

AQA - Atomic structure and the periodic table – GCSE Chemistry Paper 1

1. June/2021/Paper_1F/No.3

0 3

Carbon can exist in a number of different structures.

0 3 . 1

What is the approximate radius of a carbon atom?

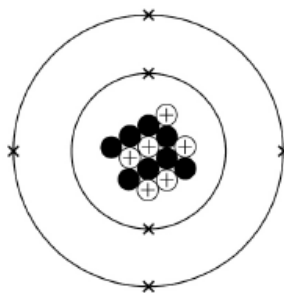
[1 mark]

Tick (✓) **one** box.0.1 m 0.1 mm 0.1 nm

0 3 . 2

Figure 3 shows an atom of carbon.

Figure 3



Describe the atomic structure of this carbon atom.

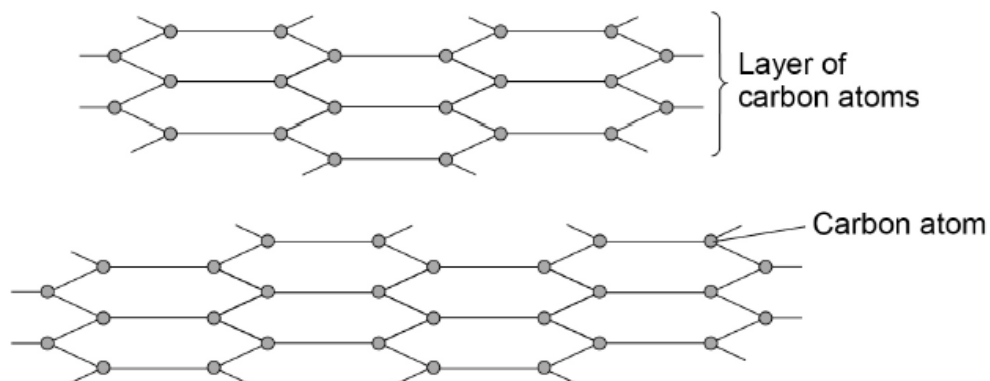
You should include the number of electrons, neutrons and protons.

[6 marks]

In graphite the carbon atoms are held together by bonds.

Figure 4 represents part of the structure of graphite.

Figure 4



0 3 . 3 How many bonds does each carbon atom have in graphite?

Use Figure 4.

[1 mark]

Tick (✓) one box.

1 2 3 4

0 3 . 4 What type of bonds hold the carbon atoms together in graphite?

[1 mark]

Tick (✓) one box.

Covalent

Ionic

Metallic

0 3 . 5 Lubricants allow objects to slide over each other easily.

Suggest why graphite can be used as a lubricant.

Use Figure 4.

[1 mark]

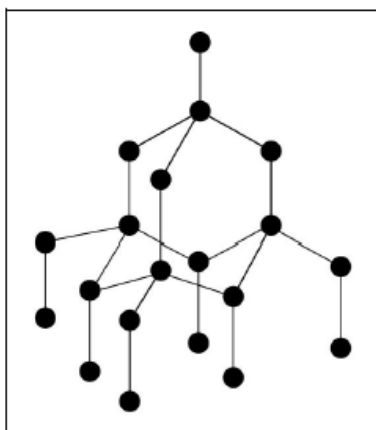
0 3 . 6 The two structures represent different forms of carbon.

Draw **one** line from each structure to the form of carbon.

[2 marks]

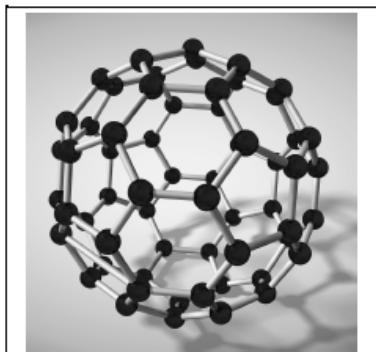
Structure

Form of carbon



Buckminsterfullerene

Diamond



Graphene

Nanotube

2. June/2021/Paper_1F/No.6

0 6

This question is about the periodic table.

