

**Chapter 18 & 19 Review Questions + Problem Set**

Directions- On loose-leaf paper, answer the following questions in well-written complete sentences. You do not need to write the question. Number each answer so the number corresponds the question that you have answered. **Only hand-written responses will be accepted. Typed or emailed copies will not be graded.**

**Chapter 18 Review Questions**

1. Describe the nature and harmful effects of the massive South Asian Brown Clouds (Core Case Study).
2. Define atmospheric pressure, troposphere, stratosphere, and ozone layer.
3. Describe the major differences between the troposphere and stratosphere.
4. What is air pollution?
5. Distinguish between primary pollutants and secondary pollutants and give an example of each.
6. List the major outdoor air pollutants and their harmful effects.
7. Describe the effects of lead as a pollutant and how we can reduce our exposure to this chemical.
8. Describe a chemical method and a biological method for detecting air pollutants.
9. Distinguish between industrial smog and photochemical smog in terms of their chemical composition and formation.
10. List and briefly describe five natural factors that help to reduce outdoor air pollution and six natural factors that help to worsen it.
11. What is a temperature inversion and how can it affect air pollution levels?
12. What is acid deposition and how does it form?
13. What are its major environmental impacts on vegetation, lakes, human-built structures, and human health.
14. List three major ways to reduce acid deposition.
15. What is the major indoor air pollutant in many developing countries?
16. What are the top four indoor air pollutants in the United States?
17. Describe indoor air pollution by radon- 222 and what can be done about it.
18. Briefly describe the human body's defenses against air pollution, how they can be overwhelmed, and the illnesses that can result.
19. Approximately, how many people die prematurely from air pollution each year in the world and in the United States?
20. What percentage of these deaths are caused by indoor air pollution?
21. Describe air pollution laws in the United States.
22. Summarize the positive effects of such laws and discuss how the laws can be improved.
23. List the advantages and disadvantages of using an emissions trading program.
24. Summarize the major ways to reduce emissions from power plants and motor vehicles.
25. What are four ways to reduce indoor air pollution?

**Chapter 19 Review Questions**

26. Describe how Greenland's melting glaciers (Core Case Study) provide evidence that climate disruption is occurring as projected, according to most climate scientists.
27. Explain why weather and climate are not the same.
28. Describe atmospheric warming and cooling over the past 900,000 years and during the last century.
29. How do scientists get information about past temperatures and climates?
30. What is the greenhouse effect and why is it so important to life on the earth?
31. How have human activities affected atmospheric greenhouse gas levels during the last 275 years and especially in the last 30 years?
32. List the major human activities that add CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O to the atmosphere.
33. What do a number of climate models project about temperature changes during this century?
34. How can positive feedback loops affect future temperature changes and thus global climate? Give two examples of such loops.
35. Describe how each of the following might contribute to projected atmospheric warming and resulting global climate disruption: (a) CO<sub>2</sub> emissions, (b) a hotter sun, (c) the oceans, (d) cloud cover and (e) air pollution.
36. What are three effects of increasing atmospheric CO<sub>2</sub> levels on the oceans?
37. Briefly describe how projected climate disruption is likely to affect: (a) drought, (b) ice cover, (c) permafrost, (d) sea levels, (e) extreme weather, (f) biodiversity, (g) crop yields, and (e) human health during this century.
38. What are three major prevention strategies and three major cleanup strategies for dealing with projected climate disruption?
39. What is carbon capture and storage (CCS) and describe three problems associated with capturing and storing carbon dioxide emissions.
40. What are geoengineering schemes (give two examples) and what is the major problem with most of them?
41. List six steps that governments could take to help slow projected climate disruption.
42. What is a pollutant and why is CO<sub>2</sub> being classified as a pollutant?
43. What are the advantages and disadvantages of using taxes on carbon emissions or energy use to help reduce greenhouse gas emissions?
44. What is cap-and-trade and what are the advantages and disadvantages of using it to help reduce greenhouse gas emissions?
45. What is China doing to help reduce its contribution to the climate disruption?
46. What is the United States doing to help reduce its contribution to this problem?
47. List five ways in which you can reduce your carbon footprint.
48. List five ways in which we can prepare for the possible long- term harmful effects of climate change.
49. Describe how human activities have depleted ozone in the stratosphere, and list five harmful effects of such depletion.
50. What has the world done to help reduce the threat from ozone depletion in the stratosphere?