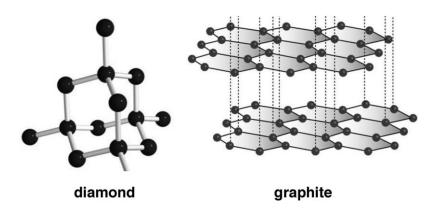


## GCSE Chemistry A (Gateway Science) J248/03 C1-C3 and C7 Higher (Higher Tier)

**Question Set 23** 

1 (a) The diagrams show the structures of two forms of carbon.



- Graphite is a good conductor of electricity.
- Diamond does not conduct electricity.

Use ideas about structure and bonding in diamond and graphite to explain these observations.

[3]

**(b)** Carbon can form many thousands of different compounds.

Two examples are shown below.

Why can carbon form many thousands of different compounds?

[1]

(c) Ethanol contains carbon.

Look at some information about ethanol.

- Melting point = -114°C
- Boiling point = 78°C

Predict the state of ethanol at 25°C. How can you tell?

[2]

## **Total Marks for Question Set 23: 6**

The Periodic Table of the Elements

													_									
0	18	2 <b>He</b>	helium 4.0	10	Ne	20.2	18	Ar	argon 39.9	36	궃	krypton	00.00	24	Xe	xenon 131.3	98	R	radon			
(/	•		17	6	щ	fluorine 19.0	17	CI	chlorine 35.5	35	ģ	bromine	9.8	23	П	lodine 126.9	85	At	astatine			
(9)			16	<sub>∞</sub>	0	oxygen 16.0	16	S	32.1	34	Se	selenium	0.87	25	Те	tellurium 127.6	84	S	polonium	116	۲	livermorium
(2)			15	7	z	nitrogen 14.0	15	۵	phosphorus 31.0	33	As	arsenic	6.4	51	Sb	antimony 121.8	83	ö	bismuth 209.0			
(4)			14	9	ပ	carbon 12.0	14	S	silicon 28.1	32	Ge	germanium	0.27	20	Sn	th 118.7	82	Pb	lead 207.2	114	F1	flerovium
(3)			13	2	В	boron 10.8	13	1 Y	aluminium 27.0	31	Ga	gallium GO 7	03.7	49	드	indium 114.8	81	11	thallium 204.4			
			'						12	30	Zn	zino	4.00	48	ၓ	cadmium 112.4	80	Η̈́	mercury 200.6	112	ວົ	copernicium
									11	59	చె	copper	02.0	47	Ag	siliver 107.9	79	Αn	gold 197.0	111	Rg	roentgenium
									10	28	Z	nickel	7.00	46	Pd	palladium 106.4	78	£	platinum 195.1	110	Ds	darmsta dijum
									6	27	ပိ	cobalt	90.9	45	몺	modium 102.9	77	=	iridium 192.2	109	M	meitnerium
									8	26	Fe	lron F.F. O	00.00	44	ß	101.1	9/	SO	08mium 190.2	108	£	hassium
									7	25	Mn	manganese	04.g	43	ည	technetium	75	æ	menium 186.2	107	뮵	bohrium
		ē	mass						9	24	ပ်	chromium	0.20	42	ø	molybdenum 95.9	74	>	tungsten 183.8	106	Sg	seaborgium
	Key	tomic number Symbol	name relative atomic mass						2	23	>	vanadium	90.9	41	q	niobium 92.9	73	Та	tantalum 180.9	105	S S	dubnium
		ato	relativ						4	22	F	ftanium 47.0	y. 74	40	Zr	arconium 91.2	72		hafinim 178.5		¥	rufherfordium
,									3	21	သွ	scandium	40.0	39	>	yttrium 88.9		57-71	lanthanoids	1	89–103	actin ol ds
(2)	_		2	4	Be	beryllium 9.0	12	Mg	magnesium 24.3	20	Ca	calcium 40.4	40.1	88	Š	strontium 87.6	26	Ba	barium 137.3	88	Ra	radium
Ξ	-	<b>←</b> I	hydrogen 1.0	3	:=	lithium 6.9	11	Na	sodium 23.0	19	¥	potassium	. SS. I	37	Sp.	rubidium 85.5	55	S	caesium 132.9	87	ᅩ	francium
	•																					



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