

Each group will receive a description of a compound, and then several possibilities for the chemical formula of that compound. Which formula best fits the description?

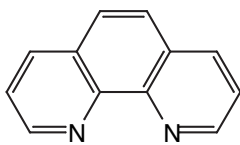
- a. This dark red compound is diamagnetic. The intense visible band is at longer wavelength in water than in organic solvents. It can be oxidized by one electron to give another compound with magnetic moment (μ_{eff}) of 1.7.

[Cu(dmt)₂]⁻, [Cu(dmt)₂], [Cu(phen)₂]⁺, [Cu(NH₃)₄]⁺ (see abbreviations below)

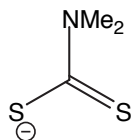
- b. This diamagnetic compound reacts rapidly to bind triethylamine. It has an intense, solvent-dependent visible absorption, at longer wavelength than the rhenium analogue with the same number of *d* electrons.

[Os(CO)₆], [Os(NH₃)₆]³⁺, [Os(py)₆]²⁺, OsO₄ (see abbreviations below)

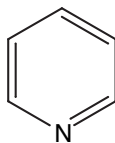
abbreviations:



phen

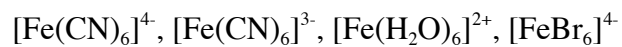


dmt



py

- c. This Fe(II) complex has a weak visible absorption band that has a wavelength independent of solvent polarity. When the complex is oxidized by one electron, it becomes nearly colorless.



- d. This paramagnetic molecule has D_{4h} symmetry.

