

Chapter 7 Progress Questions

Clouds, Precipitation & Weather

1. In the atmosphere, cloud condensation nuclei are _____ abundant than ice-forming nuclei.
a. more
b. less
2. Where there is an abundance of hygroscopic nuclei in the atmosphere, clouds are likely to develop at relative humidities _____ 100%.
a. under
b. at
c. well above
3. If cumulus clouds (puffy clouds that build vertically) continue to develop to great altitudes, the atmosphere is
a. stable.
b. unstable.
4. Lee-wave clouds form _____ of a mountain range.
a. upwind
b. downwind
5. Overnight radiational cooling of clear air may cause temperatures to reach saturation with stable conditions to form _____ fog.
a. radiation
b. advection
c. steam
d. upslope
6. The water droplets and ice crystals that make up clouds are always falling relative to the air, yet the clouds themselves may not be falling relative to the Earth's surface. This happens because clouds are most likely to be located where _____ prevail.
a. down drafts
b. updrafts
7. Water in solid or liquid form that falls from clouds to the Earth's surface is known as
a. condensation.
b. deposition.
c. precipitation.
8. Which one of the following particles has the greatest terminal velocity in still air?
a. cloud condensation nucleus
b. cloud droplet

c. rain drop

9. Cloud droplets can cool to temperatures well below 0 °C (32 °F) without freezing. When these so-called supercooled droplets coexist with ice crystals in the same cloud, the _____ grow in size. This is the basis of the Bergeron-Findeisen process that is responsible for the formation of most precipitation.

a. supercooled droplets

b. ice crystals

10. At least some of the water (in the liquid or solid form) falling from a cloud vaporizes as it passes through _____ air below the cloud base. If the water completely vaporizes before reaching the Earth's surface, the shaft of falling liquid or ice particles is known as virga.

a. saturated

b. unsaturated

11. Freezing rain (or drizzle) occurs when falling water drops are _____; thus, drops partially freeze when they strike cold surfaces.

a. above freezing

b. at freezing

c. supercooled

12. Acid rain (or snow) occurs when the pH of the precipitation is less than

a. 1.0

b. 4.0

c. 5.6

d. 7.0

e. 8.5

13. For a weather radar operating in the reflectivity mode, the strongest echoes are produced by

a. fog.

b. light rain.

c. light snow.

d. hail.

14. As a general rule-of-thumb, on average, 10 inches of snow will melt down to 1 inch of liquid water. Therefore, a 32-inch snowfall will produce approximately _____ inches of liquid.

a. 0.32

b. 3.2

c. 32

15. Remote sensing of precipitation amounts over the vast areas of tropical oceans is possible with data from the _____ satellite.

a. GOES

b. TIROS

c. TRMM