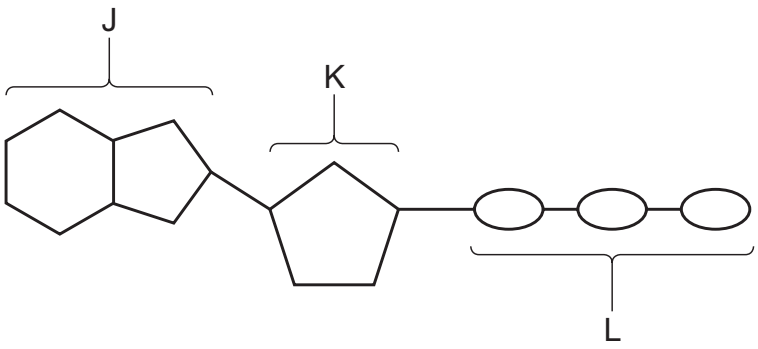
**24** The diagram represents a molecule of ATP.




What are the components of ATP labelled J, K and L?

| | J | K | L |
|---|---|---|---|
| **A** | adenine | deoxyribose | phosphates |
| **B** | adenosine | pentose | a phosphate group |
| **C** | adenosine | ribose | phosphorus |
| **D** | purine | pentose | phosphates |

**7** In aerobic respiration, most ATP is produced by oxidative phosphorylation.

**(a)** Outline the features of ATP that make it suitable as the universal energy currency.

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..... [3]

**(b)** Rotenone is a compound that affects oxidative phosphorylation.

Rotenone disrupts the first carrier in the electron transport chain by stopping the transfer of electrons from this carrier.

Suggest **and** explain how rotenone reduces the production of ATP **and** water in aerobic respiration.

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..... [6]

[Total: 9]

**1** Organisms need a source of energy for many cellular processes. Respiration involves the release of energy from energy-rich molecules for the synthesis of ATP molecules. ATP is described as the energy currency of cells.

**(a)** Name **two** energy-rich molecules that enter the respiration pathway to synthesise ATP.

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..... [2]

**(b)** Fig. 1.1 shows a molecule of ATP.

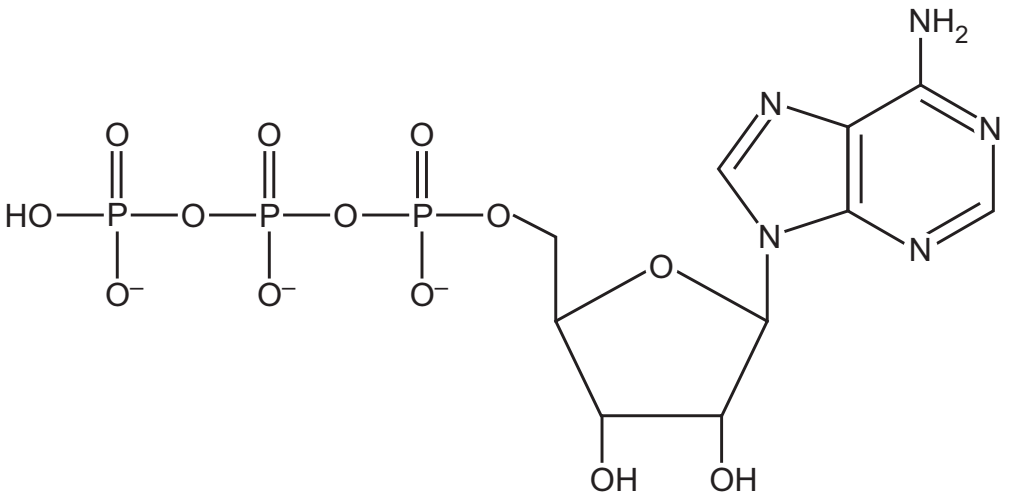


**Fig. 1.1**

Explain the features of ATP that make it suitable to be the universal energy currency of cells.

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..... [4]

**(c)** Identify the type of phosphorylation reaction to synthesise ATP that occurs during glycolysis and the Krebs cycle.

..... [1]

**(d)** **(i)** Pyruvate moves into the matrix of the mitochondrion only when a particular inorganic molecule is present.

Name the inorganic molecule that must be present in the cell for pyruvate to enter the matrix of the mitochondrion.

..... [1]

**(ii)** Explain how the presence of the inorganic molecule named in **(d)(i)** affects the ATP yield from respiration.

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..... [3]

[Total: 11]