

Question 1: How many **unpaired** electrons are present on each element below? How many bonds does each element typically form?

carbon	_____	boron	_____
oxygen	_____	iodine	_____
phosphorus	_____	nitrogen	_____

Question 2: Give the name for each molecule below.

CO ₂	_____
CO	_____
PCl ₃	_____
N ₂ O ₄	_____
OBr ₂	_____

Question 3: Give the chemical formula for each molecule below.

sulfur trioxide	_____
tetraphosphorous decoxide	_____
nitrogen monoxide	_____
disilicon hexabromide	_____
carbon tetrachloride	_____

Question 4: Give the molecular shape for each molecule below.

H ₂ S	_____
BF ₃	_____
CH ₄	_____
NH ₃	_____
CS ₂	_____

Question 5: Order each set of atoms in order of increasing electronegativity.

boron, nitrogen, carbon

iodine, fluorine, chlorine

silicon, magnesium, barium

Question 6: For each molecule below,

- Draw the Lewis structure
- Give the molecular shape around each central atom
- Label all **polar** covalent bonds with their partial negative and partial positive charges
- Determine if the molecule is polar or non-polar overall

