Geography Chapter 1: Weather and Climate

One-Mark Questions

1. **Question:** The average weather condition of a large area over a period of 35-40 years.

   Answer: Climate

2. **Question:** The agency responsible for weather forecasting in India.

   Answer: Indian Meteorological Department (IMD)

3. **Question:** The process by which energy is produced in the sun.

   Answer: Nuclear fusion

4. **Question:** The amount of solar radiation reaching the earth's surface.

   Answer: Insolation

5. **Question:** The process of horizontal heat transfer through wind.

   Answer: Advection

6. **Question:** The process of heat transfer where heated air expands and rises.

   Answer: Convection

7. **Question:** The re-radiation of energy from the earth's surface in long waves.

   Answer: Terrestrial radiation

8. **Question:** The phenomenon where atmospheric gases like CO_2 trap heat.

   Answer: Green House Effect

9. **Question:** The balance between the energy received and sent back by the earth.

   Answer: Heat Budget

10. **Question:** The imaginary lines connecting places having equal temperature.

    Answer: Isotherms

11. **Question:** The temperature zone located between 23½° N and 23½° S latitudes.

    Answer: Torrid Zone

12. **Question:** The rate of decrease in temperature at 6.4°C per kilometer of altitude.

Answer: Normal Lapse Rate

13. **Question:** The instrument used to measure atmospheric pressure.

    Answer: Barometer

14. **Question:** The imaginary lines connecting places having equal atmospheric pressure.

    Answer: Isobars

15. **Question:** The force generated by the earth's rotation that deflects winds.

    Answer: Coriolis Force

16. **Question:** The law stating winds deflect right in the Northern Hemisphere and left in the Southern Hemisphere.

    Answer: Ferrel’s Law

17. **Question:** The instrument used to measure wind speed.

    Answer: Anemometer

18. **Question:** The low-pressure belt also known as the "Doldrums."

    Answer: Equatorial Low Pressure Belt (or ITCZ)

19. **Question:** The planetary winds that blow from the Subtropical High to the Equatorial Low.

    Answer: Trade winds

20. **Question:** The local hot wind blowing in the North Indian plains.

    Answer: Loo

21. **Question:** The local wind known as the "Snow eater" in the Rocky Mountains.

    Answer: Chinook

22. **Question:** The periodic wind that blows from land to sea during the night.

    Answer: Land breeze

23. **Question:** The term derived from the Arabic word 'Mausim' meaning season.

    Answer: Monsoon

24. **Question:** The monsoon wind that enters India in the month of June.

    Answer: Southwest Monsoon

25. **Question:** What are the winds that blow down the mountain slopes during the night?

    Answer: Mountain breezes.

26. **Question:** Why does air move up the mountain slopes from the valley during the day?

    Answer: Because of the heating by sunlight and the rising up of air along the slopes.

27. **Question:** What happens to the air along mountain slopes at night to cause a mountain breeze?

    Answer: The air cools and contracts.

28. **Question:** In which direction does a Valley Breeze blow?

    Answer: It blows up-slope from the valley.

29. **What are winds formed due to local differences in temperature and pressure called?**

    Answer: Local winds

30. **What is the name of the hot local wind that blows in the North Indian Plains?**

    Answer: Loo.

31. **Which local wind is found on the slopes of the Rocky Mountains in North America?**

    Answer: Chinook.

32. **What is the characteristic of the 'Foehn' wind found in the Alps?**

    Answer: Dry hot wind.

33. **Which local wind provides relief from intense heat in the Sahara Desert?**

    Answer: Harmattan.

34. **What term is used for winds whose intensity or direction cannot be predicted?**

    Answer: Variable winds.

35. **What is a low-pressure system towards which winds whirl from the surroundings called?**

    Answer: Cyclone.

36. **In which hemisphere is the direction of air flow into a cyclone anticlockwise?**

    Answer: Northern Hemisphere.

37. **Where do tropical cyclones typically originate?**

    Answer: Tropical oceans.

38. **Which type of cyclone forms where warm and cold air masses meet?**

    Answer: Temperate cyclone.

