

AQA, OCR, Edexcel

GCSE Science

GCSE Chemistry

Structure and bonding of
carbon, Diamond and Graphite
Answers

M M E

Mathsmadeeasy.co.uk

Total Marks: /15

Visit <http://www.mathsmadeeasy.co.uk/> for more fantastic resources.

Q1) What

element is diamond?

A=Carbon

(1 mark)

Q2) Describe the structure of diamond.

A= Each carbon atom has four covalent bonds with other carbon atoms (1 mark) in a giant covalent structure (1 mark).

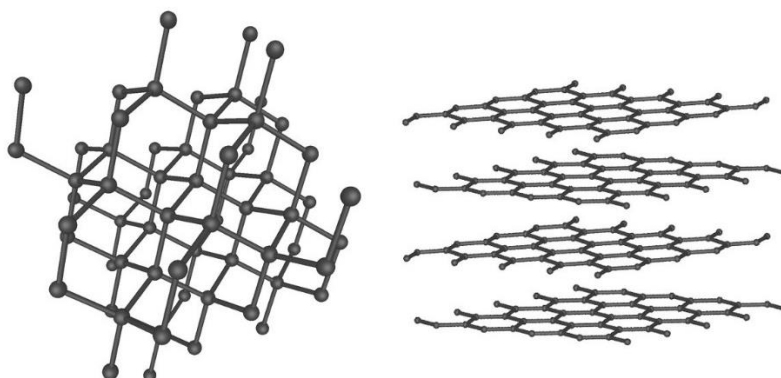
(2 marks)

Q3) Describe the properties of diamond.

A= Diamond is very hard (1 mark), has a very high melting point (1 mark) and does not conduct electricity (1 mark).

(3 marks)

Q4) This diagram shows the structural differences between diamond (left) and graphite (right).



Describe the differences between the two structures.

A= Graphite has three covalent bonds, whereas diamond has four (1 mark). Graphite has no covalent bonds between layers (1 mark)

(2 marks)

Q5) Graphite can conduct electricity, why is that?

A= In graphite there are only three carbon bonds (1 mark) therefore there is a delocalised electron and so can conduct electricity (1 mark).

(2 marks)

Visit <http://www.mathsmadeeasy.co.uk/> for more fantastic resources.

Q6) Define a fullerene.

A= Fullerenes are carbon molecules with a hollow shape (1 mark). Fullerenes consist of hexagonal rings of carbon (1 mark).

(2 marks)

Q7) Name the first fullerene to be discovered

A = Buckminsterfullerene

(1 mark)

Q8) What is a carbon nanotube?

A= Cylindrical fullerenes (1 mark) with very high length to diameter ratios (1 mark).

(2 marks)