

# Respiration

## Question Paper 6

|            |                        |
|------------|------------------------|
| Level      | International A Level  |
| Subject    | Biology                |
| Exam Board | CIE                    |
| Topic      | Energy and respiration |
| Sub Topic  | Respiration            |
| Booklet    | Theory                 |
| Paper Type | Question Paper 6       |

Time Allowed : 78 minutes

Score : / 65

Percentage : /100

Grade Boundaries:

| A*   | A     | B   | C     | D     | E   | U    |
|------|-------|-----|-------|-------|-----|------|
| >85% | 77.5% | 70% | 62.5% | 57.5% | 45% | <45% |

- 1 (a) Fig. 8.1 outlines some steps in glucose metabolism in mammalian cells.

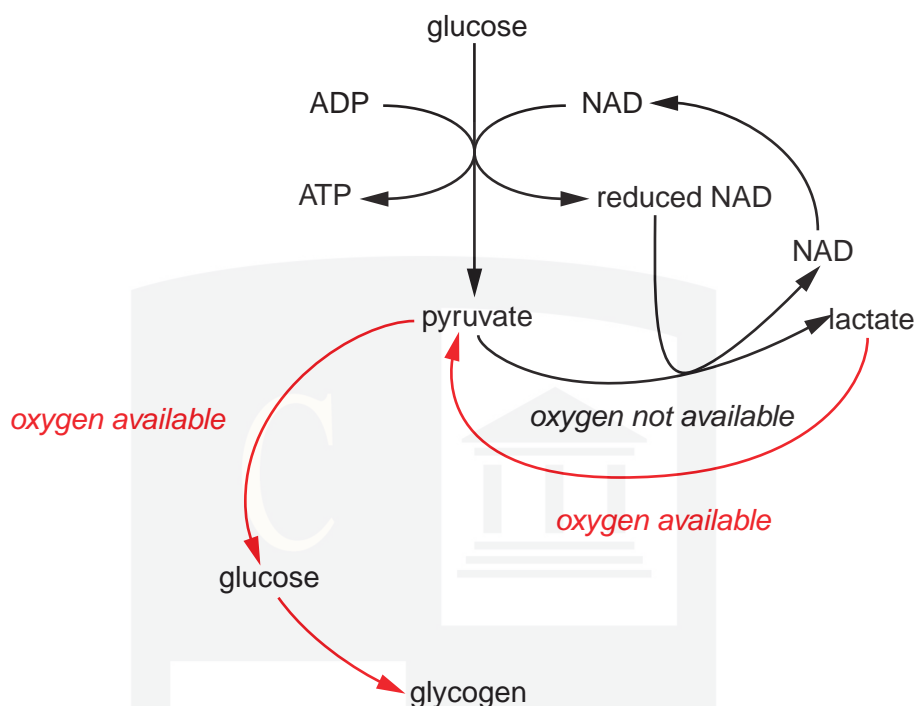



Fig. 8.1

With reference to Fig. 8.1:

- (i) name the part of the cell where glucose is converted to pyruvate  
.....[1]
- (ii) explain why, in the absence of oxygen, pyruvate needs to be converted to lactate  
.....  
.....  
.....  
.....[2]
- (iii) name the enzyme responsible for the conversion of pyruvate to lactate  
.....[1]
- (iv) name the type of reaction **and** the type of bonds formed when glucose molecules are used to make glycogen.  
*reaction* .....  
*bonds* .....[2]

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- The logo of the University of Cambridge, featuring a large 'C' and a building illustration.

- (i) State how the RQ is calculated.
- .....
- .....
- .....
- .....
- [2]

