Quiz Three Answers

1. C Potassium is the largest atom listed, which means it will lose electrons the easiest due to greater shielding effect.
2. D Potassium has more energy levels than the others, so there is more shielding.

3. A Electronegativity gets smaller as atoms get bigger.

4. D Energy is released when most atoms gain electrons, however energy is required to add an electron to noble gases or alkaline earth metals. Since you don't know what the atom is, you cannot make a statement about stability.

5. A Electron affinity("liking for electrons") generally increases as atoms get smaller.

6. D Calcium has two electrons in its outer shell, which it tends to lose. Therefore, its oxidation state should be +2.
7. A Potassium has a negative electron affinity value. Energy will be released if an electron is added.

8. C Sulfur is the largest atom listed and therefore is the most likely to lose electrons. Metals tend to lose electrons in reactions, so S would be the most metallic of the elements listed.

9. A Rubidium has one valence electron which it loses when forming an ion. Losing an electron will make the atom smaller.

10. A Sulfur is the largest atom listed and is the most likely to lose an electron.

11. A. metal tend to be larger than non metals and generally lose electrons more easily.

12. E. As atoms get smaller, electron affinity, ionization energy and electronegativity all increase.

13. B. Absorbing energy creates more internal energy, or a higher energy state. More thermodynamically unstable.

14. D. Energy is absorbed when electrons are added to s^2 and p^6 families and is also absorbed any time an electron is removed. So, you need more information.

15. E. Positive electron affinities occur in s^2 and p^6 families.

16. A. Energy is always required to remove an electron.

17. B. These atoms and ions are isoelectronic, so the one with the fewest protons will be the largest.

18. C. Mg has two valence electrons, so one atom of Mg will provide the two electrons that O needs. When Mg loses two electrons it is isoelectronic with Ne.

19. C. Oxygen has 4 p electrons which is one more than half full. The extra electron is repelled by the electron that was already in the orbital, so it is slightly easier to remove than you would expect.

20. B. Barium is a very large atom, and it already has a full s sublevel.

21. A Nitrogen has 5 valence electrons, so it would not be probable to lose more than five. In this case, it loses its 3 p electrons.