Question Number	Answer	Acceptable answers	Mark
1(a)(i)	shared pair of electrons (between two atoms)	two shared electrons reject between two or more atoms	**(1)**

Question Number	Answer	Acceptable answers	Mark
1(a)(ii)	**D** it has a low boiling point		**(1)**

Question Number	Answer	Acceptable answers	Mark
1(b)	An description including **three** of the following points • cool (to about -200 °C) / liquefy (air) (1) • fractional distillation (1) • allow to warm / heat (1) • {nitrogen / lower boiling point} obtained from top of column (1) • {oxygen / higher boiling point} obtained from bottom of column (1)	 mention of fractionating column/ fractionation ignore state of nitrogen ignore state of oxygen can be separated because they have different boiling points(1) alternative to last two points	 **(3)**

Question Number		Indicative content	Mark
QWC	***1(c)**	An explanation linking some of the following points • carbon atoms joined by covalent bonds • each carbon atom bonded to three others • carbon atoms in hexagonal arrangement • layers • weak forces between layers • layers can slide (hence lubricant) • free electrons between layers • free electrons can move • and carry current (hence conduction of electricity)	**(6)**
Level	**0**	No rewardable content	
1	**1-2**	• a limited explanation e.g. the layers (of atoms) slide so used as lubricant • the answer communicates ideas using simple language and uses limited scientific terminology • spelling, puncuation and grammar are used with limited accuracy	
2	**3-4**	• a simple explanation e.g. the layers slide so used as lubricant and free electrons moveso conducts • the answer communicates ideas showing some evidence of clarity and organisation and uses scientific terminology appropriately • spelling, puncuation and grammar are used with some accuracy	
3	**5 -6**	• a detailed explanation e.g. there are free electrons between the layers and these move to carry the current and weak forces between the layers allow them to slide over one another easily hence lubricant • the answer communicates ideas clearly and coherently uses a range of scientific terminology accurately • spelling, puncuation and grammar are used with few errors	

Question Number	Answer	Acceptable answers	Mark
1(d)	electrode / brush electric motor / HT leads		**(1)**