

POLLUTION EXAM REVIEW PACKET

1. What are the six main classifications of primary pollutants? Know at least one example for each.
2. What is the chemical composition of ozone and where is beneficial ozone specifically located?
3. How does photochemical smog form? What substances are involved and what secondary pollutants are produced?
4. How does the melting of the permafrost enhance the greenhouse effect? (give two reasons)
5. What are the main causes of sick building syndrome?
6. Know the basics of radon gas: where it comes from and why it is dangerous.
7. What is the cause of a thermal inversion? How does it contribute to the effects of pollution on humans?
8. What causes the production of most primary pollutants?
9. What natural substance helps buffer the effects of acid deposition?
10. What metal, released by acid deposition, has a negative effect on plants and fish?
11. What source can the lake acidification in the Adirondack region be traced back to?
12. What is the pH of true acid rain?
13. What are 3 examples of ozone depleting compounds (ODCs)?
14. What initiative put limitations on the emission of greenhouse gases (especially CO₂) in developed nations?
15. What element becomes free in the upper atmosphere that ultimately leads to ozone destruction?
16. When during the year is ozone thinning above the Antarctic the greatest?
17. What are the 5 greenhouse gases in order of relative global warming potential?
18. Which type of electromagnetic energy does the greenhouse gases trap/absorb?
19. Understand the trends of the Keeling Curve and the underlying causes.
20. How has ozone depletion affected agriculture and marine ecosystems?
21. What was asbestos used for in construction? Why has it been banned?
22. Explain two ways an increase in GHGs has contributed to rising sea levels.
23. How has climate change led to the spread of disease?
24. What are two effects of UV radiation on the human body?
25. What are two ways acid rain be linked to fish deaths and the creation of sterile lakes?
26. What historical event led to the first Air Pollution Control Act that was the precursor to the Clean Air Act?
27. Why are the Adirondack lakes more susceptible to the negative effects of acid deposition?
28. What international agreement updated/replaced the Kyoto Protocol?
29. What two primary pollutants are the main components of acid rain?
30. What global initiative targeted the banning of ODCs?
31. What common household item may contain formaldehyde?
32. Be able to recognize positive and negative feedback mechanisms in different contexts.
33. Know the difference between point and non-point pollution and examples of each.

POLLUTION EXAM REVIEW**QUESTIONS ON POLLUTION THAT JUST DIDN'T MAKE THE FINAL CUT**

(or maybe some of these are actually on your exam... hmmm ...)

1. The country currently experiencing the highest skin cancer rate is
 - (A) Canada
 - (B) China
 - (C) Antarctica
 - (D) Australia
 - (E) Korea

2. Which greenhouse gas has the greatest heat-trapping capability?
 - (A) water vapor
 - (B) chlorofluorocarbons
 - (C) carbon dioxide
 - (D) nitrogen
 - (E) methane

3. Which of the following contributes to the depletion of the ozone layer?
 - (A) CH₄
 - (B) H₂O
 - (C) CO₂
 - (D) CFCs
 - (E) HOVs

4. Which of the following substances is a constituent of acid rain?
 - (A) H₂SO₄
 - (B) CaCO₃
 - (C) CFCs
 - (D) O₃
 - (E) CaCl₂

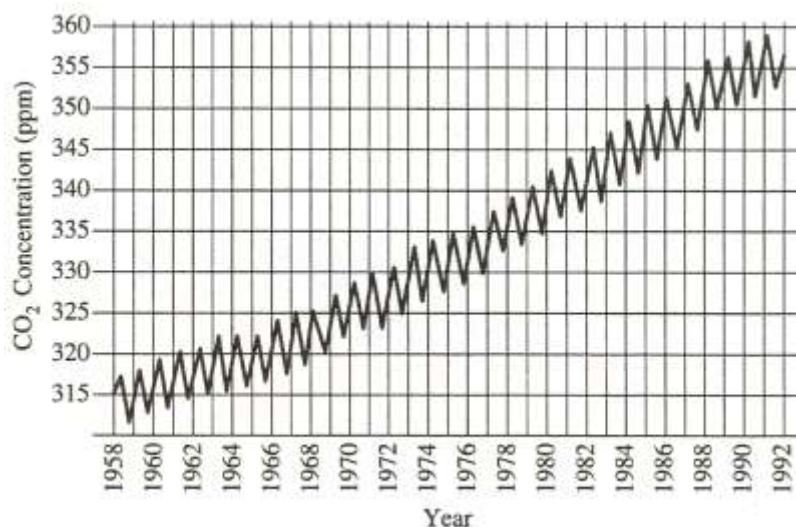
5. A practice that would reduce the amount of atmospheric carbon dioxide is:
 - (A) increase deforestation
 - (B) decrease fossil fuel use
 - (C) decreased production of CFCs
 - (D) increase inorganic fertilizer use
 - (E) all of the above would decrease atmospheric carbon dioxide concentrations

