

Meteorological Science Fundamentals

Meteorology · Answer Key · 12 Questions

1. Which layer of the Earth's atmosphere contains approximately 75-80% of its total mass and almost all of its water vapor?

- A) Stratosphere
- B) Troposphere**
- C) Mesosphere
- D) Thermosphere

2. What is the name of the process by which water vapor changes directly into ice without first becoming a liquid?

- A) Evaporation
- B) Condensation
- C) Deposition**
- D) Sublimation

3. The Coriolis effect, which causes moving air to deflect to the right in the Northern Hemisphere, is a direct result of which phenomenon?

- A) Earth's rotation**
- B) Atmospheric pressure gradients
- C) Solar radiation
- D) Ocean current friction

4. Which instrument is used specifically to measure the duration and intensity of sunshine at a given location?

- A) Barometer
- B) Anemometer
- C) Hygrometer
- D) Campbell-Stokes recorder**

5. What is the standard sea-level atmospheric pressure expressed in hectopascals (hPa)?

- A) 1013.25 hPa**
- B) 980.50 hPa
- C) 1050.75 hPa
- D) 1000.00 hPa

6. In meteorology, what is the 'dew point' defined as?

A) The temperature at which air is saturated with water vapor

B) The rate of evaporation in a closed system

C) The altitude where clouds begin to form

D) The pressure exerted by water vapor

7. Which type of cloud is characterized by its high altitude, thin, wispy appearance, and composition of ice crystals?

A) Cumulus

B) Stratus

C) Cirrus

D) Nimbostratus

8. What is the primary gas, by volume, that makes up the Earth's dry atmosphere?

A) Oxygen

B) Argon

C) Carbon dioxide

D) Nitrogen

9. The 'Walker Circulation' is a conceptual model of the air circulation in which region?

A) Equatorial Pacific Ocean

B) Arctic Circle

C) The Mediterranean Sea

D) The Sahara Desert

10. What is the term for the boundary separating two air masses of different densities, usually characterized by different temperatures?

A) Isobar

B) Front

C) Isotherm

D) Jet stream

11. Which of these clouds is most frequently associated with severe thunderstorms and heavy precipitation?

A) Altocumulus

B) Cirrocumulus

C) Cumulonimbus

D) Stratocumulus

12. The 'Greenhouse Effect' is primarily caused by the absorption of which type of radiation by atmospheric gases?

- A) Ultraviolet radiation
- B) Visible light
- C) Infrared radiation**
- D) X-ray radiation