Roland-Story Natural Resources Class

Meteorology Unit

Chapter 13 Study Guide

Name _____ _____points earned

20 possible points

1. List two ways in which meteorology and air pollution are linked.

2. What is the difference between a primary pollutant and a secondary pollutant?

3. Relate the proper primary pollutant to each statement:

   a. These are also known as hydrocarbons.

   b. Colorless, corrosive gas that originates from burning coal and oil.

   c. The most prominent sources of this colorless, odorless, poisonous gas are motor vehicles.

   d. This gas has a distinctive reddish-brown color.

4. Look at figure 13-5 and then answer these:

   a. Which source category is responsible for the most pollution?

   b. What is the single greatest air pollutant by weight?

5. What was the original meaning of 'smog'? What is the current meaning of it?

6. What triggers a photochemical reaction?

7. What is the major component in photochemical reaction?

8. During what part of the day is ozone formation at its peak? When is the 'ozone season'?

9. In chapter 1 you learned that we should be concerned about ozone depletion in the atmosphere. Based on what is given in this chapter, it seems like getting rid of ozone would be a good idea. Clarify this apparent contradiction.

10. Table 13-2 shows trends in air quality and emissions. Explain why ozone appears on the 'percent change in air quality' portion of the table but does not appear on the 'percent change in emissions' portion.

11. The average car today gives off less pollution than 30 years ago. Why have the positive effects of this decline not been as great as we might have expected?

12. Why are air pollution problems more acute when winds are weak or calm?

13. How do temperature inversions influence air pollution?

14. Describe the formation of a surface inversion and compare it with an inversion that occurs aloft.

15. How does the geographic setting of Los Angles contribute to the air pollution episodes it experiences?

16. How much more acidic is a substance with a pH of 4 compared with a substance with a pH of 6?

17. How has the buildup of tall smokestacks contributed to interregional air pollution problems?

18. List some possible environmental effects of acid precipitation.

19. Define the following terms by using your book and/or the web site at www.rsffa.com, go to Meteorology link and play the hangman game

a. Acid precipitation --

b. Air pollutants –

c. Mixing depth –

d. Photochemical reaction –

e. Primary pollutant –

f. Secondary pollutant –

g. Smog --

h. Temperature inversion –

i. Kyoto Protocol –

j. Haze –

k. Particulate matter –

l. Toxic air pollutants –

m. Lead–

n. Carbon monoxide –

o. Radon –

p. Biological contaminants –

q. Inversion –