

Geography 1 Pretest - The Atmosphere through Temperature

1. The main component of the lower atmosphere by total volume is _____.
a) oxygen b) nitrogen
c) helium d) argon e) water vapor
2. A major characteristic of the troposphere is its _____.
a) decrease of temperature with increasing altitude
b) containing of the ozone layer
c) uniformly freezing temperatures
d) total absence of water vapor
e) constant presence of cirrus clouds
3. The normal percent of water vapor in dry air is _____ percent.
a) 0-4 b) 5-10 c) 15-20 d) 25-30 e) 45-50
4. The third most plentiful gas in the earth's lower atmosphere is _____.
a) nitrogen b) oxygen c) argon d) neon e) helium
5. Oxygen is and has been added to the atmosphere by
a) solar radiation b) animal decomposition
c) meteorites d) vegetation e) the burning of coal
6. The segment of the atmosphere in which gases maintain an approximately uniform composition is the _____.
a) homosphere b) exosphere
c) ionosphere d) stratosphere e) troposphere
7. The main impact of ozone on life on the earth's surface is _____.
a) to provide oxygen for the atmosphere
b) to reduce ultraviolet solar radiation
c) to serve as nucleus for cloud formation
d) to act as a lid preventing gases from escape
e) to initiate violent storms
8. Oxygen is the _____ component of the atmosphere in terms of volume.
a) main b) second c) third d) fourth e) fifth
9. The influence on climate of carbon dioxide is mainly due to its ability to absorb _____.
a) water b) infrared radiation
c) helium d) argon e) none of the above
10. Which of the following is NOT a gas?
a) oxygen b) nitrogen
c) carbon dioxide d) water vapor e) They are all gases.
11. The ozone layer is in that portion of the atmosphere known as the
a) troposphere b) mesosphere
c) stratosphere d) heterosphere e) ionosphere
12. Which of the following substances is closely associated with the breakdown of the ozone layer?
a) carbon dioxide b) chlorofluorocarbons
c) nitrogen oxides d) water vapor e) all of the above

13. Which of the following is an important source of particles in the atmosphere?
 a) salt from the sea b) volcanic eruptions
 c) emissions from engines d) soot from fires e) all of the above
14. The amount of carbon dioxide in the atmosphere is steadily growing due to the actions of humans.
15. The difference between weather and climate is that the latter is an accumulation of the former over an extended time period.
16. The troposphere is the lowest in altitude of all of the divisions of the atmosphere.
17. The atmospheric components helium, krypton, and methane have crucial weather modifying capabilities.
18. Gases are evenly distributed throughout all levels of the atmosphere.
19. A large increase in carbon dioxide would cause a general climatic shift to warmer climate.
20. Weather is largely confined to the troposphere.
21. Lower levels of air become compressed by the weight of the air above.
22. The basic distribution of heat and cold over the earth is mainly a function of its rotation.
23. Air pressure is generally highest where the land surface is lowest.
24. The concentration of carbon dioxide in the atmosphere is
 a) a small fraction of 1% b) approximately 10%
 c) approximately 30% d) approximately 50% e) approximately 75%
25. Which of the following is NOT a characteristic of air?
 a) It is composed of air molecules.
 b) It is odorless.
 c) It is tasteless.
 d) It is colorless.
 e) It is mostly packed close to the Earth's surface.
26. It is thought that the Earth's climate is being changed rapidly by
 a) the burning of fossil fuels
 b) the increased cloudiness caused by pollution
 c) natural sources of change
 d) dust from volcanoes
 e) decreases in carbon dioxide
27. Ozone is actually
 a) a form of carbon dioxide
 b) three-atomed oxygen
 c) more healthy to breath than is oxygen
 d) a pollutant caused by the burning of fossil fuels
 e) described by all of the above
28. The order of the atmospheric layers from the surface up into the atmosphere is:
 a) thermosphere, stratosphere, mesosphere, troposphere
 b) stratosphere, mesosphere, thermosphere, troposphere
 c) troposphere, stratosphere, mesosphere, thermosphere
 d) troposphere, mesosphere, stratosphere, thermosphere
 e) none of the above
29. Which of the following is an important function of Earth's atmosphere?
 a) insulates the surface against temperature extremes
 b) maintains a water supply
 c) supplies the oxygen for life
 d) screens out much of the sun's ultraviolet radiation
 e) all of the above
30. The sun's radiant energy reaches the earth across space in approximately
 a) a second b) 8 minutes c) 8 hours d) 8 days e) 8 months
31. The phenomenon of scattering LEAST influences which wavelengths?
 a) long b) visible red
 c) short d) ultraviolet e) visible orange

