Geology 305, Spring 2020

Chapter 12 Moisture & Clouds, HW/Quiz

Name_____

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

1) The change of state from a gas to a liquid is called _____.
   A) condensation B) melting C) evaporation D) sublimation

2) _____ is a cloud with its base at or very near the ground.
   A) Stratus B) Cumulus C) Cirrus D) Fog

3) The term _____ is used to describe the conversion of a solid directly to a gas, without passing through the liquid state.
   A) evaporation B) condensation C) sublimation D) melting

4) "Frost" buildup inside a household freezer is an example of which process?
   A) condensation B) deposition C) evaporation D) sublimation

5) _____ is an indication of how near the air is to saturation rather than the actual quantity of water vapor in the air.
   A) Dew-point temperature B) Adiabatic cooling
   C) Relative humidity D) Mixing ratio

6) How can condensation be triggered to form clouds or fog?
   A) Add sufficient water vapor to the air so that it reaches saturation.
   B) Remove sufficient water vapor from the air so that it reaches saturation.
   C) Increase humidity.
   D) Heat the air to its dew point.

7) The cooling or warming of air that occurs because air is allowed to expand or is compressed, not because it is added or subtracted is called _____.
   A) dry adiabatic rate B) sensible heat
   C) adiabatic temperature changes D) wet adiabatic rate

8) The most important process of cloud formation in the atmosphere is _____.
   A) cooling by compression of air B) cooling by release of latent heat of vaporization
   C) cooling by expansion of air D) radiation cooling

9) Dry adiabatic rate only refers to _____.
   A) condensation level B) saturated air C) unsaturated air D) parcel

10) A fire extinguisher containing compressed CO_2 is used to put out a fire. In spite of being close to the flames, the firefighter notices a white layer of "frost" forming on the exterior of the fire extinguisher can. What's going on?
   A) The fire is pulling heat from the surrounding air.
   B) The gas in the extinguisher is expanding when released, cooling adiabatically.
   C) The exterior temperature must be dropping.
   D) The gas in the extinguisher is cooling under higher pressure.

11) When elevated terrain such as a mountain range causes air to rise, this is called _____.
A) convergence B) adiabatic cooling C) frontal wedging D) orographic lifting

12) Air that does not resist vertical displacement is called _____.
A) warming B) cloudy C) stable D) unstable

13) _____ resists upward movement.
A) Unstable air B) Parcels C) Stable air D) Convection

14) What unusual situation can occur in the absence of condensation nuclei?
A) a relative humidity of more than 100 percent B) cumulonimbus clouds
C) adiabatic warming D) cirrostratus clouds

15) Clouds consist of _____.
A) white-colored gases B) water droplets
C) either water droplets or ice particles D) ice particles

16) Which of the following is a cloud of vertical development?
A) stratocumulus B) nimbostratus C) cumulonimbus D) cirrus

17) When warm, moist air moves over a cold surface, _____ fog may result.
A) upslope B) steam C) advection D) radiation

18) Relative to lower temperatures, high temperatures require _____ moisture to fully saturate the air.
A) no B) the same amount of
C) less D) more

19) Mixing ratio, relative humidity, and dew-point temperature are all ways of measuring the amount of _____ in the air.
A) convergence B) vapor pressure C) water vapor D) condensation level

20) _____ clouds form sheets or layers that cover much of the sky.
A) Cumulus B) Cirrostratus C) Cirrus D) Stratus

21) _____ occurs when warm air is forced up and over a mass of cooler air.
A) Convergence B) Frontal wedging C) Orographic lifting D) Adiabatic cooling

22) The _____ is the temperature to which a parcel of air would need to be cooled in order to reach saturation.
A) parcel B) condensation level C) dew point D) water vapor

23) Updrafts in cumulonimbus clouds may loft small particles of ice through the cloud, coating them and producing _____.
A) glaze B) hail C) sleet D) rime

24) _____ occurs when moist air has an environmental lapse rate between the dry and wet adiabatic rates. Simply, the air is stable for an unsaturated parcel or air, but becomes unstable if the parcel of air be forced high enough for it be become saturated.
A) Conditional instability B) Absolute instability
C) Absolute stability D) Conditional stability

25) Liquid water at temperatures below freezing is termed _____.
A) supercooled B) demistified C) hypercondensed D) coalesced

26) Unequal surface heating that causes localized pockets of air (thermals) to rise because of their buoyancy is termed _____.

A) stable air B) convective lifting C) convergence D) adiabatic cooling