6. Most of the effects of air pollution are experienced in the
 - (A) troposphere
 - (B) stratosphere
 - (C) mesosphere
 - (D) thermosphere
 - (E) pollution is distributed evenly throughout all layers of the atmosphere

7. Reddish-brown, pungent gas produced by the combustion of fossil fuels is
(A) SO_2
(B) NO_2
(C) CO
(D) CO_2
(E) CH_4
8. Acid rain is associated with which of the following?
(A) the increasing pH of freshwater ecosystems
(B) formation of the ozone hole
(C) burning of fossil fuels
(D) deforestation in tropical regions
(E) all of the above are associated with acid rain
9. Which of the following greenhouse gases comes only from human sources?
(A) nitrous oxide
(B) carbon monoxide
(C) carbon dioxide
(D) chlorofluorocarbons
(E) methane
10. Soil's acid buffering capability is most dependent upon the
(A) air temperature
(B) bedrock and soil composition
(C) amount of biological activity
(D) humidity of the air
(E) composition of gases in the local atmosphere
11. The Montreal Protocol of 1987 was an international initiative to
(A) limit the burning of fossil fuels
(B) restore forests damaged by acid deposition
(C) limit greenhouse gas emissions from factories
(D) phase out the use of ozone-depleting chemicals
(E) ban smelting and heap-leach extraction
12. Photochemical smog levels increase in the
(A) winter (B) summer (C) spring (D) fall
13. Which human health problem is most clearly linked to particulate matter?
(A) cataracts
(B) carcinoma
(C) diabetes
(D) asthma
(E) hyperthyroidism

14. Industrial smog is also known as
- (A) gray-air smog caused by sulfur dioxide emissions
 - (B) gray-air smog caused by carbon monoxide emissions
 - (C) brown-air smog caused by ozone formation
 - (D) brown-air smog caused by nitrogen oxide emissions
 - (E) point pollution occurring strictly in industrial cities

Questions 15-17 refer to the following graph.



15. This graph is specifically referred to as the
- (A) Gore Climate Change Curve
 - (B) Obama Paris Accord Trend
 - (C) Keeling Curve
 - (D) Hawaiian Global Warming Trend
 - (E) Kyoto Curve
16. The data in the graph can be useful in explaining the greenhouse effect when they are compared with
- (A) volcanic activity
 - (B) sunspot activity
 - (C) mean global temperatures
 - (D) annual nitrous oxide production
 - (E) cycles of flooding and drought
17. The annual fluctuation in carbon dioxide concentration can best be explained by the
- (A) seasonal use of fossil fuels
 - (B) regularity of volcanic activity
 - (C) deforestation in the tropics
 - (D) El Nino events
 - (E) seasonal photosynthetic activity of green plants

18. A positive feedback loop is illustrated by all of the following *except*
- (A) compound interest in a savings account
 - (B) exponential population growth
 - (C) the human body perspiring to regulate its temperature
 - (D) the warming of the Earth by the greenhouse effect
 - (E) none of these
19. The term “circle of poison” coined by environmental scientists, and the idea that nothing ever really gets “thrown away”, is an application of the
- (A) Law of Conservation of Matter
 - (B) Law of Conservation of Energy
 - (C) First Law of Thermodynamics
 - (D) Second Law of Thermodynamics
 - (E) Law of Entropy
20. *In a fish tank, fish will feed on the plants which will lead to a healthy fish population. Reproduction of healthy, well-fed fish leads to larger population of fish.* **Eventually, the addition of fish leads to the overgrazing of the plants. As a result, there will be less food to go around, and reproduction will fall.**
- Which of the following is true of the two statements in the situation explained above?
- (A) The italicized statements indicate a positive feedback loop, while the statements in bold indicate a negative feedback loop.
 - (B) The italicized statements indicate a negative feedback loop, while the statements in bold indicate a positive feedback loop.
 - (C) All statements indicate a positive feedback loop.
 - (D) All statements indicate a negative feedback loop.
 - (E) The statements experience the “cancellation effect”, and cannot individually be classified as positive or negative feedback loops.
21. Which of the following is not a primary pollutant?
- (A) carbon monoxide
 - (B) carbon dioxide
 - (C) tropospheric ozone
 - (D) nitrogen oxide
 - (E) sulfur dioxide
22. The increase in mean global temperature is likely to result in all of the following except
- (A) decreased size of the Greenland ice sheet
 - (B) increased populations of insects
 - (C) increased sea level
 - (D) increased ground-level UV radiation
 - (E) increased range of some plant species