FLORIDA TECH

OCN 2407 Test 2 Spring 2021

1. Comparing the three phases of water, molecules in the solid phase (ice) have the slowest vibrational speed, and molecules in the gaseous phase (water vapor) have the highest vibrational speeds.
a. True
b. False

2. Under saturated conditions, for every molecule that evaporates, one must condense, and no net loss of liquid or vapor molecules results.
a. True
b. False

3. The air's moisture content can be described by measuring the pressure exerted by the water vapor in the air.
a. True
b. False

4. As the air temperature increases, the air's capacity for water vapor .
a. increases
b. decreases
c. remains constant
d. is unrelated to air temperature and can either increase or decrease
e. drops by 50 percent

5. Which of the following will increase in a rising parcel of air?
Saturation vapor pressure
Relative humidity
Mixing ratio
Air temperature
Air pressure

6. A high water vapor pressure indicates a(n) .
relatively large number of water vapor molecules in the air
relatively small number of water vapor molecules in the air.
relatively high rate of evaporation
abundant supply of condensation nuclei in the air
relatively high rate of precipitation

7. The percentage of water vapor present in the air compared to that required for saturation is the _____.
a. mixing ratio
b. absolute humidity
c. dew point
d. relative humidity
e. specific humidity

8. If the air temperature remains constant, evaporating water into the air will _____the dew point and_____the relative humidity.
a. increase; increase
b. increase; decrease
c. decrease; increase
d. decrease; decrease

e. not change; not change

9. Condensation nuclei may be made up of salt from the ocean.
a. True
b. False

10. Water vapor cannot condense onto hygroscopic nuclei particles at a relative humidity less than 100 percent.
a. True
b. False

11. Wet haze restricts visibility more than dry haze.
a. True
b. False

12. The cooling of the ground to produce dew is mainly the result of .
a. conduction
b. radiational cooling
c. cooling due to the release of latent heat
d. advection
e. condensation

13. Particles that serve as surfaces on which water vapor may condense are called .
a. hydrophobic nuclei
b. nacreous nuclei
c. condensation nuclei
d. scud
e. molecules

14. Radiation fog forms best on a .
a. clear winter night with a slight breeze
b. cloudy winter night with a strong breeze
c. clear summer night with a strong breeze
d. cloudy summer night with a slight breeze
e. cloudy winter night with a slight breeze

15. The fog that forms along the Pacific coastline of North America is mainly of which type?
a. Radiation fog
b. Upslope fog
c. Frontal fog
d. Advection fog
e. Steam fog

16. Clouds are classified by their .
a. appearance
b. altitude
c. method of formation
d. temperature
e. altitude and appearance

FLORIDA TECH

OCN 2407 Test 2 Spring 2021

17. Cirrus clouds are composed primarily of .
a. water droplets
b. water vapor
c. ice particles
d. salt aerosols
e. dust particles

18. The temperature of rising air at a given level inside a cumulus cloud is normally warmer than the air around the cloud.
a. True
b. False

19. Subsidence has no effect on atmospheric stability.
a. True
b. False

20. A rising parcel of air expands and cools, whereas a sinking parcel is compressed and warms.
a. True
b. False

21. The atmosphere is normally most stable in the early morning and most unstable in the afternoon.
a. True
b. False

22. The up-and-down motions in layered clouds produce globular elements that give the clouds lumpy appearances.
a. True
b. False

23. The rate at which the actual air temperature changes with increasing height above the surface is referred to as the _____rate.

a. dry adiabatic
b. environmental lapse
c. moist adiabatic
d. thermoclinic
e. absolute stability

24. The difference between "moist" and "dry" adiabatic rates is a result of the fact that .
a. saturated air is always unstable
b. an unsaturated air parcel expands more rapidly than a saturated air parcel
c. moist air weighs less than dry air
d. latent heat is released by a rising parcel of saturated air
e. moist air weighs more than dry air

25. An important factor in the production of 'warm' rain by the collision-coalescence process is the number of ice crystals in the cloud.
a. True

b. False

26. A typical cloud droplet has a larger surface-area-to-weight ratio than a typical raindrop.
a. True
b. False

27. Which cloud type below will only produce precipitation by the collision-coalescence process?
a. A thick, cold nimbostratus cloud
b. A thick, warm cumulus cloud
c. A thick, cold cumulus cloud
d. A thick, supercooled cumulonimbus cloud with abundant nuclei
e. A supercooled cumulus congestus cloud

28. Small raindrops fall_____large raindrops, and have _____terminal velocity than/as large raindrops.
a. faster than; a lesser
b. faster than; a greater
c. slower than; a lesser
d. slower than; a greater
e. at the same rate as; the same

29. During the ice crystal process of rain formation, .
a. only ice crystals are present in a cloud
b. ice crystals grow larger at the expense of the surrounding liquid cloud droplets
c. the temperature in the cloud must be -40 degrees Celsius (-40 degrees Fahrenheit) or below
d. the cloud must be a cumuliform cloud
e. the surface temperature must be below freezing

30. The growth of a precipitation particle by the collision of an ice crystal (or snowflake) with a supercooled liquid droplet is called .
a. accretion
b. spontaneous nucleation
c. condensation
d. deposition
e. collision

31. A supercooled cloud droplet _____.
a. an ice crystal surrounded by air warmer than 0 degrees Celsius (32 degrees Fahrenheit)
b. a liquid droplet that is cooler than the air around it
c. a liquid droplet observed at temperatures below 0 degrees Celsius (32 degrees Fahrenheit)
d. a water droplet that has had all its latent heat removed
e. another term for ice crystal

32. Precipitation with the greatest size (diameter) is .
a. the snow pellet
b. the snow grain
c. a hailstone
d. sleet
a raindrop