39. **What is a high-pressure system from which winds whirl outwards called?**
    Answer: Anticyclone.
40. **What is the direction of wind flow in an anticyclone in the Southern Hemisphere?**
    Answer: Anticlockwise.
41. **What is the invisible water content in the atmosphere called?**
    Answer: Humidity.
42. **By which process does water turn into water vapour due to solar energy?**
    Answer: Evaporation.
43. **Question:** What is the meaning of the term 'monsoon'?
    Answer: It implies the seasonal reversal in the wind pattern.
44. **Question:** What type of pressure develops over the Indian Subcontinent during summer?
    Answer: Severe low pressure.
45. **Question:** Why do the Southwest monsoon winds cause widespread rainfall?
    Answer: Because they blow from the Indian Ocean towards the land mass.
46. **Question:** Which effect causes the summer winds to blow specifically as "Southwest" winds?
    Answer: Coriolis effect.
47. **Question:** During which season does high pressure develop over North India?
    Answer: Winter.
48. **Question:** Why are Northeast monsoon winds generally dry?
    Answer: Because they blow from the land towards the Indian Ocean

2 Mark Questions

1. Question: Differentiate between Weather and Climate.

Answer:

- Atmospheric conditions such as temperature, pressure, wind, humidity and precipitation for a shorter period of time are termed as Weather
- The average weather condition experienced for a longer period over a larger area is termed as the Climate.

2. Question: How does the process of Conduction heat the atmosphere?

Answer:

Conduction occurs when the heat from the earth's surface is transferred to the layer of air in direct contact with it. Since air is a poor conductor of heat, this process is limited only to the lower layers of the atmosphere.

3. What is meant by Insolation and Terrestrial radiation ?

Answer:

- The amount of sun's rays reaching the earth's surface as short waves is called Insolation.
- The re-radiation of energy in the form of long waves from the earth's surface is called Terrestrial radiation.

4. Question: Explain the process of Convection in the atmosphere.

Answer:

When the air in contact with the earth's surface is heated, it expands and rises upwards because it becomes lighter. This is followed by the downward movement of cold air from above to take its place, creating a cycle that transfers heat to higher reaches.

5. Question: What is Advection? Give an example.

Answer

Advection is the transfer of heat through the horizontal movement of air (wind). An example of this is the "Loo" wind in North India, which raises the temperature of the regions it blows over.

6. Question: Explain Terrestrial Radiation and its role in heating the atmosphere.

Answer:

The earth's surface, after being heated by the sun, re-radiates energy back into space in the form of long waves. This is called terrestrial radiation. The atmosphere absorbs this heat, which is why the atmosphere is mainly heated from below.

7. Question: What is the Greenhouse Effect?

Answer:

Some gases in the atmosphere, like Carbon dioxide, absorb the terrestrial radiation and prevent the heat from escaping into space. This process keeps the atmosphere warm and is known as the Greenhouse Effect.

8. Question: What do you mean by the Heat Budget of the Earth?

Answer:

The earth sends back the entire energy it receives from the sun through various processes like reflection and radiation. This balance between the energy received (insolation) and the energy sent back (terrestrial radiation) is called the Heat Budget.

9. Question: How does Altitude affect the temperature of a place?

Answer:

As we move higher into the atmosphere, the temperature decreases at a rate of 6.4°C for every 1000 meters (1 km). This is why mountain stations like Munnar or Ooty are cooler than the plains.

10. Question: Explain the relationship between Temperature and Atmospheric Pressure.

Answer:

Temperature and pressure are inversely related. When the temperature increases, the air expands, becomes less dense, and rises, leading to low pressure. Conversely, when temperature decreases, the air becomes dense and sinks, leading to high pressure.

11. Question: How does Latitude influence the distribution of temperature on Earth?

Answer:

The intensity of sunlight is highest at the equator where the sun's rays fall vertically. As we move towards the poles, the rays fall slanting, covering a larger area with less intensity, which results in a decrease in temperature.

12. Question: Name the three factors that influence atmospheric pressure.

Answer:

The three main factors are:

Temperature

Altitude (Height above sea level)

Humidity (Moisture content in the air)

13. Question: How is the 'Diurnal Range of Temperature' different from 'Mean Daily Temperature'?

Answer:

Diurnal range is the difference between the maximum and minimum temperature of a single day. Mean daily temperature is the average of the maximum and minimum temperatures recorded in a day.

14. Question: Why is the 'Torrid Zone' the hottest temperature zone on Earth?

Answer: The Torrid Zone (located between 23½° N and 23½° S) is the hottest because the sun's rays fall vertically over this region throughout the year, providing intense heat over a small area.

15. Question: Define 'Normal Lapse Rate'.

Answer: It is the rate at which temperature decreases with an increase in altitude. In the lower atmosphere, the temperature drops by about 6.4°C for every 1000 meters (1 km) of height.

