

2. Weather and Climate

Class: VIII

Subject: Social (Geo)

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%

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

3. The earth receives energy from .

a) current

b) electro magnetic radiation

c) waves

d) heat

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

a) Isotherm

b) Isohel

c) Isobar

d) Isohytes

5. _____ is used to measure the humidity.

a) anemometer

b) barometer

c) hygrometer

d) thermometer

II. Fill in the blanks

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

2. The scientific study of weather is called Meteorology.

3. The highest temperature ever recorded on the earth is 56.7°C.

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

5. Wind speed and Wind direction are measured by anemometer and wind vane respectively.

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

III. Match the following

1. Climate	-	Locating and Tracking Storms	4
2. Isonif	-	Cyclone	3
3. Hygrometer	-	Equal Snowfall	5
4. Radar	-	Long Term Changes	1
5. Low Pressure	-	Humidity	2

IV. State whether the following statements are True or False

1. The atmosphere is a layer of gases surrounding the planet. **True**
2. The Scientific study of weather is called **Meteorology**. **False**
3. Isohel refers equal sunshine. **True**
4. **Air pressure** is calculated by Aneroid Barometer. **False**

V. Answer briefly

1. Define 'weather'.

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?

Insolation is the solar radiation that reaches the earth's surface. The earth and its atmosphere get heated from the sun through insolation.

3. What is meant by atmospheric pressure?

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".

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.

5. What are "Isolines"?

Distribution of weather elements are shown by means of Isolines on maps. Isolines are those which join the places of equal values.

VI. Distinguish between

1. Weather and climate.

Weather	Climate
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	Climate is generally defined as the average conditions (state) of the weather of a place or a region. The average atmospheric conditions are determined by measuring the weather elements for a long period of time which is

elements.	usually for 35 years.
It refers to short periods like a day, a week, a month or a little longer and as such the weather changes from time to time in a day and one period to the other in an year.	The elements of weather and climate are the same. The climate does not change often like weather.

2. Absolute and relative humidity.

Absolute Humidity	Relative humidity
Absolute Humidity is the mass or weight of water vapour present per unit volume of air.	Relative humidity 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 a given temperature.
It is expressed usually in grams per cubic meter of air.	It is expressed as a percentage.

3. Permanent and seasonal winds.

Permanent winds	seasonal winds.
Planetary Winds are the ones which blow almost in the same direction throughout the year.	Trade winds, Westerlies and polar easterlies are the types of prevailing winds. Seasonal winds are those which change their direction according to season in a year.
So, they are called as Permanent or planetary winds.	They are called as monsoon winds. These winds blow from sea to land during summer and land to sea during winter.

VII. Give reasons

1. The Weather and climate in different regions vary.

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 increase in altitude.

Temperature varies both horizontally and vertically. Temperature decreases with increasing height is known as Lapse rate which is 6.5 degree Celsius per 1000 meters in Troposphere.

3. Mountain climbers carry oxygen cylinders while ascending peaks.

With decreasing air pressure, the availability of oxygen to breath 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?

Measuring Temperature

- 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.
- The energy received by the earth through insolation is lost by outgoing radiation.
- Atmosphere is mainly heated by outgoing radiation from 2 to 4pm. So the maximum temperature is recorded between

2 and 4 pm regularly and minimum temperature is recorded around 4 am before sunrise.

Mean Temperature

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

The horizontal movement of air is called wind.

The wind systems are broadly categorized into three as follows.

- Planetary winds
- Seasonal winds
- Local winds

Planetary Winds:

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 (or) Seasonal Winds

Trade winds, Westerlies and polar easterlies are the types of prevailing winds. Seasonal winds are those which change their direction according to 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.

Local Winds:

Local winds are the winds 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 example of these winds.

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

Temperature, rainfall, pressure, humidity and wind are the major elements of weather and climate.

a) Temperature

Temperature is one of the key elements of weather and climate. Measured in scales like Celsius, Fahrenheit, and Kelvin. Meteorologist measures the temperature by the Thermometer, Stevenson screen and minimum and maximum Thermometer.

b) Rain

Rain is a major component of the water cycle and is responsible for depositing most of the fresh water on the Earth

c) Air Pressure

Meteorologist uses barometer/aneroid barometer to measure the air pressure. Barograms are used for recording continuous variation in atmospheric pressure.

d) Humidity

Hygrometer is used to measure the humidity. (Which comprises wet and dry bulbplate side by side in the Stevenson screen)

e) Wind

i) Meteorologist measures wind direction using wind vane or weather cock. Wind speed is measured by anemometer. Wind rose is

a diagram used to depict the direction and periods (No. of days) of prevailing winds on map.

ii) Meteorograph or triple register is an instrument which records wind speed and direction, sunshine and precipitation. It also provides graphic representation.

IX. Give any three suggestions to reduce global warming

- 1) Switching over to renewable energy source.
- 2) Reduce water wastage.
- 3) Shrinking carbon profile.

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