

Question:1

Write one example for the following.

1. An instrument used to measure wind direction
2. An instrument used to measure wind speed
3. Another name for a cyclone

Solution:

1. Wind vane.
2. Anemometer.
3. Hurricane.

Question:2

Define the following

1. Monsoon winds
2. Storm
3. Hurricane
4. Tornado

Solution:

1. The cool winds that blow from the surface of the sea towards the land which carries the rains are called monsoon winds.
2. A violent disturbance that occurs in the atmosphere accompanied by high speed winds and rains that result when airs of different masses meet is called storm.
3. Hurricanes are the violent storms that occur over the warm moist ocean waters near the equator.
4. The rotating winds can cause an extremely violent, funnel shaped storm, called tornado, with its narrow end on the ground.

Question:3

Rain bearing winds that blow over from the ocean and to the land (during a particular season) are called

- (a) sea breeze
- (b) storm
- (c) monsoon winds

(d) all of these

Solution:

(c) Monsoon winds.

Monsoon winds are the cool rain bearing winds blow over ocean towards land.

Question:4

Air moves from

(a) an area of high pressure to an area of low pressure

(b) an area of low pressure to an area of high pressure

(c) between areas of the same pressure

(d) none of these

Solution:

(a) An area of high pressure to an area of low pressure.

Air moves from an area of high pressure to an area of low pressure.

Question:5

Cyclones develop over

(a) oceans

(b) lakes

(c) land

(d) mountains

Solution:

(a) Oceans.

Cyclones develop over the warm moist waters of the oceans.

Question:6

The low pressure area at the centre of a cyclone is called

(a) spout

(b) typhoon

(c) the eye of the storm

(d) storm surge

Solution:

(c) Eye of the storm.

The low pressure area at the centre of the cyclone is called as the eye of the storm.

Question:7

When a cyclone moves towards the land, it is accompanied by very high waves called

- (a) tide
- (b) water spout
- (c) cyclone
- (d) storm surge

Solution:

- (d) Storm surge.

When a cyclone moves towards land, it is accompanied by very high waves called storm surge.

Question:8

Name one condition which could cause a wind.

Solution:

Uneven heating from the sun causes difference in temperature and pressure between different regions on the Earth. The air then moves from high pressure areas to low pressure areas, and it causes winds.

Question:9

Give two characteristics of wind.

Solution:

The important characteristics that describe the wind are direction and speed.

Question:10

Give reasons for the following.

- (a) Cool air sinks and warm air rises up.
- (b) Moving air provides a lift.
- (c) The front portion of a wind vane has a smaller surface area than its rear portion.

Solution:

- (a) When the air becomes warm, the air particles spread out making the warm air light and less dense compared to cool air, and hence rises up. Cool air being heavier, sinks down.
- (b) Moving air exerts pressure on the objects present on the surface of the earth. The imbalance between the pressures exerted by the air and pressure due to gravity cause the objects to move.

(c) Usually the front portion of the wind vane has a smaller surface area compared to the rear portion because when the wind blows it presses the rear part as it has a greater surface area, which turns the front part of the vane towards the direction of wind.

Question:11

Fill in the blanks with the correct words.

1. Wind is caused by (actual/difference) in temperatures of different regions.
2. As air gets warmer, it (contracts/expands).
3. Cool air is (lighter/heavier) than warm air
4. Monsoon winds carry (dust/rain)
5. Moving air can provide a (gravity/lift).

Solution:

1. Difference.

Wind is caused due to different temperatures at different parts of the earth.

2. Expands.

Air expands as it gets warmer.

3. Heavier.

Cool air is heavier than warm air.

4. Rain

Monsoon winds are rain bearing winds.

5. Lift.

Moving air can provide a lift.

Question:12

Discuss briefly how a cyclone is formed.

Solution:

The atmospheric air on the ocean surface gets heated up by the ocean water. Air when heated up,

expands and becomes less dense. This less dense air rises up. The surrounding cool air, being heavier, rushes down to occupy the space. This creates an atmospheric disturbance resulting in small thunderstorms over the ocean. These small thunderstorms merge and cause a violent storm which forms cyclone.

Question:13

Give an account of the damage that can be caused by a cyclone.

Solution:

Cyclone is a violent storm which causes severe damages.

- (i) The high speed destructive cyclone winds damage the buildings, trees and transportation and communication systems.
- (ii) Cyclones accompanied by heavy rains cause floods.
- (iii) The floods cause severe damages to the living beings in the surroundings and also submerge the low lying areas.
- (iv) This result in the loss of huge life and property.

Question:14

What is the difference between a typhoon and a tornado?

Solution:

Typhoon	Tornado
Typhoon develops from the thunderstorms formed on the surface of the ocean.	Tornado develops from the thunderstorms formed on the surface of the land.
The speeds of the winds may reach over 120 km/h	The speeds of the winds may reach over 500 km/h
They move from 16 to 32 km across. Huge cyclones can even move 800 km across.	They rarely move beyond 20 km.

Question:15

Differentiate between a wind vane and an anemometer.

Solution:

Wind vane	Anemometer
It is a device used to measure the direction of the wind.	It is a device used to measure the speed of the wind.
This is usually an arrow shaped device with the front part having a smaller surface area than the rear part.	This contains three or four cups mounted symmetrically, at right angles to the vertical axis.

Question:16

List four safety measures one should take when there is a cyclone warning.

Solution:

When there is a cyclone warning, the following safety measures should be considered.

- (i) It is very important to secure the doors and window panes of the houses, and one should stay indoors as far as possible to ensure safety.
- (ii) Since the cyclones are accompanied by heavy rains which cause severe floods, people in low lying areas should be evacuated.
- (iii) Usually the cyclones rises from the surface of the sea, fishermen should avoid going into the sea after a cyclone warning.
- (iv) Food supplies and other essential things should be stored at homes in sufficient quantities as it may take few days to step out of the homes.