

Q₁. Write the Lewis structure for each of the following molecules or ions. Indicate which central atoms break the octet rule, and why.

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| (a) PCl_5 | (e) BeF_2 | (i) CF_3 |
| (b) IF_7 | (f) POCl_3 | (j) ICl_2^- |
| (c) BH_2^+ | (g) XeF_4 | (k) PbCl_2
(covalent) |
| (d) ClO_2 | (h) SOF_4 | (l) AlF_6^{3-} |

Q₂. Molten beryllium chloride reacts with chloride ion from molten NaCl to form the BeCl_4^{2-} ion, in which the Be atom attains an octet. Show the net ionic reaction with Lewis structures.

Q₃. Write the Lewis structure for each of these molecules or ions.

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| (a) BrF_5 | (b) IF_5 | (c) IBr_2^- |
| (d) I_3^- | (e) BrF_3 | |

Q₄. Draw a Lewis structure for BrO_4^- in which all atoms have lowest formal charges.

Q₅. Phosgene is highly toxic gas employed against troops in World War I. Select the most favored structure from the following resonance structures.

