

Practice Questions Meteorology

1. In what layer of the atmosphere is weather experienced?
 - a) Ionosphere
 - b) Thermosphere
 - c) Stratosphere
 - d) Troposphere
 - e) The Boundary Layer

2. Give a colloquial definition of the _th Law of Thermodynamics.

- a) You can't get out of the game
- b) You can't win
- c) Law of Identity
- d) You can't break even
- e) None of the above

3. Which of the following is not one of the three modes of aerosol particles?

- a) Sedimentation
- b) Coarse
- c) Aitken
- d) Accumulation
- e) All four above are one of the three modes.

4. Which of the following is not a true statement about the happy drinking bird?
- a) The force pushing the liquid up the tube is vapor pressure.
 - b) The forces pushing the liquid down the tube are vapor pressure and gravity.
 - c) The system is driven by evaporative cooling.
 - d) The temperature on the happy drinking bird's head is the dew point.
 - e) The happy drinking bird works best under humid conditions.

5. Which of the following is not a valid cause for vertical motion in the atmosphere?

- a) Differential heating
- b) Ringdown convection
- c) Frontal wedging
- d) Convergence
- e) Orographic lifting

6. Which of the following is not a true statement about the Coriolis effect?

- a) It only exists in rotating reference frames.
- b) It increases the velocity of the horizontal wind.
- c) It influences the direction of horizontal wind.
- d) It ultimately causes the trade winds and the westerlies.
- e) All of the above are true.

7. Which of the following is usually most closely associated with good weather?

- a) Warm fronts
- b) Cold fronts
- c) High Pressures
- d) Low Pressures
- e) None of the above

8. Which of the following is not a real form of precipitation?

- a) Rime
- b) Graupel
- c) Sleet
- d) Glaze
- e) These are all real forms of precipitation

9. Which of the following is not on a typical station model?

- a) Current temperature
- b) Cloud coverage
- c) Wind speed and direction
- d) Relative humidity
- e) Surface pressure

10. What mathematical tool is used to describe the change of velocity in a fluid?

- a) Hartree-Fock Equation(s)
- b) Stefan-Boltzmann Law
- c) Gauss Elimination
- d) Navier-Stokes Equation(s)
- e) Plank Function(s)

11. Which of the following can most safely be ignored when looking at forces on air on Earth?
- a) Centrifugal Force
 - b) Gravity Force
 - c) Frictional Force
 - d) Coriolis Force
 - e) Pressure Gradient Force

12. Why does vapor pressure increase with temperature?

- a) More room between air molecules can accommodate more water.
- b) Higher air temperature breaks the air lattice apart.
- c) Molecules in liquid phase have a better chance of overcoming phase transformation energy.
- d) Nobody knows why.
- e) It doesn't; vapor pressure decreases with temperature.

13. What is the instrument called that measures relative humidity?

- a) Anomometer
- b) Barometer
- c) Hygrometer
- d) Sling Psychrometer
- e) Disdrometer

14. On the following list, what is normally the _th most common constituent in the atmosphere?
- a) Water
 - b) Carbon Dioxide
 - c) Nitrogen
 - d) Argon
 - e) Oxygen

15. Isobars on a map are lines of constant _

- a) Temperature
- b) Humidity
- c) Relative Humidity
- d) Pressure
- e) Wind

16. Which of the following is not a type of front?

- a) Cold
- b) Occluded
- c) Dry Line
- d) Orographic
- e) Stationary

17. Why do we typically use Mercury in a barometer?

- a) It is easy to see
- b) It is dense
- c) It has a low vapor pressure
- d) It is liquid at all normal atmospheric temperatures
- e) All of the above are true and beneficial.

18. What is the phase change from gas to solid called?

- a) Condensing
- b) Sublimation
- c) Freezing Condensation
- d) Insolation
- e) Deposition

19. Which of the following would involve the largest amount of energy transfer?

- a) Raising 2 grams of water from 5 degrees C to 95 degrees C
- b) Raising 4 grams of water from 5 degrees C to 95 degrees C
- c) Cooling 2 grams of water from 98 degrees C to 2 degrees C
- d) Melting 4 grams of water
- e) Boiling 1 gram of water

20. What variable changes how it behaves when moving between layers in the atmosphere?

- a) Pressure
- b) Vapor Pressure
- c) Temperature
- d) Relative Humidity
- e) None of the above

21. What type of plot should you use to graph pressure (on the y-axis) as a function of height (x-axis) for the whole atmosphere?
- a) Log-log
 - b) Linear-linear
 - c) Semilog y (log on the y, linear on the x)
 - d) Semilog x (log on the x, linear on the y)
 - e) None of the above

22. What is the adiabatic lapse rate?

- a) About 10 degrees per km for dry air.
- b) Less than 10 degrees per km for wet air.
- c) The amount of cooling one gets when moving up in the atmosphere.
- d) Dependent on the layer of the atmosphere you are in.
- e) All of the above

23. What slope would the equation $y = 5x^4$ have on a log-log plot?

- a) 5
- b) 4
- c) 20
- d) 1
- e) 0