Precipitation

Exercise

Q. 1. Identify the precipitation type with the help of the description given:

A. It is the main source of the water that you use. Sometimes it is torrential and sometimes continuous. Most of the agriculture in India is dependent on it.

B. It seems as if water droplets are floating in the atmosphere. In London, one cannot see the Sun till the afternoon during winters because of this phenomenon.

C. It never precipitates like this in equatorial areas. Precipitation in the solid form sometimes causes damage to the crops.

D. A white cotton like layer spreads on the earth's surface. Because of this form of precipitation, the State of Jammu and Kashmir has to change its capital in winters. In Maharashtra, it does not precipitate like this.

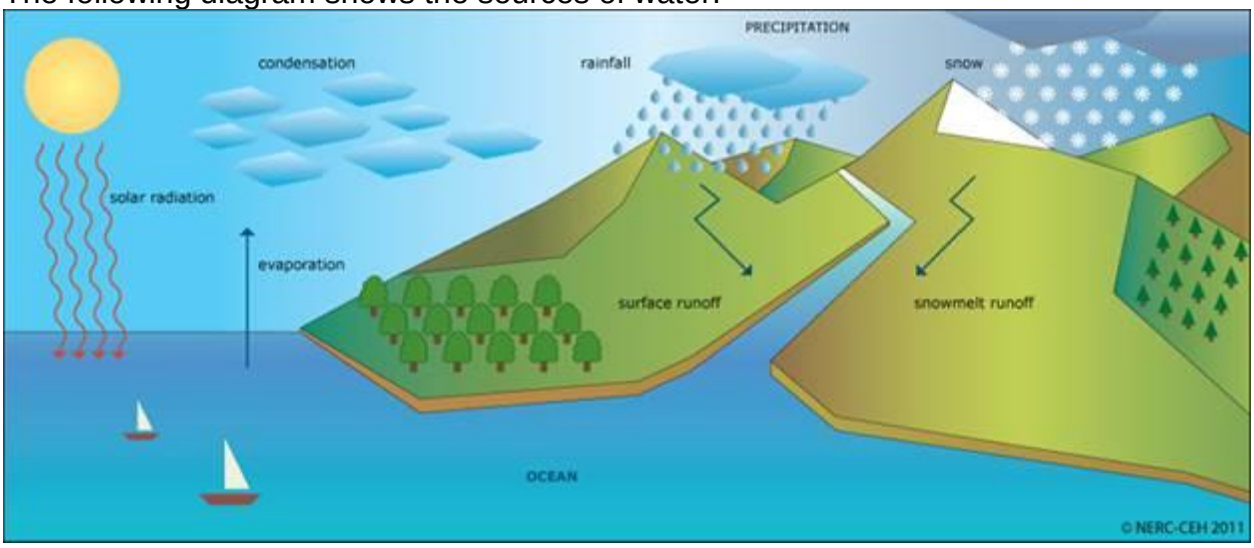
Answer : A. Rainfall

B. Fog

C. Frost

D. Snowfall

The following diagram shows the sources of water:



Q. 2. Look at the following pictures and identify the correct rainfall type.

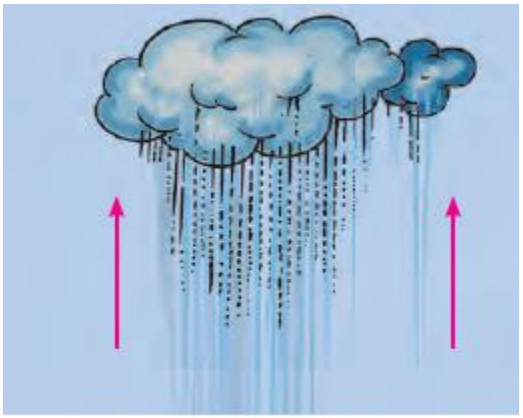


Figure (A)