32. Which substance is the best transmitter of solar energy?
 a) rock b) soil c) air d) murky water
 e) they are all approximately equal in transmissivity
33. The temperature at which all molecular motion ceases is _____.
 a) 0° Fahrenheit b) 0° Celsius
 c) 0° Kelvin d) 32° Centigrade e) 32° Fahrenheit
34. The higher latitudes receive much less intense insolation than tropical zones because of _____.
 a) albedo b) sun's angle of incidence
 c) greenhouse effect d) ocean's specific heat e) water's transmissivity
35. In the electromagnetic spectrum, visible light occupies the band between 0.4 and 0.7 _____.
 a) millibars b) micrometers
 c) Kelvins d) meters e) feet
36. _____ objects radiate shorter wavelengths than _____ objects.
 a) Red, green b) Big, small
 c) Liquid, solid d) Tall, short e) Hot, cold
37. The only major country still using the Fahrenheit scale for temperature determination is _____.
 a) U.S.A. b) Canada
 c) W. Germany d) Brazil e) Iraq
38. The albedo of the Earth system has been determined to be _____ percent.
 a) 2 b) 5 c) 15 d) 27 e) 33
39. Earth reradiating energy into space consists mainly of _____ rays.
 a) long b) gamma
 c) short d) ultraviolet e) all of the above
40. The longest of all visible light waves are _____.
 a) violet b) red c) green d) yellow e) orange
41. A temperature inversion is mainly an inversion of the _____.
 a) isotherms b) normal lapse rate
 c) Coriolis effect d) gyres e) all of the above
42. The trapping of longwave radiation in the atmosphere is popularly called:
 a) Coriolis effect b) scattering
 c) Greenhouse effect d) advection e) none of the above
43. With regard to absorption of solar radiation, it is understood that _____ color surfaces are the most efficient absorbers.
 a) dark b) light c) stone d) plastic e) saline
44. The reddish tint of the sun in the late afternoon results from _____.
 a) scattering b) condition
 c) advection d) reflection e) none of the above
45. Which of the following electromagnetic wavelengths are LONGEST?
 a) microwaves b) visible energy
 c) ultraviolet energy d) cosmic rays e) infrared energy
46. The observed increase in greenhouse gases in the atmosphere in this century is attributable to
 a) human activities b) earthquakes
 c) volcanoes d) the end of the "Ice Age" e) grass fires set by lightning
47. Which of the following does NOT refer to the transfer of electromagnetic radiation?
 a) transmission b) reflection

- c) absorption d) scattering e) conduction

48. The net radiation balance for the Earth as a whole is

- a) positive b) negative
c) zero d) not currently known e) changing dramatically

49. On the average, sunlight received on the earth's surface is only ____ as strong as that received at the edge of the atmosphere.

- a) 1/100 b) 1/10 c) 1/4 d) 1/2 e) 1/8

50. The solar constant has a value of 2 calories per square centimeter per minute.

51. Visible light comprises a large part of the electromagnetic spectrum.

52. The ability of a molecule to pass through the atmosphere is called scattering.

53. The earth as a whole receives a net gain of radiant energy in the Tropical Latitudes.

54. Albedo is the same phenomenon as advection.

55. If an object is a good absorber of energy, it is likely to be a poor reflector.

56. Shorter electromagnetic wavelengths are more easily scattered than longer ones.

57. Approximately 95% of terrestrial radiation is radiated in shortwaves directly to space.

58. Over the long run, the energy the earth receives from the sun is returned to space.

59. Between 0.7 micrometers and 1.0 micrometers are some of the _____ wavelengths.

- a) microwave b) visible
c) infrared d) ultraviolet e) x-ray

ANSWER KEY

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| 1. b | 2. a | 3. a | 4. C | 5. d | 6. a | 7. b | 8. B | 9. |
| b | 10. e | 11. C | 12. B | 13. e | 14. True | 15. True | 16. True | 17. |
| False | 18. False | 19. True | 20. True | 21. True | 22. False | 23. True | 24. A | 25. a |
| 26. a | 27. b | 28. C | 29. e | 30. b | 31. a | 32. C | 33. c | |
| 34. b | 35. b | 36. E | 37. a | 38. e | 39. a | 40. b | | |
| 41. b | 42. c | 43. a | 44. A | 45. a | 46. a | 47. e | 48. c | |
| 49. d | 50. True | 51. False | 52. False | 53. True | 54. False | 55. True | 56. True | |
| 57. Fals | 58. True | 59. c | | | | | | |