16. Question: Explain 'Coriolis Force' and its effect on winds.

Answer: Coriolis Force is the force generated by the rotation of the earth. It causes winds to deflect to the right in the Northern Hemisphere and to the left in the Southern Hemisphere.

17. Question: What is 'Ferrel's Law'?

Answer: Ferrel's Law states that due to the Coriolis Force, winds are deflected to the right in the Northern Hemisphere and to the left in the Southern Hemisphere.

18. Question: How does humidity affect atmospheric pressure?

Answer: Humid air is lighter than dry air because water molecules displace heavier gases like nitrogen. Therefore, as humidity increases, atmospheric pressure decreases.

19. Question: Briefly explain 'Land Breeze'.

Answer: During the night, the land cools faster than the sea, creating high pressure over land and low pressure over sea. This causes wind to blow from the land toward the sea.

20. Question: What are 'Planetary Winds'? Name the three types.

Answer: These are winds that blow throughout the year in the same direction between global pressure belts. The three types are Trade Winds, Westerlies, and Polar Easterlies.

21. Question: Why are mountains cooler than the plains?

Answer: This is due to the Normal Lapse Rate. As altitude increases, the density of the air and the temperature decrease, making high-altitude mountain stations cooler than the low-lying plains.

22. Question: What is the 'Thermal Equator'?

Answer: It is an imaginary line connecting places that have the highest mean annual temperature along every longitude. It is generally found near the geographical equator.

23. What are local winds? Mention any two examples.

Answer: Local winds are winds formed as a result of local differences in temperature and pressure in different parts of the world. They are often periodic and known by local regional names. Examples include the Loo and Chinook.

24. Differentiate between 'Chinook' and 'Harmattan' winds.

Answer: Chinook is a dry hot wind that blows on the slopes of the Rocky Mountains in North America. Harmattan is a local wind in the Sahara Desert of Africa that provides relief from intense heat.

25. Compare the wind direction of cyclones in the Northern and Southern Hemispheres.

Answer: In a cyclone, the direction of air flow is anticlockwise in the Northern Hemisphere. In the Southern Hemisphere, the direction of air flow is clockwise.

26. Explain why tropical cyclones dissipate when they enter land.

Answer: Tropical cyclones dissipate on hitting land due to the different temperature conditions prevailing on land compared to the ocean. Additionally, the friction caused by land surfaces contributes to their dissipation.

27.Briefly describe the characteristics of Temperate Cyclones.

Answer: Temperate cyclones form in temperate regions where warm and cold air masses meet. Although they are larger in diameter than tropical cyclones, they are generally less devastative and can move over land.

28.What are Anticyclones? How is their wind direction determined?

Answer: Anticyclones are high-pressure systems from which winds whirl outwards. Their flow is clockwise in the Northern Hemisphere and anticlockwise in the Southern Hemisphere.

29.Define humidity and explain how it enters the atmosphere.

Answer: Humidity is the invisible water content present in the atmosphere. It reaches the atmosphere when water from various sources on the Earth's surface turns into water vapour due to heating by sunlight.

4 Mark Questions

1. Question: Explain the four different processes of heat transfer in the atmosphere.

Answer:

The atmosphere is heated through the following four processes:

Conduction: Heat is transferred to the layer of air in direct contact with the heated earth's surface.

Convection: Heated air expands and rises, while cold air sinks to replace it, creating a vertical heat transfer cycle.

Advection: Heat is transferred horizontally through the movement of winds (e.g., the 'Loo' wind in North India).

Terrestrial Radiation: The earth radiates the heat it absorbed back into the atmosphere in the form of long waves.

2. Question: Describe the distribution of the three Temperature Zones on Earth with the help of latitudes.

Answer:

Based on the availability of sunlight, the Earth is divided into:

Torrid Zone: Located between 23½° N (Tropic of Cancer) and 23½° S (Tropic of Capricorn). It receives vertical sun rays and is the hottest zone.

Temperate Zone: Located between 23½° and 66½° in both the Northern and Southern hemispheres. It receives slanting rays and has moderate temperatures.

Frigid Zone: Located between 66½° (Arctic/Antarctic circles) and the Poles (90°). It receives very slanting rays and remains extremely cold throughout the year.

3. Question: Discuss the three major factors that influence the atmospheric pressure of a place.

Answer:

Atmospheric pressure is affected by:

Temperature: When temperature rises, air expands and becomes lighter, leading to Low Pressure. When temperature falls, air becomes dense and sinks, leading to High Pressure.

