Bonding, structure and properties

Chemistry Paper 1 | 30 quick questions

GCSE science knowledge recall

Answer online, marked instantly

Name: _____ **Date:** _____ **Score:** _____ **/ 30**

1 Which type of bonding forms between a metal and a non-metal?

2 Which type of bonding forms between non-metal atoms?

3 Magnesium is in Group 2. What is the charge on a magnesium ion?

4 Chlorine is in Group 7. What is the charge on a chloride ion?

5 What type of structure do ionic compounds have? Answer in two words.

6 Calcium ions are Ca^{2+} and chloride ions are Cl^{-}. What is the formula of calcium chloride?

7 In a single covalent bond, what is shared between the two atoms?

8 In metallic bonding, what word describes the outer electrons that are free to move through the whole structure?

9 What is the name for the change of state from gas to liquid?

10 The simple particle model shows particles as solid what, with no forces between them? Answer in one word.

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11 Which state symbol shows a substance is dissolved in water?

12 Explain why molten sodium chloride conducts electricity but solid sodium chloride does not.

13 When a substance made of small molecules boils, what is overcome: the covalent bonds or the intermolecular forces?

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14 Substances made of small molecules do not conduct electricity because the molecules have no overall what?

15 What is the name for very large molecules made of many repeating units joined by covalent bonds?

16 Sand is mainly which giant covalent compound? Give the name.

17 Pure metals are soft because the layers of atoms can do what? Answer in one word.

18 What is the name for a mixture of a metal with other elements, often other metals?

19 Which form of carbon is very hard and has a very high melting point?

20 In diamond, each carbon atom forms covalent bonds with how many other carbon atoms?

21 In graphite, each carbon atom forms covalent bonds with how many other carbon atoms?

22 Explain why graphite is soft and slippery.

23 What is the name for a single layer of graphite, one atom thick?

24 What is the name of the first fullerene discovered, a hollow sphere of 60 carbon atoms?

25 What name is given to cylindrical fullerenes with a very high length to diameter ratio?

26 Nanoparticles are between 1 and how many nanometres in size?

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27 Fine particles ($PM_{2.5}$) have diameters between 100 nm and how many nanometres?

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28 Compared with the same material in bulk, nanoparticles have a much higher what ratio?

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29 If the side of a cube is made 10 times smaller, by what factor does its surface area to volume ratio increase?

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30 Give one possible risk of using nanoparticles in sun creams.

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