

KWANTLEN UNIVERSITY COLLEGE
CHEMISTRY 1110 S-10
EXAM No. 2
Thursday March 26, 1998

ANSWER KEY

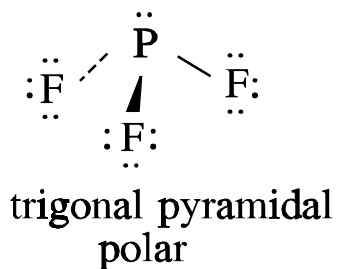
Note: Detailed solutions to the problems are available at the reserve desk in the library.

1. b) 2. b) 3. d) 4. b) 5. c) 6. c) 7. a)
8. a) 9. e) 10. c) 11. d) 12. a) 13. c) 14. c)
15. e) 16. d) 17. b) 18. b) 19. c) 20. c) 21. c)
22. b) 23. c) 24. c) 25. c)

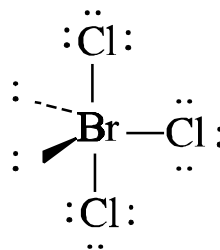
26. 276.9 nm 27. $n=4$

28.

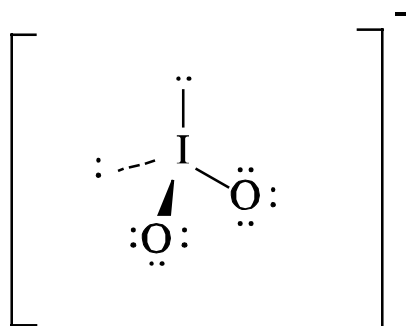
i)



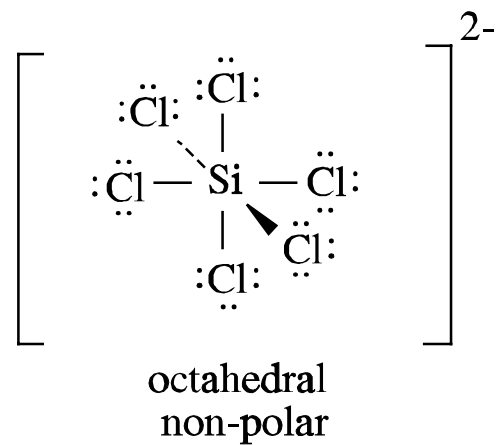
ii)



iii)

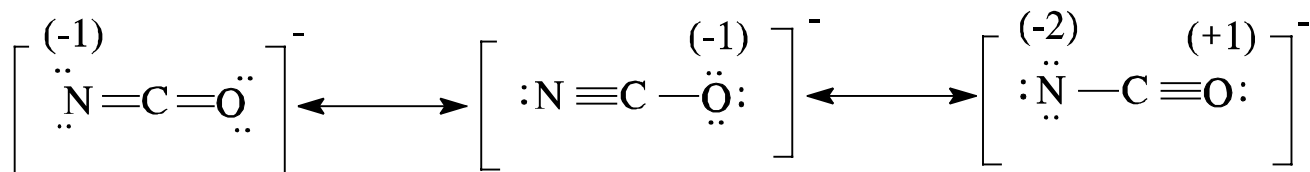


iv)



29.

a)



- b) Since structures I & II have small formal charges they will be the major contributors. Structure II will contribute the most since it has a negative formal charge on the more electronegative element (O). Structure III would contribute the least since it has large and multiple formal charges.
- c) Based on the major contributors (I & II), the CO bond is predicted to be the longest since it lies, in length, between a single and double bond. The CN bond will be shorter since it lies between a double and triple bond.
- d) The CO bond is predicted to be the weakest since it lies between a single and double bond as seen in the major contributors (I & II). The NO bond is likely to be the strongest since it lies between a double and triple bond.
- e) The CO bond is predicted to be the most polar since the electronegativity difference between carbon and oxygen will be the larger than that between carbon and nitrogen.
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