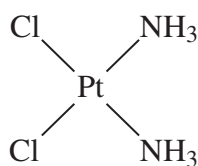
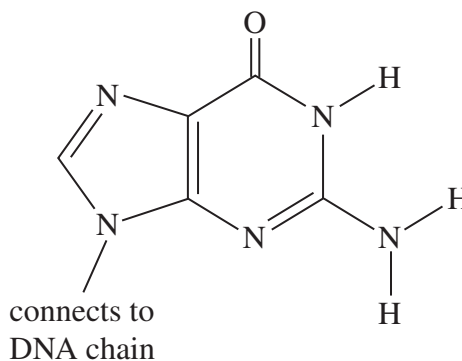


- 6 The complex cisplatin acts as an anticancer drug by changing the properties of DNA when it reacts with guanine, a component of DNA.



cisplatin



guanine

When cisplatin is absorbed into the human body, it undergoes a ligand substitution reaction and one chloride ligand is replaced by a water molecule forming a complex ion **Q**.

- 6 (a) Write an equation for this substitution reaction to form the complex ion **Q**.

.....
(2 marks)

- 6 (b) The complex ion **Q** can bond to guanine in two different ways.

- 6 (b) (i) The first way involves a hydrogen atom, from one of the ammonia ligands on **Q**, bonding to an atom in a guanine molecule. State the type of bond formed to guanine and identify an atom in guanine that could form a bond to this hydrogen atom.

Type of bond

Atom in guanine
(2 marks)

- 6 (b) (ii) The second way involves a ligand substitution reaction in which an atom in a guanine molecule bonds to platinum by displacing the water molecule from **Q**. State the type of bond formed between guanine and platinum when a water molecule is displaced and identify an atom in guanine that could bond to platinum in this way.

Type of bond

Atom in guanine
(2 marks)



- 6** (c) State and explain **one** risk associated with the use of cisplatin as an anticancer drug.

Risk

Explanation

(2 marks)

8

Turn over for the next question

Turn over ►

