1. Gas pressure is caused by:

   ☐ molecules colliding with the walls of the container

   ☐ the mass of the gas pulling down

   ☐ molecules joining together

   ☐ forces between molecules

2. A simple molecular solid (like iodine) has:

   ☐ strong bonds inside each molecule but weak forces between molecules

   ☐ a sea of delocalised electrons around ions

   ☐ a giant lattice of oppositely charged ions

   ☐ a covalent network of atoms in every direction

3. A substance has a high melting point when:

   ☐ only weak intermolecular forces break

   ☐ it is a small molecule

   ☐ strong forces (ionic, covalent or metallic) must be broken

   ☐ it has no bonds

4. An ideal gas is assumed to have:

   ☐ a fixed shape

   ☐ large particles with strong forces

   ☐ particles that never move

   ☐ particles of zero volume and no forces between them

5. A giant molecular (giant covalent) structure is:

   ☐ metal ions in an electron sea

   ☐ ions in a lattice

   ☐ a huge network of atoms joined by strong covalent bonds

   ☐ separate small molecules

6. Simple molecular substances have low melting points because their covalent bonds are weak.

   ☐ True ☐ False

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☐ True ☐ False

8. Diamond and graphite are examples of giant _____ structures.

   _____

9. An ionic solid conducts electricity:

   ☐ never, because ions cannot carry charge

   ☐ always, because it contains charged ions

   ☐ only when molten or dissolved, so the ions can move

   ☐ when solid, because the ions vibrate

10. A real gas behaves LEAST like an ideal gas at:

    ☐ any temperature

    ☐ standard conditions only

    ☐ high pressure and low temperature

    ☐ low pressure and high temperature

1. **molecules colliding with the walls of the container**

   Each collision with the wall gives a tiny push; the many pushes add up to the pressure.

2. **strong bonds inside each molecule but weak forces between molecules**

   Simple molecular substances are small molecules: strong covalent bonds inside, weak intermolecular forces between.

3. **strong forces (ionic, covalent or metallic) must be broken**

   Breaking strong bonds needs lots of energy, giving a high melting/boiling point; weak forces give a low one.

4. **particles of zero volume and no forces between them**

   The ideal-gas model assumes point particles (zero volume) with no intermolecular forces.

5. **a huge network of atoms joined by strong covalent bonds**

   Diamond, graphite and silicon(IV) oxide are giant covalent networks of atoms.

6. **False**

   False. The covalent bonds inside the molecules are strong. Melting only overcomes the weak forces between molecules, which is why the melting point is low.

7. **False**

   False. Real gases deviate most at high pressure and low temperature, where particles are close together and their volume and attractions matter. They are most ideal at low pressure and high temperature.

8. **covalent**

   Networks of covalently bonded atoms.

9. **only when molten or dissolved, so the ions can move**

   The ions are fixed in the solid lattice; only when molten or dissolved can they move and carry charge.

10. **high pressure and low temperature**

    At high pressure and low temperature the particles are crowded, so their size and attractions matter.

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