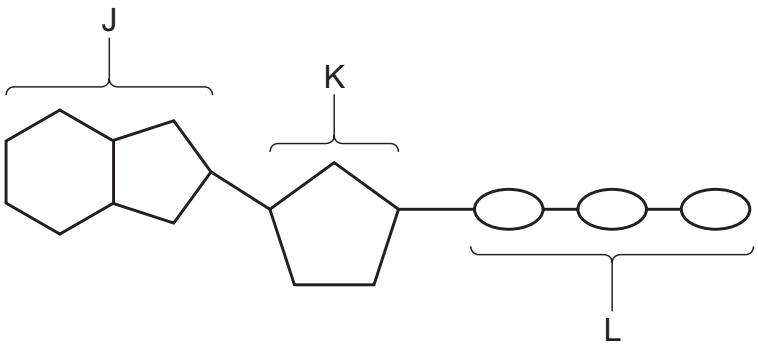
24 The diagram represents a molecule of ATP.



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.

.....

.....

.....

.....

.....

.....

..... [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.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [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.

.....

..... [2]

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

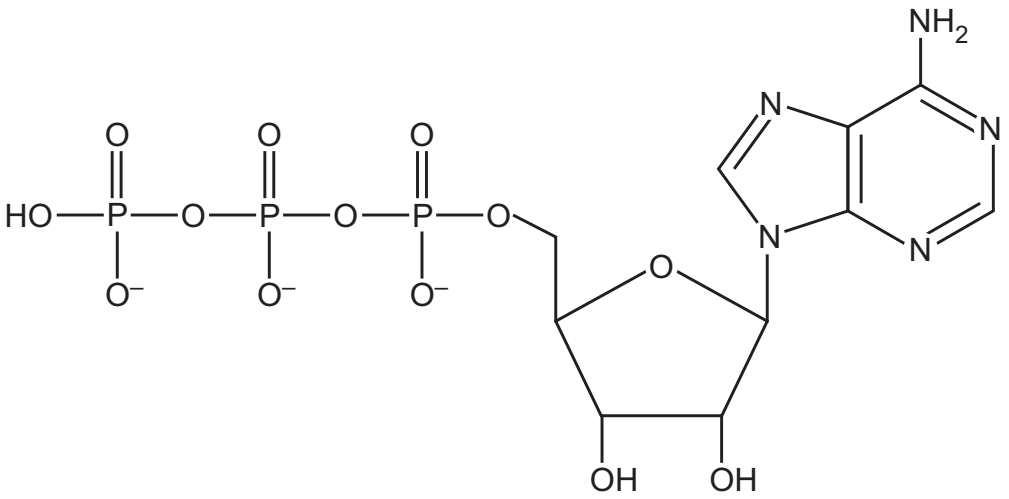


Fig. 1.1

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

.....

.....

.....

.....

.....

.....

.....

.....

..... [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.

.....

.....

.....

.....

.....

..... [3]

[Total: 11]