

## Homework 3-Respiration

1.

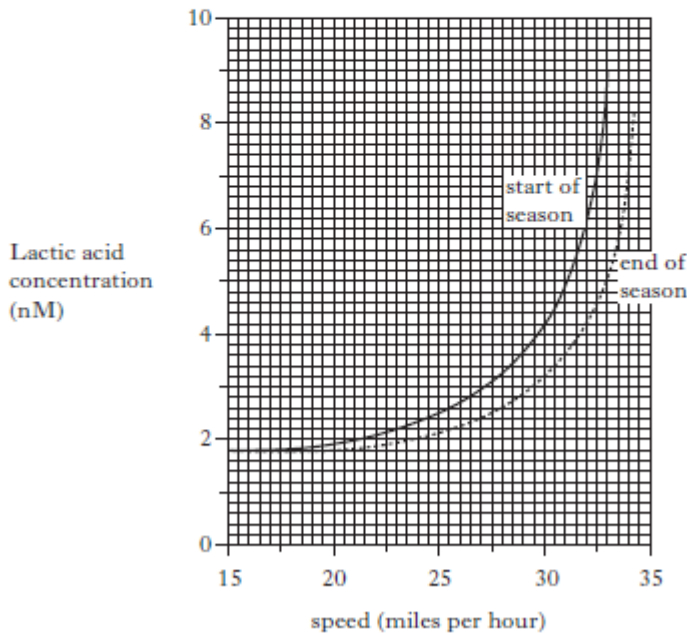
- (a) Lactic acid is a waste product from one type of respiration. What type of respiration produces lactic acid?

\_\_\_\_\_

1

- (b) The lactic acid content of the blood of a professional cyclist was measured while cycling at different speeds.

The graph shows the results of these measurements taken at the start of the racing season and at the end.



- (i) What was the lactic acid concentration when the cyclist was travelling at 15 miles per hour?

\_\_\_\_\_ nM

1

- (ii) At the start of the season, what was the speed of the cyclist when he was producing 50% of his maximum lactic acid concentration?

\_\_\_\_\_ miles per hour

1

- (iii) When lactic acid concentration rises above 2.5 nM, the leg muscles quickly lose power and become painful.

1 What name is given to this condition?

\_\_\_\_\_

1

2 What is the maximum speed this cyclist could maintain at the start of the season?

\_\_\_\_\_ miles per hour

1

4. Which line in the table below correctly identifies the yield of ATP per glucose molecule in aerobic and anaerobic respiration?

<i>Number of ATP molecules</i>		
	<i>Aerobic respiration</i>	<i>Anaerobic respiration</i>
A	2	18
B	2	38
C	18	2
D	38	2

5. Four reactions in the respiration pathway are shown below.

- 1 Glucose  $\rightarrow$  pyruvic acid
- 2 Pyruvic acid  $\rightarrow$  carbon dioxide + water
- 3 Pyruvic acid  $\rightarrow$  lactic acid
- 4 Pyruvic acid  $\rightarrow$  carbon dioxide + ethanol

Which of the reactions can occur in yeast?

- A 2 and 3 only
- B 2 and 4 only
- C 1, 2 and 3 only
- D 1, 2 and 4 only