Altitude: Pressure is highest at sea level and decreases with height. This is because the air column becomes thinner and less dense as we go up.

Humidity: Water vapor is lighter than dry air. Therefore, moist air (high humidity) weighs less than dry air, resulting in lower atmospheric pressure.

4. Question: How do "Distance from the sea" and "Ocean Currents" affect the temperature of a region?

Answer:

Distance from the Sea: Water heats up and cools down slower than land. Coastal areas have a moderate (maritime) climate. Inland areas, far from the sea, experience extreme (continental) climate with very hot summers and cold winters.

Ocean Currents: These are massive movements of water in the ocean.

Warm Currents: Increase the temperature of the coastal regions they flow past (e.g., North Atlantic Drift).

Cold Currents: Lower the temperature of the coastal regions they flow past (e.g., Labrador Current).

5. Question: Define Isotherms and explain how they are used to represent temperature distribution.

Answer:

Isotherms are imaginary lines drawn on maps connecting places that have equal temperature.

They help in understanding the spatial distribution of temperature across the globe.

Isotherms generally run parallel to latitudes, but they bend when passing from land to sea due to the difference in heating.

The line connecting places with the highest mean annual temperature along every longitude is called the Thermal Equator.

he Earth's surface is divided into seven distinct pressure belts which are formed due to differences in temperature (thermal factor) and the Earth's rotation (dynamic factor).

6. Question: Describe the global pressure belts and how they are formed.

Answer: There are four main types of pressure belts:

Equatorial Low Pressure Belt (Doldrums)

- Location: Extends between 5 degree North and 5 degree South latitudes.
- Formation: This region receives vertical rays of the sun throughout the year, making it extremely hot. The air expands, becomes lighter, and rises.
- Characteristics: It is a region of calm air known as the Doldrums. It is also called the Inter Tropical Convergence Zone (ITCZ) because the Trade Winds from both hemispheres converge here.

Subtropical High Pressure Belts

- Location: Located around 30 degree North and 30 degree South latitudes.
- Formation: The hot air rising from the Equator cools as it reaches higher altitudes and begins to move towards the poles. Due to the Earth's rotation (Coriolis effect), this air descends or "subsides" around these latitudes, creating high pressure.
- These areas are known as Horse Latitudes.

Subpolar Low Pressure Belts

- Location: Located around 60 degree North and 60 degree South latitudes.
- Formation: In these regions, the air moves away from the surface due to the centrifugal force of the Earth's rotation. Additionally, warm air from the subtropics meets cold air from the poles, forcing the warmer air to rise.

Polar High Pressure Belts

- Location: Found at the North and South Poles 90 degree N and 90 degree S.

- Formation: These regions receive very slanting rays of the sun and remain extremely cold year-round. The cold, dense air sinks and exerts heavy pressure on the surface.

7. Question: Write a note about Planetary winds.

Answers:

Planetary Winds

Planetary winds are the winds that blow throughout the year in the same direction from one global high-pressure belt to a low-pressure belt. Because they cover the entire globe, they are also called **Permanent Winds** or **Prevailing Winds**.

Trade Winds

- These winds blow from the **Subtropical High Pressure Belts** towards the **Equatorial Low Pressure Belt**.
- In the Northern Hemisphere, they blow from the Northeast and are called North East Trade Winds. In the Southern Hemisphere, they blow from the Southeast and are called South East Trade Winds.
- They are very steady and consistent. Historically, they were used by merchants for maritime trade, which is why they are called "Trade" winds.

Westerlies

- These winds blow from the **Subtropical High Pressure Belts** towards the **Subpolar Low Pressure Belts** in both hemispheres.
- Due to the Coriolis effect, they blow from the Southwest in the Northern Hemisphere and from the Northwest in the Southern Hemisphere.
- They are much stronger in the Southern Hemisphere because of the vast, unobstructed oceans.
- They are famously known as the **Roaring Forties** (40 degree S), **Furious Fifties** (50 degree S), and **Shrieking Sixties** (60 degree S).

Polar Easterlies

- These winds blow from the **Polar High Pressure Belts** towards the **Subpolar Low Pressure Belts**.
- They blow from the Northeast in the North Pole and Southeast in the South Pole.
- These are extremely cold and dry winds as they originate from the frozen polar regions.

8. Question: Write a note about sea breeze and land breeze
Answer:

Sea Breeze and Land Breeze

These are **Periodic Winds** caused by the difference in the rate of heating and cooling of land and sea.

