Given the correct Lewis structure below, answer the following questions. [5 pts]

![Lewis structure](image)

1. What is the electron pair arrangement of the central atom?
   a) linear  b) trigonal planar  c) tetrahedral  d) trigonal bipyramidal  e) octahedral

2. What is the geometry about the central atom?
   a) see-saw  b) square planar  c) square pyramid  d) trigonal bipyramidal  e) octahedral

3. What is/are the bond angle(s) in the molecule?
   a) 120°  b) 180°  c) 90°, 180°  d) 90°, 120°  e) 109°

4. What is the polarity of the molecule?
   a) polar  b) nonpolar

5. What hybrid orbitals are used by the central atom in bonding?
   a) sp  b) sp²  c) sp³  d) sp³d  e) sp³d²

Given the correct Lewis structure below, answer the following questions. [5 pts]

![Lewis structure](image)

6. What is the electron pair arrangement of the central atom?
   a) linear  b) trigonal planar  c) tetrahedral  d) trigonal bipyramidal  e) octahedral

7. What is the geometry about the central atom?
   a) see-saw  b) square planar  c) trigonal pyramid  d) tetrahedral  e) trigonal bipyramidal

8. What is/are the bond angle(s) in the molecule?
   a) 90°  b) 120°  c) 90°, 180°  d) 90°, 120°, 180°  e) 109°

9. What is the polarity of the molecule?
   a) polar  b) nonpolar

10. What hybrid orbitals are used by the central atom in bonding?
    a) sp  b) sp²  c) sp³  d) sp³d  e) sp³d²
Given the correct Lewis structure below, answer the following questions. [5 pts]

11. What is the electron pair arrangement of the central atom?
   a) linear  b) trigonal planar  c) tetrahedral  d) trigonal bipyramidal  e) octahedral
12. What is the geometry about the central atom?
   a) trigonal pyramid  b) trigonal planar  c) T-shaped  d) tetrahedral  e) bent
13. What is/are the bond angle(s) in the molecule?
   a) 90°, 180°  b) 120°  c) 109°  d) 180°  e) 90°, 120°
14. What is the polarity of the molecule?
   a) polar  b) nonpolar
15. What hybrid orbitals are used by the central atom in bonding?
   a) sp  b) sp^2  c) sp^3  d) sp^3d  e) sp^3d^2

Given the correct Lewis structure below, answer the following questions. [5 pts]

16. What is the electron pair arrangement of the central atom?
   a) linear  b) trigonal planar  c) tetrahedral  d) trigonal bipyramidal  e) octahedral
17. What is the geometry about the central atom?
   a) bent  b) linear  c) trigonal planar  d) tetrahedral  e) t-shaped
18. What is/are the bond angle(s) in the molecule?
   a) 180°  b) 90°, 120°  c) 120°  d) 90°, 180°  e) 109°
19. What is the polarity of the molecule?
   a) polar  b) nonpolar
20. What hybrid orbitals are used by the central atom in bonding?
   a) sp  b) sp^2  c) sp^3  d) sp^3d  e) sp^3d^2

21. How many sigma (σ) and pi (π) bonds are in the following molecule? Don’t forget to count the bonds in the CH₂ and CH₃ groups. [4 pts]

   33 σ, 5 π