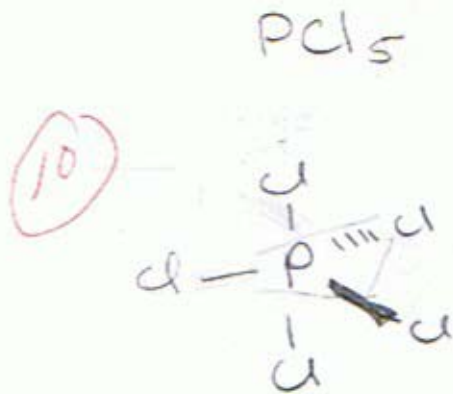


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1. (10 points)

Phosphorus pentachloride is nonpolar (dipole moment = 0) and phosphorus trichloride is polar (dipole moment = 0.56D). Explain these observations using VSEPR. (Note: a full answer includes drawings of the molecules in three dimensional perspective, i.e., using wedges and dashed lines.)



trigonal bipyramid.



trigonal pyramid.

PCl_3 is polar because of the presence of the lone pair, while PCl_5 the dipole moment will be cancelled out.