

## Chapter 5 Review Questions

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

1. Dew is most likely to form on:
  - A) cloudy windy nights.
  - B) clear windy nights.
  - C) clear calm nights.
  - D) cloudy calm nights.
2. All of the following are necessary ingredients for cloud formation EXCEPT:
  - A) warm surface air temperatures.
  - B) rising, cooling air.
  - C) high moisture content.
  - D) condensation nuclei.
3. *Hygroscopic nuclei*:
  - A) repel water and prevent condensation.
  - B) can allow cloud droplets to form even if the relative humidity is less than 100 percent.
  - C) are not generally found in nature.
  - D) are not the most ideal type of condensation nuclei for encouraging droplet growth.
4. A cloud that forms liquid droplets has a relative humidity of 100 percent with respect to the liquid droplets. If ice crystals form in this cloud, they will experience the cloud environment as having a relative humidity of:
  - A) 100 percent.
  - B) less than 100 percent.
  - C) more than 100 percent.
  - D) 0 percent
5. Where is the driest place on Earth?
  - A) Arica, Chile
  - B) Riyadh, Saudi Arabia
  - C) Cairo, Egypt
  - D) Canberra, Australia
6. Which of these is a mid-level cloud?
  - A) stratocumulus
  - B) altostratus
  - C) cumulus
  - D) cirrus
  - E) stratus

7. High clouds are those that form at altitudes of at least:
- A) 6500 ft (2000 m)
  - B) 20,000 ft (6000 m)
  - C) 32,800 ft (10,000 m)
  - D) 65,617 ft (20,000 m)
8. You observe a cloud at an altitude of 3000 m. This cloud name would have the prefix:
- A) alto.
  - B) cirro.
  - C) strato.
  - D) medial.
9. Where are the lenticular clouds most likely to form?
- A) over oceans
  - B) along coastlines
  - C) to the lee of mountains
  - D) in desert regions
10. Which association is not correct?
- A) fractus – clouds broken into smaller pieces
  - B) mammatus – rounded udder-like bottoms
  - C) uncinus – hook-shaped
  - D) lenticular – associated with rainbows
11. How are jet contrails thought to influence the surface temperatures of cities near major airports?
- A) Decrease the daily temperature range.
  - B) Definitely make the daily mean temperature warmer.
  - C) Definitely make the daily mean temperature cooler.
  - D) They have no measurable influence on surface temperature.
12. Why do clouds represent a source of heat for the atmosphere?
- A) Cloud formation releases latent heat to the air.
  - B) They increase the absorption of solar radiation.
  - C) Evaporation of the droplets absorbs heat.
  - D) They conduct heat from the Earth's surface.
  - E) Melting ice crystals in the cloud absorb heat.
13. The important difference between liquid droplets and ice crystals in a supercooled cloud is that ice crystals:
- A) are more pure.
  - B) are colder.
  - C) grow much more rapidly.
  - D) are smaller.
  - E) increase the water vapor content of the cloud.

14. The water content or volume of a raindrop is approximately \_\_\_\_\_ times that of a typical cloud droplet.
- A) 1 million
  - B) 1000
  - C) 100
  - D) 10
  - E) 1 billion
15. Supercooled water is water which is:
- A) part liquid and part solid.
  - B) a special form of ice.
  - C) still liquid at temperatures below 0 degrees C.
  - D) of a slightly different chemical nature than ordinary.
  - E) produced from dry ice.
16. Why are high altitude clouds always so thin?
- A) Winds are faster at high levels.
  - B) Not enough particulates are present.
  - C) Very little water vapor is present.
  - D) Air layers are stable there.
17. Most of the precipitation that falls in the middle latitudes is formed by:
- A) the Bergeron process.
  - B) collision-coalescence.
  - C) spontaneous freezing of water droplets in the absence of condensation nuclei.
  - D) condensation of water vapor.
18. Clouds, dew and frost all form because air has become saturated. This condition of saturation is usually caused by:
- A) a temperature increase.
  - B) lack of convective mixing.
  - C) adding water vapor.
  - D) the air being cooled.
  - E) an abundance of condensation nuclei.
19. The growth of a hailstone usually involves everything EXCEPT:
- A) spontaneous freezing of large water droplets.
  - B) being carried several times into the frozen region of the cloud by updrafts.
  - C) ice pellets encountering supercooled water droplets.
  - D) the development of alternating layers of clear and cloudy ice.
20. The type of fog produced when cold air moves over a warm, moist surface is called:
- A) advection fog.
  - B) radiation fog.
  - C) steam fog.
  - D) frontal fog.