Chapter 13 Study Guide – Environmental Science
Remember, you must complete this on your own!

Multiple Choice:

1. During summer in the Southern Hemisphere, the Northern Hemisphere experiences
    a. A tilt toward the sun
    b. Winter
    c. Summer
    d. Excess rainfall
2. In regions closer to the poles, the sun
    a. Never sets
    b. Never changes its altitude
    c. Is higher in the sky
    d. Is lower in the sky
3. Because water _____, ocean currents have a great effect on climate.
    a. Moves more slowly than air
    b. Stays colder than air
    c. Holds large amounts of heat
    d. Cannot hold heat
4. During an El Nino event, winds in the western Pacific Ocean strengthen and push _____ eastward.
    a. Warm air
    b. Cold air
    c. Warm water
    d. Cold water
5. The pattern of _____ determines Earth's precipitation pattern.
    a. Global atmospheric circulation
    b. Solar activity
    c. Volcanic eruptions
    d. All of the above
6. As the amount of ozone in the stratosphere decreases,
    a. More ultraviolet light is able to reach Earth's surface.
    b. Less solar energy is able to reach Earth's surface.
    c. The amount of methane in the atmosphere increases
    d. The amount of phytoplankton in the ocean increases
7. Polar stratospheric clouds are high-altitude clouds made of
    a. Ozone and CFCs
    b. Ozone and molecular chlorine
    c. Water and nitric acid
    d. Water and sulfuric acid
8. Which of the following is *not* a damaging effect of ultraviolet light on the amphibian population?
    a. Interference with photosynthesis
    b. Death of eggs
    c. Genetic mutations among survivors
    d. Reduction of populations
9. High ultraviolet (UV) radiation levels at Earth's surface can
    a. Produce CFCs
    b. Damage DNA
    c. Thin the ozone layer
    d. Change weather patterns

10. Which of the following will require most developed countries to decrease emissions of carbon dioxide and other greenhouse gases?
    a. Montreal protocol
    b. Kyoto protocol
    c. Emissions Reduction Act
    d. Reforestation Project
11. Most of the warming that has been observed over the 20th century can be attributed to
    a. Human activity
    b. Plant growth
    c. Glacial melting
    d. Droughts
12. Which of the following is *not* a major greenhouse gas?
    a. Water vapor
    b. Carbon dioxide
    c. Sulfur
    d. Methane
13. Weather is a region's
    a. Long-term, prevailing atmospheric conditions
    b. Number of seasonal daylight hours
    c. Atmospheric conditions on a given day
    d. Lack of ocean currents
14. As cold air sinks,
    a. It expands and cools further
    b. It compresses and warms
    c. It remains at the same pressure and temperature
    d. It always releases water vapor
15. Elevation is a factor in climate because under most conditions,
    a. Temperature falls as elevation increases
    b. Temperature rises as elevation increases
    c. Temperature is not affected by elevation
    d. Snowfall is unlikely at high elevation
16. Seasonal changes in daylight hours and climatic conditions are caused by
    a. The annual change of distance from sun to Earth
    b. Ocean currents
    c. Lunar phases
    d. The 23.5 degrees tilt of Earth's axis
17. The ozone layer protects living organisms on Earth by
    a. Enhancing solar energy
    b. Blocking solar ultraviolet (UV) radiation
    c. Blocking solar infrared (IR) radiation
    d. Preventing escape of water vapor
18. Ozone holes appear in polar regions during springtime when ozone-destroying
    a. Chlorine atoms are released from polar stratospheric clouds
    b. Chlorine atoms are captured by polar stratospheric clouds
    c. CFCs are synthesized in polar stratospheric clouds
    d. CFCs magnify ultraviolet light.
19. Which of the following would not be a consequence of a rise of global temperature?
    a. Increased frequency of major droughts
    b. Increased frequency of major storms
    c. Increased polar ice mass
    d. Rising sea level

20. Climate in a region is
    a. The long-term, prevailing atmospheric conditions
    b. Determined only by seasonal daylight hours
    c. The atmospheric conditions on a given day
    d. Never affected by ocean currents
21. Latitude strongly influences climate because _____ solar energy falls on areas that are closer to the equator than to the poles.
    a. Less
    b. The same amount of
    c. More
    d. Sometimes less
22. During the summer, sunlight in the Northern Hemisphere shines
    a. Obliquely for long days
    b. Slanting for short days
    c. More directly for long days
    d. Less directly for short days
23. Ozone in the stratosphere
    a. Causes skin cancer
    b. Prevents DNA repair
    c. Absorbs UV light
    d. Destroys CFCs
24. La Nina is the _____ phase of the El Nino-Southern Oscillation (ENSO) cycle.
    a. Warm
    b. Cold
    c. Neutral
    d. Mixing
25. Which of the following does not reduce CO_2 in the atmosphere?
    a. Animal respiration
    b. Tropical rainforests
    c. Oceans
    d. Phytoplankton
26. Rain frequently results whenever
    a. Cold, moist air rises
    b. Warm, moist air rises
    c. Warm, dry air sinks
    d. Cold, dry air sinks
27. An important property of air circulation is
    a. Warm air is denser than cold air
    b. Cold air and warm air have the same density
    c. Cold air is denser than warm air
    d. Air has no mass
28. Which of the following gases is *most* responsible for the greenhouse effect?
    a. Nitrous oxide
    b. Methane
    c. Oxygen
    d. Water vapor
29. Which of the following reduce (s) CO_2 in the atmosphere?
    a. Phytoplankton
    b. Tropical rainforests
    c. Oceans
    d. All of the above

Completion:

Polar vortex	Phytoplankton	Computer Model	Sulfur dioxide
Chlorofluorocarbons	Carbon dioxide	Global warming	Climate
Skin cancer	Zooplankton	Latitude	Density
Ozone layer	Mauna Loa, Hawaii	Westerlies	

30. The _____ are strong circulating winds over Antarctica.
31. _____ is a possible consequence to humans from a thinning ozone layer.
32. _____ are single-celled organisms that live near the ocean's surface.
33. The _____ is a part of the stratosphere that absorbs most of the ultraviolet light from the sun.
34. _____ is a class of human-made chemicals that may damage the ozone layer.
35. _____ is a site where continuous CO_2 records have been maintained since 1958.
36. _____ is an increase in Earth's average temperature, resulting from increased greenhouse gases in the atmosphere.
37. _____ is a greenhouse gas released from burning fossil fuels.
38. _____ is a complex set of equations that account for many factors and require a great number of computations to solve.
39. Tiny, shrimp-like animals, _____, are examples food that many marine animals depend upon.
40. _____ is a long-term, prevailing weather condition at a particular place.
41. _____ is a gas that can reach the upper atmosphere after a large-scale volcanic eruption.
42. _____ is a position with respect to the equator, measured in degrees north or south.
43. _____ is a greater for cold air, causing cold air to sink below warm air.
44. _____ are a belt of prevailing winds.