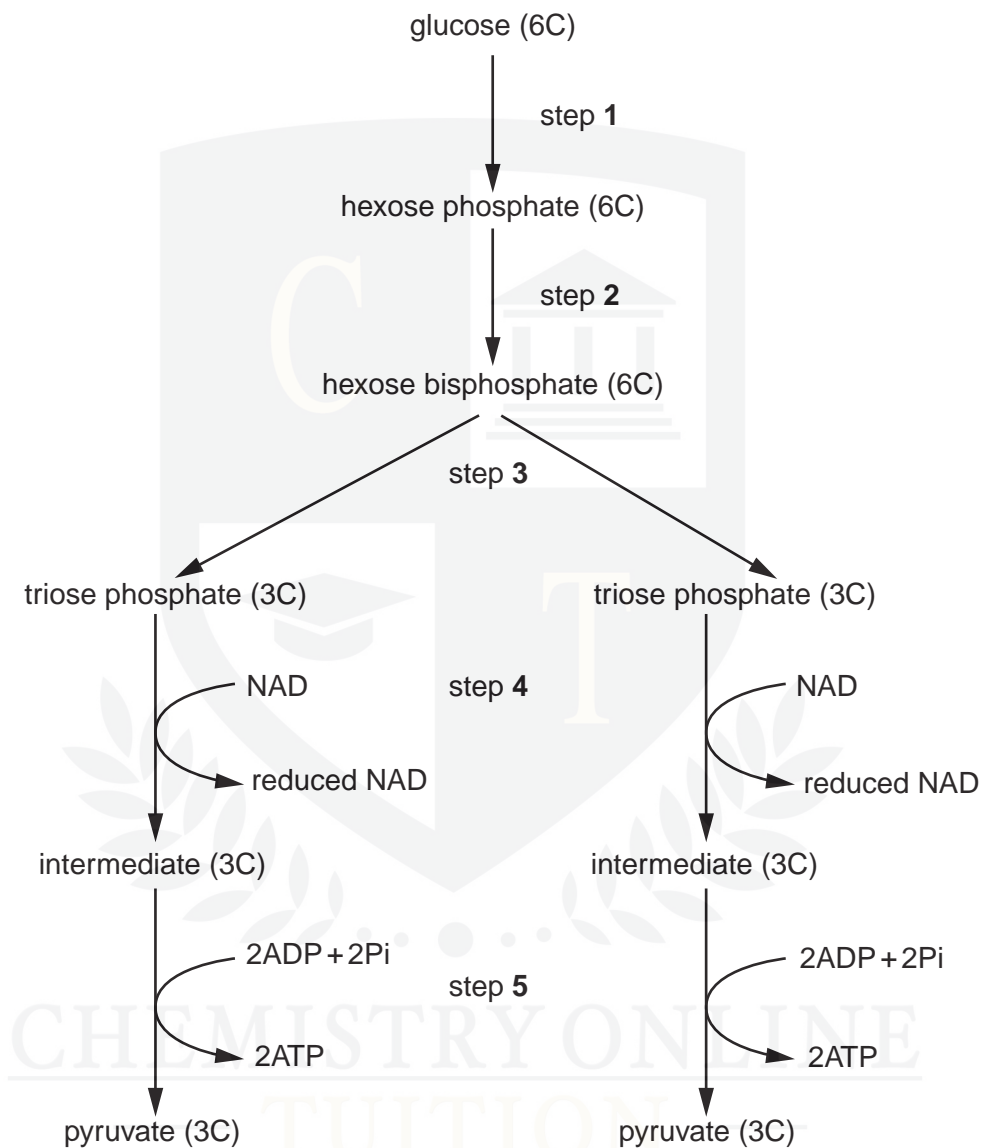
- carbohydrate.....
- lipid..... [2]

- .....[1]

asherrana@chemistryonlinetuition.com

- 2 During the process of glycolysis, glucose is converted by a series of steps into two molecules of pyruvate.

Fig. 6.1 outlines glycolysis.



**Fig. 6.1**

(a) With reference to Fig. 6.1, state the process occurring at:

- (i) steps 1 and 2 .....[1]
- (ii) step 3 .....[1]
- (iii) step 4. ....[1]

(b) Explain why glucose needs to be converted to hexose biphosphate.

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..... [2]

(c) Pyruvate can enter a mitochondrion when oxygen is present.

Describe what happens to pyruvate in a yeast cell when oxygen is **not** present.

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..... [4]

[Total: 9]

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- 3 (a) Fig. 6.1 outlines anaerobic respiration in yeast cells.

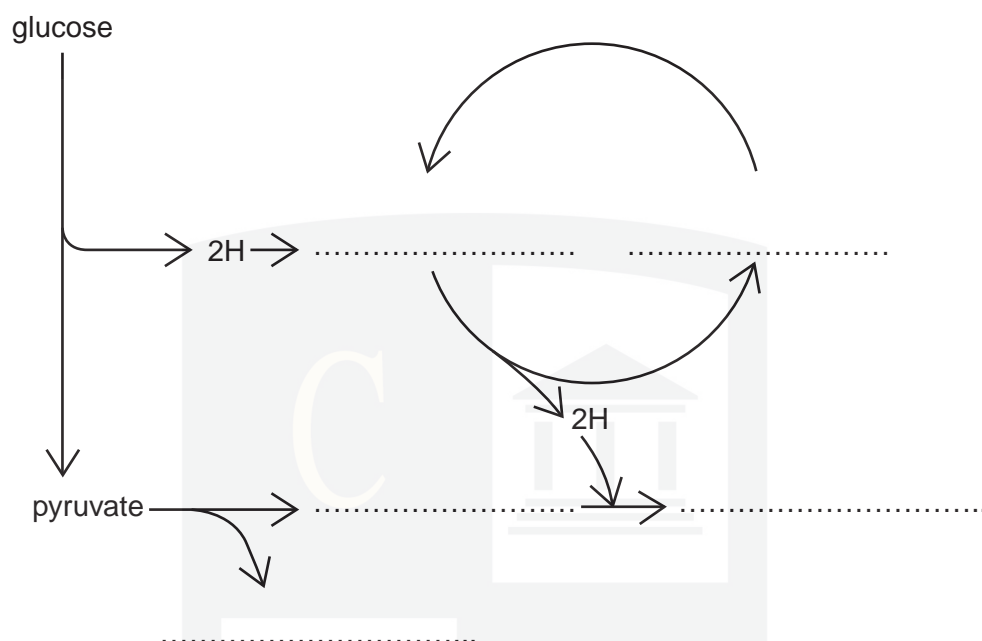


Fig. 6.1

Complete Fig. 6.1 by writing in the missing compounds.

[5]

- (b) Describe how anaerobic respiration in mammalian cells differs from anaerobic respiration in yeast cells.

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[3]



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- [Total: 15]







- 5 (a)** Outline the main features of the Krebs cycle. [9]
- (b)** Explain the role of NAD in aerobic respiration. [6]

[Total: 15]





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