ANSWER KEY FOR 2004 MIDTERM 1 exam

1. B O=C=O
2. D we did not do examples beyond sp3 (so no dsp3 on the test)
3. B we did not do examples beyond sp3 (so no dsp3 on the test)
4. C has triple bond: 1 sigma and 2 pi
5. B
6. C
7. C note the lone pair
8. C two lone pairs
9. E highest bond order, 3
10. C
11. B
12. D 3 double bonds
13. B isoelectronic with b₂
14. E 10 valence electrons (in 2^{nd} shell)
15. B in the second period there are no exceptions to the octet rule
16. A SN=4, 2 lone pairs, square planar
17. C linear, so 180°
18. C 7 valence electrons leaves 1 lone pair for SN 6
19. D double bond C₂=C₃, C₄=O, and 2 pairs on O
20. B 2 pairs on O
21. A
22. E SCl has odd # of VE’s. Only E has octets and uses 26 VEs
23. C tetrahedral Cl with 1 lone pair
24. B tetrahedral S with 2 lone pairs
25. B tetrahedral S with 2 lone pairs
26. C SN=5, 2 lone pairs
27. D smallest intermolecular force: only London
28. B
29. E hydrogen bonding
30. C largest – so largest London forces
31. C
32. D a salt is usually ionic
33. A non-polar
34. B Mostly dipole (actually London as well)
35. - 40 These topics are not yet covered in full and will not be on the test