

# Chapter

## Weather and Climate

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### I. Choose the correct Answer:

1. Earth's atmosphere contains about percentage of nitrogen and oxygen.

- a) 78% and 21%
- b) 22% and 1%
- c) 21% and 0.97%
- d) 10% and 20%

**Answer:**

- a) 78% and 21%

2. .... is generally defined as the average conditions of the weather of a place or a region.

- a) earth
- b) atmosphere
- c) climate
- d) sun

**Answer:**

- c) climate

3. The earth receives energy from

- a) current
- b) electro magnetic radiation
- c) waves
- d) heat

**Answer:**

- d) heat

4. Which one the following represents places with equal amount of rainfall

- a) isotherm
- b) isohel
- c) isobar
- d) isohytes

**Answer:**

- d) isohytes

5. .... is used to measure the humidity.

- a) anemometer
- b) barometer
- c) hygrometer
- d) thermometer

**Answer:**

- c) hygrometer

## II. Fill in the blank

1. .... refers to the condition of atmosphere for a short period of time.

**Answer:**

Weather

2. The scientific study of weather is called .....

**Answer:**

Meteorology

3. The highest temperature ever recorded on the earth is .....

**Answer:**

56.7°C in USA

4. .... is a ratio between the actual amount of water vapour and the maximum amount of water vapour the air can hold.

**Answer:**

Humidity

5. .... and .... are measured by anemometer and wind vane respectively.

**Answer:**

Wind direction and wind speed

6. .... are imaginary lines which connect the same temperatures of different places.

**Answer:**

Isotherms

## III. Match the following

1. Climate	a) Locating and Tracking Storms
2. Isonif	b) Cyclone
3. Hygrometer	c) Equal Snowfall
4. Radar	d) Long Term Changes
5. Low Pressure	e) Humidity

**Answer:**

1. Climate	d) Long Term Changes
2. Isonif	c) Equal Snowfall
3. Hygrometer	e) Humidity
4. Radar	a) Locating and Tracking Storms
5. Low Pressure	b) Cyclone

#### **IV. State whether the following statements are True or False:**

1. The atmosphere is a layer of gases surrounding the planet.

**Answer:**

True

2. The scientific study of weather is called Climatology.

**Answer:**

False

3. Isohel refers equal sunshine.

**Answer:**

True

4. Humidity is calculated by Aneroid Barometer.

**Answer:**

False

#### **V. Answer in brief:**

1. Define 'weather'.

**Answer:**

Weather is the day today conditions(state) of the atmosphere at any place as regards sunshine, temperature, cloud cover. Wind fog condition, air pressure, humidity, precipitation and such other elements.

2. What is insolation?

**Answer:**

Incoming solar radiation are called Insolation.

3. What is meant by atmospheric pressure?

**Answer:**

The weight of air above a given area on the earth's surface is called atmospheric pressure or air pressure.

4. Write a short note on "Planetary winds"

**Answer:**

- Planetary winds are the ones which blow almost in the same direction throughout the year.
- So, they are called as planetary winds.

5. What are "Isolines"?

**Answer:**

The distribution of weather elements is shown by means of Isolines on maps. Isolines are lines which join the places of equal values of weather elements.

## VI. Distinguish the following:

1. Weather and climate.

Weather	Climate
1. Weather is the day today conditions of the atmosphere like sunshine, temperature humidity and such other elements.	Climate is generally defined as the average conditions of the weather of place or a region.
2. Weather is cool in .winter and hot in summer.	The Climate does not change often like weather.

2. Absolute and relative humidity.

Absolute Humidity	Relative Humidity
1. It is the mass or weight of water vapour present per unit volume of air.	It is a ratio between the actual amount of water vapour present in the air and the maximum amount of water vapour it can hold at given temperature.
2. These expressed usually in grams per cubic meter of air.	It is expressed as a percentage.

3. Permanent and seasonal winds.

Permanent wind	Seasonal wind
1. Permanent winds, are also called planetary winds.	Monsoon winds are also called as seasonal winds.
2. These winds blow almost in the same direction throughout the year.	These winds are blowing from sea to land during summer and land to sea during winter.

## VII. Give reasons:

1. The Weather and climate in different regions vary.

**Answer:**

The angle of the sun's rays, the length of daytime, altitude, distribution of land and water bodies, location and direction of mountain ranges, air pressure, winds, and ocean currents are the major factors which affect the weather and climate of a region.

2. Temperature decreases with an increase in altitude.

**Answer:**

It is known as the Lapse rate which is 6.5-degree Celcius per 1000 meters is the troposphere.

3. Mountain climbers carry Oxygen cylinders while ascending peaks.

**Answer:**

With decreasing air pressure, the availability of oxygen to breathe also decreases. At very high altitudes, atmospheric pressure and available oxygen get so low that people can become sick and even die. Mountain climbers use bottled oxygen when they ascend very high peaks.

### **VIII. Answer in a paragraph:**

1. How is temperature measured?

**Answer:**

Measuring Temperature:

1. The temperature of a unit volume of air at a given time is measured in scales like Celsius, Fahrenheit, and Kelvin. Meteorologist measures the temperature by the Thermometer, Stevenson screen and minimum and maximum Thermometer.

2. The energy received by the earth through insolation is lost by outgoing radiation.

3. Atmosphere is mainly heated by outgoing radiation from 2 to 4 pm. So the maximum temperature is recorded between 2 and 4 pm regularly and the minimum temperature is recorded around 4 am before sunrise.

Mean Temperature:

1. The average of the maximum and minimum temperatures within 24 hours is called mean daily temperature  $[(87^{\circ}\text{F} + 73^{\circ}\text{F})/2 = 80^{\circ}\text{F}]$ .

2. Diurnal range of temperature is the difference between the maximum and minimum temperatures of a day. The annual range of temperature is the difference between the highest and lowest mean monthly temperatures of a year.

2. Write about the wind and its types.

**Answer:**

The horizontal movement of air is called wind. The wind systems are broadly categorized into three as follows.

- Planetary winds
- Seasonal winds
- Local winds

1. Planetary Winds are the ones which blow almost in the same direction throughout the year. So, they are called as Permanent or planetary winds. Trade winds, Westerlies, and polar easterlies are the types of prevailing winds.

2. Seasonal winds are those which change their direction according to the season in a year. They are called as monsoon winds. These winds blow from sea to land during summer and land to sea during winter.

3. Local winds are the winds that blow over a small area only during a particular time of a day or a short period of a year. Land and sea breezes are examples of these winds.

3. List out the weather elements and associated measuring instruments.

**Answer:**

Weather elements	Measuring instruments
Temperature	Celsius, Fahrenheit, Kelvin
Rainfall	Rain gauge
Air Pressure	Aneroid Barometer
Humidity	Hygrometer
Wind	Anemometer

**IX. Give any three suggestions to reduce global warming:**

1. Plant trees.
2. Recycle the used things.
3. Composite wasted food and biodegradables.