Metallic Bonding and Conductivity Worksheet

Scoring guide · one credit per question · review written work against each rubric

Metallic Bonding and Conductivity

Question 1

Choice (2)

Delocalized electrons can move through the metal and carry charge.

Question 2

The delocalized electrons are negatively charged and attract the positive metal ion cores. These attractions help bind the cores in the solid.

Question 3

Choice (2)

The electron distribution can continue to bind metal cores when layers shift.

Question 4

The metal has mobile delocalized electrons. In a solid ionic crystal, ions are held in place and cannot move freely to carry current.

Comparing Conducting Strips

Question 5

Choice (1)

Copper has the lowest resistance, 0.20 Ω.

Question 6

Divide 1.20 Ω by 0.20 Ω to obtain 6.0 times as great.

Question 7

Choice (3)

Changing cross-sectional area can affect resistance independently of material.

Question 8

Mobile delocalized electrons carry charge in both metals. The copper strip measures 0.20 Ω and the iron strip measures 1.20 Ω.