

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) Which one of the following is the most abundant gas in the atmosphere?
A) nitrogen B) carbon dioxide C) oxygen D) ozone
- 2) How is climate different from weather?
A) They are the same thing.
B) Climate cannot change, but weather changes frequently.
C) Climate is "average weather."
D) Climate is the sum of all statistical weather information that helps describe a region.
- 3) Sea salts from breaking waves, fine soil blown into the air, smoke and soot from wildfires, pollen and microorganisms lifted by the wind, and ash from volcanic eruptions are all examples of _____.
A) greenhouse gases B) radiosondes C) aerosols D) elements
- 4) The amount of water vapor in the air is called _____.
A) aerosols B) ozone C) latent heat D) humidity
- 5) The lowest layer of the atmosphere is the _____.
A) stratosphere B) mesosphere C) troposphere D) ionosphere
- 6) The boundary between the stratosphere and the mesosphere is called the _____.
A) tropopause B) mesopause C) stratopause D) ionopause
- 7) Approximately how many kilometers (miles) above Earth's surface does the atmosphere end and outer space begin?
A) 145 kilometers (90 miles)
B) 47 kilometers (30 miles)
C) 82 kilometers (52 miles)
D) There is no clearly defined upper limit to the atmosphere; it gradually fades into space.
- 8) Which of the following locations would have the lowest average air pressure?
A) Challenger Deep, Mariana Trench, lowest point in the ocean
B) sea level, anywhere on the planet
C) Dead Sea, Israel, lowest point on Earth's land surface
D) summit of Mount Everest, tallest mountain on Earth
- 9) The temperature decrease in the troposphere is called the _____.
A) global warming B) ozone depletion
C) environmental lapse rate D) solar heating
- 10) Weather is ultimately driven by _____.
A) radioactive decay B) environmental lapse rate
C) energy input from the sun D) geothermal heat
- 11) The line separating the dark half of Earth from the lighted half is called _____.
A) the Tropic of Cancer B) the Tropic of Capricorn
C) the inclination of the axis D) the circle of illumination

- 12) _____ is energy possessed by a material arising from the internal motions of its atoms or molecules.
A) Gravity B) Pressure C) Heat D) Starlight
- 13) Energy from the sun reaches Earth through _____.
A) gravity B) radiation C) convection D) conduction
- 14) Solar radiation is _____, as compared to the _____ emitted by Earth.
A) short-wave radiation; long-wave radiation B) long-wave radiation; short-wave radiation
C) infrared radiation; visible light D) heat; electromagnetic radiation
- 15) The fraction of the total radiation that is reflected by a surface is _____.
A) a larger proportion than is absorbed by the surface
B) its albedo
C) the same no matter what Earth material we examine
D) immediately scattered by the atmosphere
- 16) The storage of heat in the lower layer of the atmosphere due to certain gases absorbing heat is called _____.
A) radiosonde B) adiabatic cooling
C) scattering D) the greenhouse effect
- 17) Temperatures drop an average of _____ per kilometer in the troposphere.
A) 6.5°C B) 10°C C) 8.8°C D) 7.3°C
- 18) The annual temperature range at most latitudes in the Southern Hemisphere is much smaller than that in the Northern Hemisphere. The reason is that _____.
A) rainfall and cloudiness are greater in the Southern Hemisphere
B) there is a greater percentage of water surface in the Southern Hemisphere
C) a greater proportion of the land surface is mountainous in the Southern Hemisphere
D) Earth is closest to the sun during the Southern Hemisphere summer
- 19) All places at the same _____ have identical angles of sunlight and lengths of daylight.
A) location B) latitude C) climate D) longitude
- 20) On a map, lines connecting points of equal temperature are _____.
A) isotherms B) temperature gradients
C) isogrades D) contour lines
- 21) Closely spaced isotherms indicate a high _____.
A) temperature gradient B) daily range
C) annual temperature range D) annual mean
- 22) Ozone is concentrated in the middle part of the _____.
A) troposphere B) stratosphere C) mesosphere D) ionosphere
- 23) Carbon dioxide and _____ are the most important heat absorbing gases in the lower atmosphere.
A) argon B) water vapor C) nitrogen D) carbon monoxide

- 24) The most important elements of weather and climate (quantities or properties that are measured regularly) are (1) air temperature, (2) _____, (3) type and amount of cloudiness, (4) type and amount of precipitation, (5) air _____, and (6) the speed and direction of the wind.
- A) humidity; pressure B) latitude; longitude C) weather; climate D) location; humidity
- 25) A day of the year when the length of the night is equal to the length of the day is known as a(n) _____.
- A) reflection B) albedo C) equinox D) solstice
- 26) The tilt of Earth's axis from the perpendicular to the plane of Earth's axis is called _____.
- A) the inclination of axis B) spring equinox
C) winter solstice D) the circle of illumination
- 27) Latent heat, or hidden heat, is transported by _____ in the atmosphere.
- A) aerosols B) water vapor C) dust D) nitrogen
- 28) Which of the following contributes to cloud and fog formation?
- A) conduction B) aerosols
C) argon D) circle of illumination
- 29) The parallel of latitude, $23\frac{1}{2}^{\circ}$ north latitude, marking the northern limit of the sun's seasonal vertical rays is called _____.
- A) the Tropic of Capricorn B) the circle of illumination
C) the Tropic of Cancer D) the inclination of the axis

