FOUNDATION

2.2 Bonding, Structure and Properties of Matter: 10-minute Pack

Total Marks

AQA 8462 · Calculator allowed · about 10 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Covalent bonding involves sharing electrons.

(a) State whether a covalent bond is formed by sharing or transferring electrons. **(1)**

(Total for Question 1 is 1 mark)

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2 A small sample of neon gas is cooled and becomes a liquid at its boiling point of -246°C.

(a) State whether neon atoms are held together by ionic, covalent or weak intermolecular forces in the liquid. **(1)**

(b) Give a reason why noble gases have very low boiling points. **(1)**

(Total for Question 2 is 2 marks)

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3 A student is given descriptions and must identify the type of bonding.

(a) Identify the type of bonding in sodium chloride. **(1)**

(b) Identify the type of bonding in chlorine gas, Cl_2. **(1)**

(c) Identify the type of bonding in copper metal. **(1)**

(Total for Question 3 is 3 marks)

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4 A metal sample is a good conductor and can be hammered into a sheet.

(a) Explain why metals conduct electricity. **(1)**

(b) Explain why metals are malleable (can be hammered into a sheet). **(1)**

(Total for Question 4 is 2 marks)

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Mark scheme · 2.2 Bonding, Structure and Properties of Matter: 10-minute Pack

Question 1

(a) sharing electrons cao **B1**

(a) Answer: Sharing electrons.

Question 2

(a) weak intermolecular forces (Van der Waals) cao **B1**

(a) Answer: Weak intermolecular forces (Van der Waals).

(b) single atoms with very weak intermolecular forces so little energy is needed to separate them, oe **B1**

(b) Answer: They exist as single atoms with very weak intermolecular forces, so little energy is needed to separate them.

Question 3

(a) ionic cao **B1**

(a) Answer: Ionic

(b) covalent cao **B1**

(b) Answer: Covalent

(c) metallic cao **B1**

(c) Answer: Metallic

Question 4

(a) delocalised electrons are free to move and carry charge, oe **B1**

(a) Answer: Because delocalised electrons in the metal are free to move and can carry charge.

(b) layers of atoms can slide over each other while the sea of electrons holds the structure together, oe **B1**

(b) Answer: Because layers of atoms can slide over each other without breaking metallic bonding, with delocalised electrons holding the structure together.

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