CHEMISTRY — TEST 4

August 27, 2026

Duration: 50 minutes

Part A — Short Answer

1. State the octet rule in one sentence.

2. Classify the bond formed between sodium and chlorine in NaCl as ionic, covalent, or metallic.

3. Draw the Lewis structure of carbon dioxide, CO_2.

Part B — Extended Response

4. Explain, with reference to electronegativity, why the H–F bond in hydrogen fluoride is polar covalent while the H–H bond in hydrogen gas is nonpolar covalent.

5. A student claims that all ionic compounds conduct electricity in the solid state. Explain why this claim is incorrect, and describe the condition under which an ionic compound *does* conduct electricity.