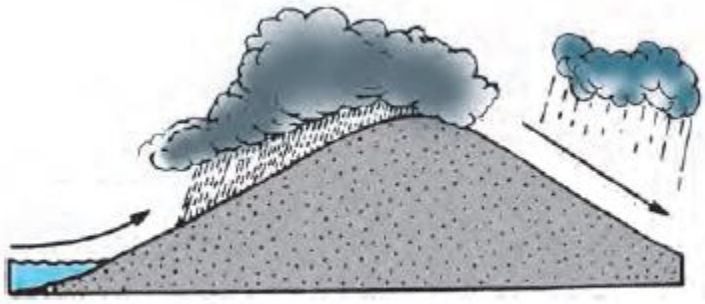


Figure (B)

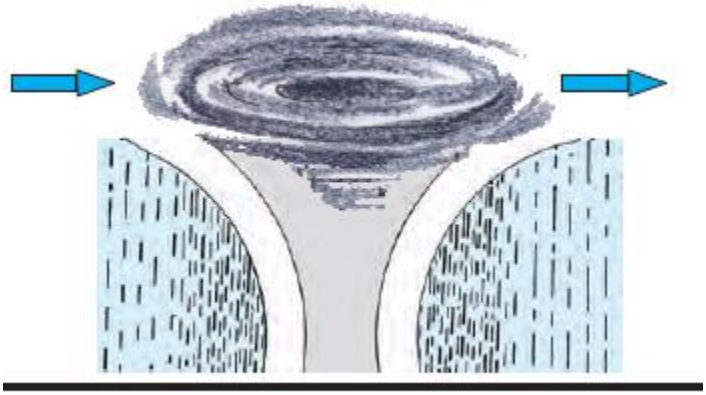


Figure (C)

Answer :

(A): Convectional Rainfall.

(B): Orographic Rainfall.

(C): Cyclonic rainfall.

Q. 3. Look at the figures above and answer the following questions:

1) In fig B, on which side of the mountain is it raining more?
2) Shade the rain shadow region in fig B and name it.
3) What is the difference between A and C?
4) Stormy winds and floods are associated with which rainfall type?
5) What type of rainfall occurs in Singapore?

Answer : 1) From the given figure it is understood that it is raining more on the right side of the mountain. The windward side of the mountains gets more rain.

2)

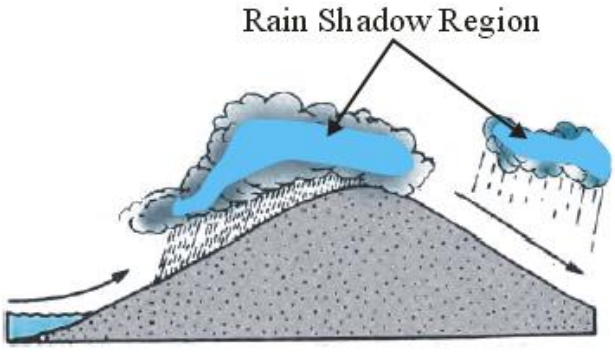


Figure (B)

3) Fig A shows Convectional Rainfall whereas the Fig C shows Cyclonic rainfall.

4) Cyclonic rainfall are associated with Stormy winds and floods.

5) Singapore experiences Convectional rainfall.

Q. 4. Identify the odd man out:

1) Orographic rainfall, acid rain, cyclonic rainfall, convectional rainfall.
2) Snowfall, rainfall, hailstones, dew
3) Thermometer, rain gauge, anemometer, measuring jar

Answer : 1) Convectional rainfall is the odd man out.

2) Dew is the odd man out.

3) Measuring jar is odd man out.

Q. 5. Answer in brief:

1) In what ways does precipitation occur on the earth?
2) Comment on the rainfall occurring in the rain shadow area.
3) Which type of rainfall occurs in most of the world? Why?
4) If condensation occurs closer to the earth's surface, what types of forms become visible?
5) What precautions should be taken while measuring rainfall?

Answer : 1) Precipitation occurs when water vapor in the atmosphere condenses into either liquid or solid forms.