0 6 . 1

Figure 11 shows part of Mendeleev's version of the periodic table.

Figure 11

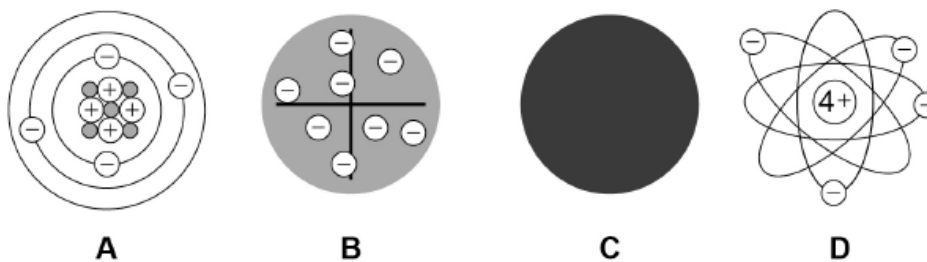
H																
Li	Be	B	C	N	O	F										
Na	Mg	Al	Si	P	S	Cl										
K	Cu	Ca	Zn		Ti	V	As	Cr	Se	Mn	Br	Fe	Co	Ni		
Rb	Ag	Sr	Cd	Y	In	Zr	Sn	Nb	Sb	Mo	Te		I	Ru	Rh	Pd

Which group of elements had **not** been discovered when Mendeleev's version of the periodic table was published?

[1 mark]

Figure 12 represents different models of the atom.

Figure 12



0 6 . 2 Which model represents the plum pudding model?

[1 mark]

Tick (✓) **one** box.

A

 B

 C

 D

0 6 . 3 Which model resulted from Chadwick's experimental work?

[1 mark]

Tick (✓) **one** box.

A

 B

 C

 D

Potassium has different isotopes.

0 6 . 4 What is meant by 'isotopes'?

You should refer to subatomic particles.

[2 marks]

0 6 . 5 **Table 2** shows the mass numbers and the percentage abundance of two isotopes of potassium.

Table 2

Mass number	Percentage abundance
39	93.1
41	6.9

Calculate the relative atomic mass (A_r) of potassium.

Give your answer to 1 decimal place.

[3 marks]

Relative atomic mass (1 decimal place) = _____

3. June/2021/Paper_1H/No.6

0 1

This question is about the periodic table.

0 1 . 1

Figure 1 shows part of Mendeleev's version of the periodic table.

Figure 1

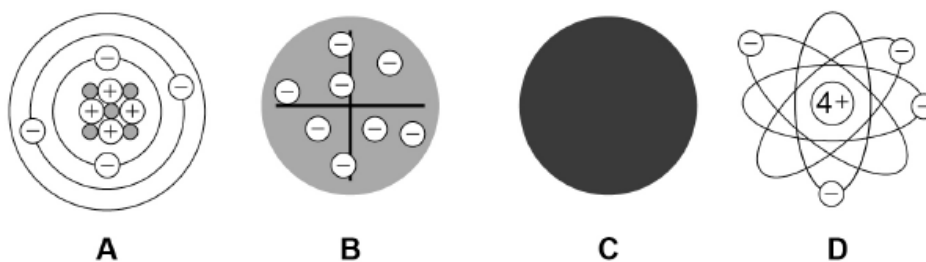
H																
Li	Be	B	C	N	O	F										
Na	Mg	Al	Si	P	S	Cl										
K	Cu	Ca	Zn		Ti	V	As	Cr	Se	Mn	Br	Fe	Co	Ni		
Rb	Ag	Sr	Cd	Y	In	Zr	Sn	Nb	Sb	Mo	Te		I	Ru	Rh	Pd

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[1 mark]

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