Sea Breeze (Occurs during the Day)

- During the day, the land heats up much faster than the sea.
- The air over the land expands and rises, creating a **Low Pressure** zone. Meanwhile, the air over the sea remains cooler and denser, creating a **High Pressure** zone.
- Wind always blows from High to Low pressure. Therefore, a cool breeze blows from the **Sea towards the Land**.
- This brings down the temperature in coastal regions during the afternoon.

Land Breeze (Occurs during the Night)

- During the night, the land cools down much faster than the sea.
- The sea retains heat longer, so the air above the sea is warmer and rises, creating **Low Pressure** over the water. The land becomes cold quickly, creating **High Pressure** over the land.
- The wind blows from the **Land towards the Sea**.
- This usually begins late at night and continues until sunrise.

9. Question: Explain the formation of Mountain and Valley breezes.

Answer:

- **Valley Breeze:** During the daytime, sunlight heats the mountain slopes. This causes the air along the slopes to rise, resulting in wind blowing up-slope from the valley.
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- **Mountain Breeze:** During the night, the air along the mountain slopes cools and contracts. This cooler, denser air moves down the slope toward the valley.

10. Compare the characteristics of Southwest Monsoon and Northeast Monsoon.

Feature	Southwest Monsoon	Northeast Monsoon
Season	Occurs during summer.	Occurs during winter.
Pressure Condition	Severe low pressure over the Indian Subcontinent; high pressure over the ocean.	High pressure develops over North India.
Wind Direction	Blows from the Indian Ocean toward the land mass as southwest winds.	Blows from the land toward the Indian Ocean as northeast winds.
Nature	Causes widespread rainfall on entering the land.	Generally dry in nature.

11. How do pressure differences and the Coriolis effect influence the Southwest Monsoon?

- During summer, the South Asian landmass (Indian Subcontinent) gets heated intensely.
- This intense heating creates a severe low-pressure zone over the land.
- Meanwhile, comparatively high pressure prevails over the Indian Ocean, causing wind to blow toward the land.
- Due to the Coriolis effect, these winds are deflected and blow as Southwest winds, bringing widespread rain to the region.

12. Write a note about the Monsoon Winds

The term '**monsoon**' implies the **seasonal reversal** in the wind pattern. These winds change their direction according to the season, primarily driven by temperature and pressure differences between the land and the sea.

Southwest Monsoon Winds

- The term monsoon signifies a complete seasonal change in the direction of wind patterns over a region.
- During the summer months, the South Asian landmass and the Indian Subcontinent experience intense heating from the sun.
- This extreme heat leads to the creation of a severe low-pressure system over the land.
- At the same time, the Indian Ocean remains cooler, maintaining a state of relatively high pressure.
- Winds naturally begin to flow from the high-pressure ocean areas toward the low-pressure landmass.
- As these winds move, the Coriolis effect deflects them so that they enter the subcontinent from a southwest direction.
- These winds carry a vast amount of moisture which results in heavy and widespread rainfall across the land.

Northeast Monsoon Winds

- The monsoon system is characterized by a distinct reversal of wind direction that occurs between seasons.
- During the winter season, the landmasses in the northern region undergo severe cooling.
- This drop in temperature results in the development of a high-pressure system over North India.
- The pressure gradient causes the winds to reverse their flow, moving from the land toward the Indian Ocean.
- These winds blow from a northeast direction as they travel across the subcontinent toward the sea.
- Because these winds originate over the dry land rather than the ocean, they are generally dry and do not bring much rain.

13. write a note about Variable Winds

Winds of short duration, of which the intensity or direction cannot be predicted, are called variable winds. Cyclones and anticyclones belong to this category.

Cyclones

Cyclones are low pressure systems towards which winds whirl from the surroundings.

- **Direction of flow:** The direction of flow of air into the cyclones is anticlockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere.
- **Classification:**

- **Tropical Cyclones:** These originate over tropical oceans. They move in a north-west direction and get dissipated on hitting the lands due to different temperature conditions and friction. Even if they are comparatively lesser in diameter, they are devastative and cause intense rainfall and strong whirlwinds along the coasts. They are known by different names such as Hurricanes, Typhoons, Willy Willies, and Tornadoes.
- **Temperate Cyclones:** These are formed in temperate regions where warm and cold air masses meet. Even if they are larger in diameter, they are less devastative. Unlike the tropical cyclones, these low-pressure systems can move over land also.

