CHEMISTRY ONLINE
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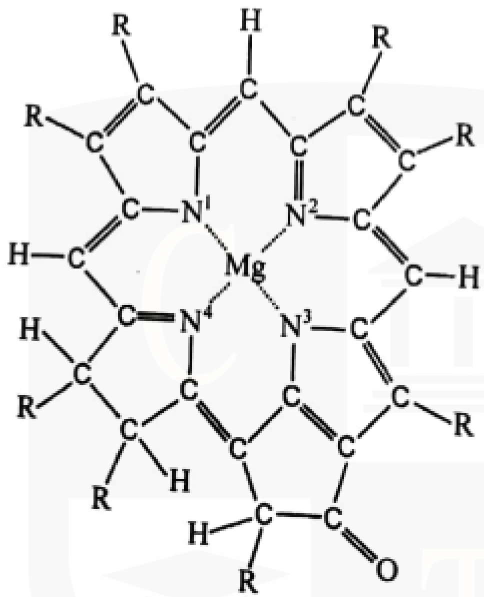
CHEMISTRY

MULTIPLE CHOICE - 7

CHEMICAL BONDING

Chemical Bonding - 7

1. Plants appear green due to the presence of chlorophyll. There are several closely related chlorophylls and the diagram shows a simplified version of one. The various different side-groups are all shown as R.



Note that the four N atoms and the Mg ion are planear.

which of the descriptions of the bonds between Mg and the numbered N atoms is most likely to be correct?

	N atoms Numbered	
	1 and 3	2 and 4
A	Co – ordinate	ionic
B	Co – ordinate	π
C	Ionic	Co – ordinate
D	π	Co – ordinate

Section B

For each of the questions in this section, one or more of the three membered statemensts 1 *to* 3 *may be correct.*

Decide whether each of the statements is or is not correct (*you may find it helpful to put a tick against the statements that you consider to be correct*).

The responses A to D should be selected on the basis of

No other combination of statements is used as a correct response.

A	B	C	D
1,2 and 3 are are correct	1 and 2 only are correct	2 and 3 only are correct	1 only are correct

2. Which of the following molecules and ions have a regular trigonal planar shape?

(1) $AlCl_3$ (2) CH_3^+ (3) PH_3

3. Which of the following are features of the structure of metallic copper?

(1) ionic bonds (2) delocalised electrons (3) lattice of ions

4. Which particles have a single unpaired electron?

(1) the copper ion in CuO (2) the methyl free radical (3) a molecule of NO

5. Which of the following solids have giant lattices?

(1) iodine (2) sodium (3) sodium iodide

6. In which of the following reactions is the bond angle in the product greater than that in the reactant?

(1) $H_2O(\ell) + H^+(aq) \rightarrow H_3O^+(aq)$

(2) $C_2H_4(g) + H_2(g) \rightarrow C_2H_6(g)$

(3) $CO_2(g) + OH^-(aq) \rightarrow HCO_3^-(aq)$

7. Which statements correctly describe the graphite lattice?

(1) The lattice contains delocalized electrons.

(2) Each carbon atom in the lattice has three closest neighbors.

(3) The valency of each carbon atom in the lattice is 3.

8. Which of the following systems contain delocalized electrons?

(1) cyclohexene (2) graphite (3) sodium

9. Which pairs compounds contain one that is giant ionic and one that is simple molecular?

(1) Al_2O_3 and Al_2Cl_6 (2) SiO_2 and $SiCl_4$ (3) P_4O_{10} and PCl_3

10. Silicon carbide has a similar structure of diamond.

Which of the following are advantages of using a silicon carbide ceramic compared with steel?

(1) Silicon carbide has a higher melting point.

(2) Silicon carbide is more resistant to oxidation.

(3) Silicon carbide is less likely to deform under compression.

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