

Class 7th Wind Storm and Cyclone Living science Question answer

A. Multiple Choice Questions:

1. Air exerts pressure in

- a. all directions
- b. downward direction only.
- c. upward direction only
- d. sideways only.

2. Low atmospheric pressure exists on the earth in which of the following latitudes?

- a. at the equator only
- b. at 30° N and S
- c. at the Poles
- d. at the equator and at 60° N and S

3. Which of the following are not associated with cyclones?

- a. strong winds
- b. heavy rains
- c. tidal waves
- d. volcanic eruptions

4. Development and movement of cyclones are studied by the

- a. Indian Postal Department.
- b. Indian Forensic Department.
- c. Indian Meteorological Department.
- d. Central Investigation Department.

5. Which of the following states of India is most likely to be hit by a cyclone?

- a. Punjab
- b. Madhya Pradesh
- c. Andhra Pradesh
- d. Jammu and Kashmir

6. A piece of plywood is kept on a table. You have to lift it from the table by blowing air over it at very high speed from a powerful fan. In which direction will you blow air?

- a. in the upward direction
- b. in the downward direction
- c. sideways
- d. in the upward direction below the table

7. The fact that, increased wind speed results in reduced air pressure is known as

- a. Galileo principle.
- b. Bernoulli principle.
- c. Newton principle.
- d. Einstein principle.

8. Which of these best describes a tornado?

- a. strong thunderstorm
- b. the eye of a cyclone

c. rotating funnel of high speed wind 10-15 km across d. rotating funnel of high speed wind 10-200 m across

Ans. 1. a 2. d 3. d 4. c 5. c 6. c 7. b 8. d

B. VERY SHORT-ANSWER QUESTIONS: Give one-word answers.

1. Does air temperature increase or decrease as you go up in the atmosphere?
2. Does air pressure increase or decrease as you go up in the atmosphere?
3. A rubber sucker pressed on flat surface sticks to the surface because air pressure inside it is _____ (more/less) than the air pressure outside.
4. The faster the air moves, the _____ (greater/smaller) is the pressure.
5. When air expands, it raises up. True or false?
6. Where is the air pressure higher — at the equator or at the Poles?
7. Monsoon winds flow because of uneven heating of land and _____.
8. Lightning is an electric spark between clouds. True or false?
9. Calm conditions do not prevail anywhere in the cyclone. True or false?
10. Cyclonic winds tend to circulate around the _____ of the cyclone.

Ans: 1. decrease 2. decrease 3. less 4. smaller 5. true 6. Poles 7. sea/water 8. true 9. false 10. eye

C. SHORT-ANSWER QUESTIONS: Answer in a sentence or two.

1. Name any four natural hazards.

Ans: Four natural hazards are earthquakes, floods, droughts and cyclones

2. In which direction does air exert maximum pressure?

Ans: Air exerts pressure in all directions.

3. The speed of wind in a region suddenly increases. How does this affect the pressure in the region?

Ans: . This will reduce the pressure in the region.

4. Why does heated air rise up?

Ans: When air is heated, it expands. This causes it to become lighter than the surrounding cooler air thus it rises in

5. What causes monsoon winds?

Ans: Monsoon winds are caused by uneven heating of land and sea.

6. What causes lightning during a thunderstorm?

Ans: Static electricity is produced due to the collisions between water droplets and ice crystals in atmosphere. This causes huge sparks between clouds or between a cloud and the ground in the form of lightning during a thunderstorm

7. Why does a cyclone become weak once it hits land?

Ans: The cyclone becomes weak once it hits land due to friction with land and shortage of moisture.

8. What causes a tornado to be formed?

Ans: A tornado is formed when a funnel-like column of cold air sinks down from a storm cloud. Warm air from the surface rises up, whirls around it and causes very high speed winds.

D. LONG-ANSWER QUESTIONS: Answer in about 50 words.

1. Explain why a rubber sucker pressed on a smooth surface gets stuck to the surface.

Ans: Rubber sucker when pressed against a flat smooth surface, forces air, out between the smooth surface and the sucker. This reduces air pressure in the space between the sucker and the smooth surface. There is greater air pressure outside. Hence, this air pressures outside firmly presses the rubber sucker to the smooth surface.

2. Describe an experiment to show that increased wind speed leads to reduced air pressure.

Ans: We have to tape cotton threads to two tennis balls and hang them 2-3 cm apart from each other at the same height.

Now, we should blow air between them using a drinking straw.

Harder we blow, the closer the balls come to each other. This happens because, when we blow between the two balls, the air pressure between them reduces

3. a. In which direction does wind blow between the equator and latitude 30° N? Why?

Ans: The wind blows towards the equator. This happens because the regions close to the equator get the maximum heat from the sun. The air near the earth's surface becomes warm and rises, producing a low pressure region. Cooler air from either side of the equator up to a latitude of about 30° rushes in to take its place.

3. b. Why does the wind swerve to one side instead of blowing straight?

Ans: If the earth had stood still, these winds would have blown straight. But as the earth rotates, the winds in the Northern Hemisphere swerve to the right, and the winds in the Southern Hemisphere swerve to the left.

4. What are the hazards associated with a cyclone?

Ans: The hazards associated with a cyclone are strong winds, heavy rains, tidal waves and floods. The high speed winds of tropical cyclones are accompanied by heavy rains and huge sea waves. Flooding is caused by the huge sea

waves as they hit the coast, and the accompanying rain further worsens the situation. Trees get uprooted, houses collapse, and telecommunication lines get disrupted leading to heavy loss of life and property.

5. Describe the 'eye of a cyclone'.

Ans: At the centre of the cyclonic storm is a calm, cloudless area. This is called the eye. Its diameter may vary from 10 km to 30 km. There is no rain here, and the winds are fairly light.

6. How is the forecasting of cyclones done in India?

Ans: The Indian Meteorological Department studies the development and movement of cyclones. This is done with the help of INSAT satellite and chain of Cyclone Detection Radars (CDRs) installed along the coastal belt of India. These radars can locate and track an approaching cyclone within a range of 400 km.

7. What precautions are needed in the cyclone-prone areas?

Ans: Precautions needed for the cyclone-prone regions are:

- (i) Listen weather bulletins regularly in radio and TV.
- (ii) Store enough food and drinking water.
- (iii) Move to the safer places.
- (iv) Do not venture (a risky or daring journey) into the sea.

HOTS QUESTIONS: Think and answer.

1. You may have seen holes made in huge hoardings. Why are these necessary?

Ans: Holes are necessary in hoardings to reduce the air pressure on them when the wind blows, as much of the air passes through the holes.

2. News item in a newspaper: 'A cyclone that started in the desert of Rajasthan, hits Delhi today' Is the news item correct? Give reasons.

Ans: No. We cannot expect a cyclone to be formed in the desert of Rajasthan as it usually forms over the sea.

3. In winter, in regions near the equator, why does wind blow from land to the sea?

Ans: In winter the sea near the equator is warmer than the land. As the air above the sea rises, the air above the cooler land blows to take its place.

4. Suppose the earth rotated from east to west, instead of from west to east. How would this affect the pattern of wind circulation on the earth?

Ans: If the earth rotated from east to west, instead of west to east, the winds in the northern hemisphere would swerve to the left instead of right, and the winds in the southern hemisphere would swerve to the right instead of left.

5. The figure shows wind blowing at high speed in a narrow region. Will the pressure be high or low at A, B and C?

Ans: The pressure would be low at B and C. However at A, directly in the path of the wind, the pressure would be high.

