of the following is common respiration and photosynthesis?
   A. Energy is released.
   B. Both occur in all living cells.
   C. Food oxidation is common to both.
   D. Oxygen, carbon dioxide and water are involved.
4. Which one of the following statements is the most appropriate definition of respiration?
   A. The oxidation of sugar to produce energy and water.
   B. Breathing in oxygen, oxidation of food and release of water, carbon dioxide and energy.
   C. The exchange of oxygen and carbon dioxide in the lungs.
   D. The oxidation of sugar to produce carbon dioxide and energy.
5. Aerobic respiration is more efficient than anaerobic respiration because it
   A. Uses more oxygen C. Uses less oxygen
   B. Yields lactic acid D. Yields more energy
6. Which one of the following shows the end products of anaerobic respiration in yeast?
   A. Carbon dioxide and ethanol C. Carbon dioxide and water
   B. Carbon dioxide and lactic acid D. Ethanol and lactic acid
7. Which one of the following organism has the highest surface area to volume ratio?
   A. Elephant B. Cow C. Goat D. Rabbit
8. Figure 2 is an experimental set up to demonstrate anaerobic respiration in yeast.

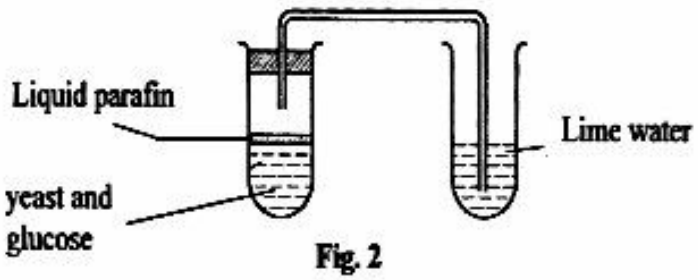

Fig. 2

The importance of liquid paraffin in the experiment is to
A. React with yeast and glucose
B. Speed up the reaction between yeast and glucose
C. Exclude atmospheric oxygen from the yeast – glucose mixture
D. Expel all the oxygen in the solution

9. What is a respiratory substrate? It is a substance that;
   A. Is produced during aerobic respiration
   B. Is produced during anaerobic respiration
   C. Is broken down during aerobic respiration
   D. Breaks down sugar during anaerobic respiration

10. Which one of the following food substances are believed to contain no energy value?
    B. Fats B. Vitamins C. Carbohydrates D. Proteins

11. Oxygen debt occurs during active physical exercise in mammals because
    A. Alcohol accumulates in the body
    B. Of anaerobic respiration that occurs
    C. Of high rate of breathing during exercise
    D. Carbon dioxide produced accumulates during the exercise

12. In addition to carbon dioxide, a germinating bean seed respiring anaerobically would also produce
    A. Water B. ethanol C. Lactic acid D. Citric acid

13. The following are products of tissue respiration in living organisms
    (i) Energy, *(iii) carbon dioxide,*
    (ii) water, *(iv) ethanol,* *(v) lactic acid*
    Which of them are common to both aerobic and anaerobic respiration in plants?
    A. (i) and (iii) B. (ii) and (iii) C. (i), (ii) and (iii) D. (ii), (iv) and (v)

14. Which of the food stuffs provides energy during starvation?
    A. Carbohydrates and Proteins C. Lipids and proteins
    B. Carbohydrates and lipids D. Carbohydrates and vitamins

15. Which of the following is the original source of energy used by nearly all organisms on earth?
    A. ATP. B. Sun. C. Plants. D. Heat.

SECTION B

16. (a) Define the terms;
    (i) Respiration ***(01 mark)***

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(ii) Photosynthesis ***(02 marks)***

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(b). Give three similarities and four differences between Respiration and photosynthesis
(i) Similarities ***(03 marks)***

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(ii) Differences *(04 marks)*

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17. The table below shows results of changes in the concentration of lactic acid in the blood of an athlete before, during and after a race. Study the data and use it to answer questions that follow.

Time/minutes	0	10	20	30	40	50	60	70	80
Lactic acid concentration in blood (mg/100cm^3)	20	49	70	88	70	48	36	20	20

(a) Plot the above information in a suitable graph. ***(06 marks)***

(b) **Describe how lactic acid concentration varied during the period of investigation.** ***(03½ marks)***

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(c) Explain what happened to the body of the athlete between;

(i) 0 minutes and 30 minutes. ***(03 ½ marks)***

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(ii) 30 minutes and 70 minutes ***(03 ½ marks)***

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(iii) 70 minutes and 80 minutes ***(01 ½ marks)***

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(d) Why did blood still contain lactic acid after the race? ***(01 mark)***

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(e) What is the effect of excessive accumulation of lactic acid in the body? ***(0½ mark)***

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(f) Name the process which occurred in the tissues during the race? ***(0 ½ mark)***

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(g) What is the significance of the process you named in (f) above? ***(01 mark)***

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SECTION C

18. *(a)* Define the term aerobic respiration? ***(01 mark)***

(b). Describe an experiment to show that carbon dioxide during aerobic respiration in an animal. ***(10 marks)***

(c). Explain the importance of respiration to animals. ***(04 marks)***

END!!!

"What men have done, man can do."