AQA A-LEVEL CHEMISTRY · 7405

CHEMISTRY



MARK SCHEME

3.3.13 AMINO ACIDS, PROTEINS AND DNA

SCORE	PERCENTAGE
/15	%

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Q1.

(a) 2-deoxyribose

1

(b) Base A

If Base B stated, allow 1 mark only for response including hydrogen bonding

1

Top N–H forms hydrogen bonds to lone pair on O of guanine

1

The lone pair of electrons on N bonds to H–N of guanine

1

A lone pair of electrons on O bonds to lower H–N of guanine

Allow all 4 marks for a correct diagram showing the hydrogen bonding

Students could also answer this question using labels on the diagram

1

(c) Allow either of the nitrogen atoms with a lone pair NOT involved in bonding to cytosine

1

(d) Use in very small amounts / target the application to the tumour

1

[7]

Q2.

(a) $Pt(NH_3)_2Cl_2 + H_2O \rightarrow [Pt(NH_3)_2Cl(H_2O)]^+ + Cl^-$

Correct product

1

Balanced equation

1

(b) (i) Hydrogen bond

1

Oxygen (or nitrogen)

Only score this mark if type of bond is correct

1

(ii) Co-ordinate

1

Nitrogen (or oxygen)

Bond type must be correct to score this mark but allow M2 if bond is covalent

1

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(c) Killing them or causing damage (medical side effects)

Allow any correct side effect (e.g. hair loss)
Allow kills healthy (or normal) cells

1

May attach to DNA in normal cells

1

[8]

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Q2.

It was very pleasing to note that most candidates made a good attempt at this unfamiliar, 'How Science Works' question. The most difficult part of the question was part 6(a) where only the best candidates could write a balanced equation showing the release of a chloride ion and the formation of a platinum complex with a single positive charge.