Anticyclones

Anticyclones are high pressure systems from which winds whirl outwards.

- **Direction of flow:** The direction of flow of winds from anticyclones is clockwise in the Northern Hemisphere and anticlockwise in the Southern Hemisphere.
- **Characteristics:** Generally, anticyclones do not cause atmospheric disturbances.

14.Define the following .

a) Humidity b) Absolute humidity c) Relative Humidity d) saturation level e) saturation point.

Answer:

a) The invisible water content in the atmosphere is called Humidity.
b) Actual amount of water vapour present per unit volume of atmosphere is called Absolute humidity.
c) The ratio between the actual amount of water present in the atmosphere and the total water holding capacity of atmosphere at that particular temperature and time is referred to as Relative Humidity

$$\text{Relative Humidity} = \frac{\text{Absolute Humidity}}{\text{Total water holding capacity of the atmosphere}} \times 100$$

d) The state at which the atmosphere is fully saturated with water vapour is known as saturation level.
e) The temperature at which this level is attained is termed as saturation point.

15.What is condensation? What are the different forms of condensation?

Answer:

Condensation is the process where water vapor changes into water droplets.

There are four forms of condensation:

a) Dew:

During the night, as the earth's surface cools down, the atmosphere close to the earth's surface also cools. The water vapour condenses to form tiny droplets of water which may cling on to the grass tips, leaf blades as well as other cold surfaces.

b) Frost:

Whenever the atmospheric temperature falls below 0º Celsius, especially during nights, tiny crystals of ice are formed instead of dew.

c) Mist and Fog:

When the atmosphere gets cooled, the water vapour condenses to form tiny droplets of water and remains suspended in the lower atmosphere. Fog or mist is formed as a result of condensation of water vapour around tiny dust particles in the lower atmosphere. Fog and mist can be distinguished based on the range of visibility through them.

d) Clouds:

Clouds are formed as a result of condensation around the tiny dust particles in the atmosphere.

16.What are different types of clouds according to their shapes?

Answer:

a) Cirrus clouds :
Thin, delicate, feather-like clouds formed at very high altitudes .

b) Stratus clouds
Thick-layered clouds, usually formed in the lower atmosphere..

c) Cumulus clouds:
Cotton wool-like clouds formed as a result of intense convection currents. These clouds have great vertical development.

d) Nimbus clouds.
Dark, rain-bearing clouds, formed in the lower part of the atmosphere. The dark colour is due to the thick concentration of water droplets which does not allow light to penetrate through them.

17.What is meant by precipitation? What are the different forms precipitation ?

Answer:

- As a result of continuous condensation, the size of water droplets within the clouds gradually increases. As the size of water droplets grows beyond the limit of resistance against gravity, water droplets will be released from the clouds and may fall on earth in various forms. This is termed as precipitation.
- Rainfall, snow fall and hailstones are the different forms of precipitation.
- Rainfall is the common and familiar manifestation of precipitation which is in the form of water droplets.

- Temperature falls below 0º Celsius in cold climatic regions as well as in temperate regions during winter. In such places, precipitation occurs in the form of tiny crystals of ice. This form of precipitation is called snowfall.
- The water droplets released from the clouds are subjected to repeated condensation at different levels of atmosphere. It reaches the earth in the form layered ice pellets. These are termed as hailstones

18.Write a note about different forms of precipitation?

Answer:

There are three types of rainfall:

- Orographic rainfall or Relief rainfall.
- Convectional Rainfall.
- Cyclonic Rainfall

a) Orographic rainfall or Relief rainfall

- Moisture-laden winds from the sea enter the land and will be raised along the mountain slopes. This leads to condensation and formation of rain clouds along the windward slopes of mountains. Rainfall occurring in this manner is called Orographic rainfall or Relief rainfall.
- While the windward slopes of mountains get plenty of rainfall, the descending dry air makes the leeward side rainless. Such regions are called Rain Shadow Regions

b) Convectional Rainfall

- Rainfall occurring due to convection process are called Convectional Rainfall.
- This rainfall is common in equatorial region.
- As the convectional rainfall commonly occurs during afternoons, it is also called 4 O'Clock rains.

c) Cyclonic Rainfall

- In cyclonic systems where warm and cold air meet, the warm air will be raised up to cause condensation and rainfall. This type of rainfall is called Cyclonic Rainfall.
- As the boundary lines between warm and cold air masses are known as fronts, this type of rainfall are also called Frontal Rainfall.