**Chapter 15 Reading Guide**

**Module 46-50**

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| 1. Air Pollution | 2. Particulate Matter (PM) | 3. Haze | 4. Photochemical Oxidant |
| 5. Ozone (O3) | 6. Smog | 7. Photochemical Smog | 8. Sulfurous Smog |
| 9. Volatile Organic Compound (VOC) | 10. Primary Pollutant | 11. Secondary Pollutant | 12. Thermal Inversion |
| 13. Inversion Layer | 14. Fluidized Bed Combustion | 15. Catalytic Converter | 16. Baghouse Filters |
| 17. Gravitational Settling | 18. Scrubber | 19. Asbestos | 20. Sick Building Syndrome |

**Module 46**

1. What are 2 **anthropogenic** and 2 **natural** sources of air pollution?

2. What did the original **Clean Air Act** specifically target?

3. What other pollutants should be added to the Clean Air Act?

4. What is an anthropogenic source of **Particulate Matter**?  What is a natural source of PM?

5. How does the size of PM affect our concern about it?

6. The amount of lead in the atmosphere has decreased over time.  Why hasn’t this been the case for **mercury**?

7. Even though **VOC’s** are not necessarily hazardous, why are they still considered air pollutants?

8. Differentiate **primary** vs. **secondary pollutants**.  Give 2 examples of each.

9. What are the **National Ambient Air Quality Standards** (**NAAQS**)?

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**Module 47**

1. What pollutants are covered specifically under the Clean Air Act?

1. What is the chemical equation of ozone formation?  Write it in the space below!

1. What is a natural & anthropogenic source of VOCs?

1. How does an inversion layer exacerbate poor air quality?

1. What causes rain to be naturally acidic?  What is the pH of natural rain?

1. What is a natural process that causes acid deposition?

1. What are the 2 most common forms of acid deposition?  What are their chemical formulae?

8. How does acid deposition release heavy metals into water?

9. What compound in building marble is susceptible to acid deposition?

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**Module 48**

1. What are 2 ways we can **PREVENT** air pollution?

2. Describe how we can control **sulfur oxide** emissions.

3. Describe how we can control **nitrogen oxide** emissions in automobiles.

4. Describe the simplest method of to remove **particulate matter**.

1. What are **baghouse filters**?  What pollutant does this target?

1. How does an **electrostatic precipitator** work?  What pollutant does this target?

1. How does a (wet) **scrubber** work?  What 2 pollutants does this target?

1. Describe 2 methods cities have employed to reduce **photochemical smog**.

1. How did the **Clean Air Act** successfully reduce SO2 emissions?

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**Module 49**

1. What are the 3 types of UV radiation?

1. Which type of UV radiation is most dangerous?  What are 3 health effects of this?

1. What are 2 ecological effects of the above?
2. What is the chemical reaction that causes the formation of stratospheric ozone?  Write down 3 equations below.

1. What are 2 sources of CFCs?  What is the most ozone-damaging element in CFCs?
2. What is the chemical reaction that causes the breakdown of stratospheric ozone?  Write down 2 equations below.

7. What season/months does ozone depletion in Antarctica become most pronounced?

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**Module 50**

1. What is the main source of indoor air pollution in **developing countries**?

1. **Who** is most affected by indoor air pollution in developing countries?  What is a likely explanation for this?

1. What are 3 reasons why indoor air pollution has become a greater concern in **developed countries**?

1. What are sources of **carbon monoxide** in buildings?  What is its effect on human health?

1. What are sources of **asbestos**?  What is its effect on human health?

1. What are sources of **radon**?  What is its effect on human health?

1. Where in a typical home would **radon** be found?  How can it be prevented/remediated?

1. What are sources of **VOC’s** indoors?  What is its effect on human health?

1. What are some symptoms of **Sick Building Syndrome** (**SBS**)?

1. According to the EPA, what are 4 causes of **SBS**?

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**Chapter 15 Review**

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