Chapter 11 Homework: VSEPR and Valence Bonding

1.Select all the polar molecules.


|  |  |  |
| --- | --- | --- |
|  | a. | BrF5    |
|  | b. | BF3    |
|  | c. | PF6−    |
|  | d. | IF4−    |
|  | e. | NH4+    |
|  | f. | CH2F2    |
| Select all the polar molecules.https://webcttoday.sunybroome.edu/web-ct/en/img/shim.gif

|  |  |  |
| --- | --- | --- |
|  | a. | I3−    |
|  | b. | IF3    |
|  | c. | TeF42−    |
|  | d. | SeF4    |
|  | e. | ClO3−    |
|  | f. | ClO4−    |
| What is the molecular geometry for AsCl4+?https://webcttoday.sunybroome.edu/web-ct/en/img/shim.gif

|  |  |  |
| --- | --- | --- |
|  | a. | trigonal planar    |
|  | b. | tetrahedral    |
|  | c. | square planar    |
|  | d. | see-saw    |
|  | e. | trigonal pyramidal    |
|  | f. | trigonal bipyramidal   |
| What is the molecular geometry for I3−?https://webcttoday.sunybroome.edu/web-ct/en/img/shim.gif

|  |  |  |
| --- | --- | --- |
|  | a. | trigonal bipyramidal    |
|  | b. | tetrahedral    |
|  | c. | bent    |
|  | d. | trigonal planar    |
|  | e. | trigonal pyramidal    |
|  | f. | linear    |

Select all the molecules that have tetrahedral molecular geometry.https://webcttoday.sunybroome.edu/web-ct/en/img/shim.gif

|  |  |  |
| --- | --- | --- |
|  | a. | BF4−    |
|  | b. | CHCl3    |
|  | c. | SF4    |
|  | d. | XeF4    |
|  | e. | TeF42−    |
|  | f. | PO43−    |

What hybrid orbitals are used by the central atom in IF3?https://webcttoday.sunybroome.edu/web-ct/en/img/shim.gif

|  |  |  |
| --- | --- | --- |
|  | a. | sp2    |
|  | b. | sp3    |
|  | c. | sp3d2    |
|  | d. | sp3d    |
|  | e. | sp    |
| Select all the polar molecules.https://webcttoday.sunybroome.edu/web-ct/en/img/shim.gif

|  |  |  |
| --- | --- | --- |
|  | a. | ClO3−    |
|  | b. | BF3    |
|  | c. | PH3    |
|  | d. | ClF3    |
|  | e. | I3−    |
|  | f. | SO3    |
| What is the molecular geometry for IF2+?https://webcttoday.sunybroome.edu/web-ct/en/img/shim.gif

|  |  |  |
| --- | --- | --- |
|  | a. | bent    |
|  | b. | T-shaped    |
|  | c. | tetrahedral    |
|  | d. | see-saw    |
|  | e. | linear    |
|  | f. | trigonal planar    |
| What hybrid orbitals are used by the central atom in I3−?https://webcttoday.sunybroome.edu/web-ct/en/img/shim.gif

|  |  |  |
| --- | --- | --- |
|  | a. | sp3    |
|  | b. | sp2    |
|  | c. | sp3d2    |
|  | d. | sp3d    |
|  | e. | sp    |

What is the molecular geometry for ClO2−?https://webcttoday.sunybroome.edu/web-ct/en/img/shim.gif

|  |  |  |
| --- | --- | --- |
|  | a. | tetrahedral    |
|  | b. | bent    |
|  | c. | linear    |
|  | d. | trigonal bipyramidal    |
|  | e. | trigonal pyramidal    |
|  | f. | trigonal planar    |

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