Precipitation is water released from clouds in the form of rain, freezing rain, sleet, snow, or hail. It is the primary connection in the water cycle that provides for the delivery of atmospheric water to the Earth.

2) The rain shadow area of the mountains receives very little rainfall from the left over moisture in the clouds. Because most of the rain fall takes place in the windward side. A rain shadow is a dry area on the leeward side of a mountainous area (away from the wind). ... The air, without much moisture left, advances across the mountains creating a drier side called the "rain shadow".

3) Orographic rainfall occurs in most of the parts in the world. Orographic rainfall is caused when masses of air pushed by wind are forced up the side of elevated land formations, such as large mountains.

4) If condensation become close to earth's surface then rain occurs. Based on the sources for the uplifting of the air, there are three main types of rainfall.

1. Convectional rainfall, **2.** Cyclonic rainfall and **3.**Orographic rainfall

5) The precautions while measuring the rainfall with rain gauge are: The rain gauge should be placed on open place so that water from trees or pipes do not get into water. A gauge should be unprotected from the elements in all directions, it should be kept clean inside, and it should be emptied every day at the same time.

Q. 6 A. Distinguish between –

Dew and frost

Answer : Dew and Frost can be distinguished as below.

Dew	Frost
i. Dew is liquid moisture on the ground that is seen in the morning.	i. Frost forms is the same way as dew except it occurs when the dew point is below freezing.
ii. It can be confused with rain but the moisture did not result from rain. At night the ground will cool. If there is enough moisture in the air and the cooling is great enough then condensation will occur on the ground.	ii. True frost forms when the temperature is below freezing. The moisture goes straight from a gas to a solid.
iii. The formation of the condensation is the same process that occurs when you leave a glass of ice water out when there is moisture in the air.	iii. If the moisture goes from a gas to a liquid and then to a solid then the result will be frozen dew. You can tell the difference between frost and frozen dew by looking at them.
iv. You will see condensation forming on the outside of the glass. This is because the glass is cold (ground is cold) and there is enough moisture in the air that the dew point is reached.	iv. Frost looks more feathery, brighter and you can see the crystal formations. Frozen dew is solid and does not have quite the white appearance as frost.
v. Vegetation and animals can get moisture from the dew forming process even when there is no moisture available from rain.	

Q. 6 B Activity

Distinguish between –

Snow and hail

Answer : Snow and hail can be distinguished as below.

Snow	Hail
i. Snowflakes are ice crystals.	i. Hailstones are ice balls.
ii. Snowflakes are formed when water vapor crystallizes.	ii. Hailstones are formed when water drops are pressed and cooled against each other due to the strong winds.
iii. Snowflakes are usually formed in nimbostratus clouds.	iii. Hailstones are formed in cumulonimbus clouds. Hailstones have rings in it and can be seen when it is cut in half.
iv. Snowflakes come in different shapes but will always have six points.	iv. Hail occurs during thunderstorms or tornadoes. Hailstones are formed by the strong winds pushing the water drops together in the sky.
v. Snow falls when the temperature drops. Snow is formed in the clouds when the water vapour freezes.	v. These drops freeze and form ice balls. A hailstone usually starts forming when a frozen drop of water is formed on the ground.
vi. The best snow makers among clouds are the dark nimbostratus clouds. These clouds will be full of water and if it is cold, instead of water, snow will fall from these clouds.	vi. The strong wind carries it and the cooled water droplets freeze and sticks to its surface. This starts formation of a big hailstone.
	vii. When it gets too heavy, the hail falls to the ground. Usually hailstones are accompaniments in tornadoes. An individual piece of hail is called a hailstone.
	viii. The sizes of the hailstones can vary. It can be size of a peanut and as big as a golf ball as well.

Activity

Q. 1. Using the rain gauge in your school, measure the rainfall continuously for one week occurring in your surroundings. Make a bar graph using computers to show the amount of rainfall on the basis of the data obtained.

Photograph of wettest place on earth with rain gauge

Answer : The rainfall was monitored daily for one week in and around my school premises and the result obtained are presented in the form of the Bar Diagram Below.