

Question 1

The gas which comprises most of the atmosphere is:

Answer (a) Nitrogen

Over three quarters of the atmosphere consists of Nitrogen. Oxygen makes up about one fifth of the atmosphere. Both of these gasses account for 99% of the earth's atmosphere.

Question 2

The layer of the atmosphere where most of the world's weather occurs is:

Answer (a) Troposphere

The troposphere is the layer closest to the ground. It is where we live and where weather occurs.

Question 3

The boundary between the troposphere and stratosphere is called the:

Answer (b) tropopause

The tropopause marks the boundary where the temperature begins to increase with height dividing the troposphere and stratosphere. The anvil shaped tops of cumulonimbus clouds marks the location of the tropopause.

Question 4

The tropopause is highest at the north and south poles (TRUE/FALSE).

Answer (b) False

The abundant sunshine the tropics receive year round causes many thunderstorms. It is the rising air in these thunderstorms that pushes the tropopause very high into the atmosphere.

Question 5

It is _____ to breath on top of Mount Whitney, California (elevation 14,494 ft/4418 m) than at sea level because there are _____ oxygen molecules at the summit.

Answer (a) harder / less

There is a decrease of about 42% in oxygen molecules at the summit of Mount Whitney.

Question 6

Moist air weighs less than dry air (TRUE/FALSE).

Answer (a) True

Water molecules consists of two hydrogen atoms and one oxygen atom. Hydrogen atoms are the lightest elements in existence. Oxygen atoms are eight times heavier. The combination of two hydrogen atoms and one oxygen atom takes up more space as compared to lone oxygen atoms. Therefore, moist air in any given space, means less stand-alone oxygen atoms which means less weight.

Heat in the form of longwave radiation emitted from the earth is reflected back toward the earth under cloudy skies thereby keeping the temperatures higher than what would occur under clear skies.

Question 7

You notice on a barometer that air pressure has been decreasing rapidly. The type of weather that would normally be expected to occur would be:

Answer (c) Thunderstorms

Thunderstorms form when air rises rapidly. Rapid rising air also means a decrease of air mass at the surface which leads to decreasing pressure.

Question 8

If you feel the heat in the handle of a cooking pot, that heat was transferred to the handle by:

Answer (b) Conduction

Conduction is the transfer of heat energy from one substance to another or within a substance.

Question 9

A sunburn is caused by which method of heat transfer:

Answer (a) Radiation

The warmth you feel from the sun is from infrared radiation. However, the shorter ultra-violet radiation is what actually burns the skin. Clouds easily block the longer wavelength infrared radiation which is why you feel cooler when the sun goes behind a cloud. Not so with the UV radiation. It passes through the clouds and still burns as much as if there were no clouds.

Question 10

Light colored objects absorb radiation _____ and emit radiation _____ than dark colored objects.

Answer (b) slower / slower .

The more radiation an object absorbs the higher the temperature that object becomes. The higher the temperature, the more radiation that object also emits. This is called black body radiation. Light colored objects absorb radiation slowly and therefore emit slowly.

Question 11

At night, temperatures will normally be higher under cloudy skies than under clear skies.

Answer (a) True

Question 12

The hydrologic cycle is:

Answer (b) Evaporation, Transpiration, Condensation, Precipitation, Runoff

The hydrologic cycle has been known for at least 3000 years.

Question 13

The brief cloud that forms when you exhale on a cold winter day was formed because of:

Answer (b) Condensation

As you exhale, the warm, moist air is cooled to the point where the water vapor CONDENSES into a cloud. As the air is cooled further, the air evaporates again as it mixes with the drier surrounding air. There are times when the air is so cold, it can not hold any moisture. The cloud that forms with an animal or human exhales does not evaporate but remains in the atmosphere forming "habitation fog". It is most common in Siberia during the extremely cold winters but has been seen in Canada and Alaska.

Question 14

There is more water in the atmosphere than in glaciers & icecaps.

Answer (b) False

At a little over 2%, glaciers rank second as the earth's source of water. The oceans contain over 97% of the earth's water. The atmosphere contains only one one-thousandths (0.001%) of the earth's water.