

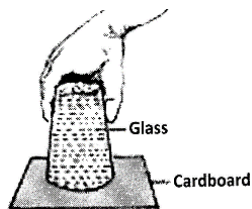
Winds, Storms and Cyclones

1. Which of the following will rise the highest in the atmosphere?
(a) Air at 10°C (b) Air at 40°C
(c) Air at 20°C (d) Air at -5°C
2. What is an anemometer?
(a) A device for measuring atmospheric pressure
(b) A device for measuring wind speed
(c) A device for measuring atmospheric temperature
(d) A device for measuring humidity
3. Which of the following is true of the 'eye' of a cyclone?
(a) It is an area of high pressure
(b) It is an area of low pressure
(c) It has lots of clouds and rains
(d) It has high temperature
4. Which of the following plays an important role in the early-warning systems for cyclones?
(a) Helicopters
(b) Submarines
(c) Satellites
(d) Stars
5. Which of the following is the best thing to do during heavy lightning?
(a) Lying on the ground in an open place
(b) Going into the nearest water body
(c) Staying indoors away from metallic doors or windows
(d) Standing under a tall tree
6. During the formation of rain, what happens when water vapour changes to rain drops?
(a) Heat is absorbed.
(b) Heat is released.
(c) Heat is first absorbed and then released.
(d) There is no exchange of heat.
7. How are sea and land breezes caused?
(a) Through convection currents
(b) Through cyclones
(c) Through rains
(d) Through conduction
8. On the earth, the winds from the north and the south blow towards the equator. What can we understand from this?
(a) Earth is round or spherical in shape.
(b) It is hotter in and around the equator.
(c) It is hotter in and around the north and the south.
(d) Wind does not flow from the east or the west.
9. The winds on the earth do not flow in the exact "north to south" or "south to north" directions. Why?
(a) Due to the seasons of the earth
(b) Due to the shape of the earth
(c) Due to the rotation of the earth
(d) Due to the revolution of the earth

- 10.** What is created temporarily behind when a vehicle moves very fast?
(a) Low pressure (b) High pressure
(c) High temperature (d) Cyclone
- 11.** From where do the monsoon winds come to India?
(a) Northeast (b) Northwest
(c) Southeast (d) Southwest
- 12.** Upon heating, gases become lighter. Why?
(a) Increase in molecular spaces
(b) Decrease in molecular spaces
(c) Breaking of molecules
(d) Formation of new molecules
- 13.** What is the best thing to do when strong winds blow over a hut having a weak thatched roof?
(a) Open the doors and windows
(b) Close all the doors and windows
(c) Make holes in the roof
(d) Burn wood inside
- 14.** Which of these countries is most likely to be affected by cyclones?
(a) Nepal (b) Indonesia
(c) Hungary (d) Mongolia
- 15.** Which of the following has the highest pressure?
(a) Soft drink in a straw
(b) The air
(c) Soft drink in a glass
(d) A closed bottle
- 16.** Which of the following is NOT affected by air pressure?
(a) Riding a bicycle against the wind
(b) Flying a kite
(c) A ball falling to the ground
(d) Drinking a soft drink through a straw
- 17.** Which of the following does NOT increase the humidity of the surrounding air?
(a) A puddle of water evaporating in a few days
(b) Blowing hair dry after washing it
(c) Formation of dew drops on leaves
(d) Drying of clothes under the sun
- 18.** "Water vapour in the atmosphere condenses to form clouds": From this statement, what can be concluded?
(a) The temperature decreases as we go higher.
(b) The temperature increases as we go higher.
(c) Pressure increases as we go higher.
(d) Pressure decreases as we go higher.
- 19.** Which of the following shows that air exerts pressure?
(a) The way a straw works
(b) The way an ink filler works
(c) Falling of rain drops
(d) Both (A) and (B)

- 20.** Warm air is lighter than cold air. Why?
 (a) Warm air has more pressure.
 (b) Molecules are closer in warm air.
 (c) Warm air expands and becomes lighter.
 (d) Both (A) and (B)
- 21.** Which of the following is most prevalent during the day time?
 (a) Sea breeze (b) Land breeze
 (c) Earthquake (d) Both (A) and (B)
- 22.** Which of the following is NOT affected by a difference in air pressure?
 P - Hurricane
 Q – Tornado
 R - Volcano
 (a) Only P and Q (b) Only Q and R
 (c) Only Q (d) Only R
- 23.** The cold winds from the polar regions blow towards the equator, but they also move partially towards the west. Which of the following causes this?
 (a) Revolution of the earth.
 (b) Rotation of the earth.
 (c) Tilt of the earth's axis.
 (d) Both (A) and (B).
- 24.** On what principle does a syringe work?
 (a) Variance in pressure
 (b) Variance in temperature
 (c) Variance in humidity
 (d) Variance in mass
- 25.** A lighted candle is kept on a table and a glass jar is inverted on it. After some time, the candle gets extinguished. Why?
 (a) The candle melts
 (b) The wind present inside blew the candle
 (c) No oxygen is available
 (d) All of the above
- 26.** Which of the following is correct of the composition of air?
 (a) It changes from place to place.
 (b) It is always the same.
 (c) It is fixed at all heights.
 (d) It is always hot.
- 27.** What makes rain fall as drops?
 (a) The air on the earth
 (b) The dust particles in the air
 (c) The oxygen in the air
 (d) The water vapour in the dry air
- 28.** When water vapour condenses around the dust particles in air, what does it form?
 (a) Mist (b) Dew
 (c) Frost (d) Snow

- 29.** In which of the following areas does the climate remain almost the same throughout the year?
 (a) Desert area (b) Coastal area
 (c) Mountainous area (d) All of the above
- 30.** On what factors does the rate of evaporation depend?
 (a) Temperature of the liquid
 (b) Area of the liquid exposed to heat
 (c) Wind blowing over the liquid
 (d) All of the above
- 31.** What causes wind currents across the globe?
 (a) The rotation of the earth
 (b) Change in season
 (c) Uneven heating between the equator and poles
 (d) Gravitational pull of the sun
- 32.** In which of the following examples is compressed air NOT used?
 (a) Shooting an air gun
 (b) Tyres of a vehicle
 (c) Floating of a heavy ship
 (d) Use of a syringe
- 33.** In which of the following cases does evaporation take place?
 (a) Conversion of vapours into liquid state
 (b) Liquification of compressed air
 (c) Drying of wet clothes
 (d) Conversion of solid to gas directly
- 34.** What causes convection currents in air?
 (a) The revolution of the earth around the sun
 (b) The rotation of the earth around itself
 (c) The heat on the surface of the earth
 (d) The uneven shape of the earth
- 35.** Observe the figure given below.



Which of the given statements best explains why the cardboard does NOT fall?

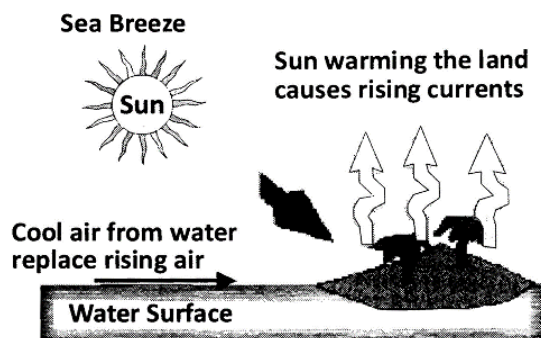
- (a) The wet cardboard sticks to the glass.
 (b) Atmospheric pressure acts equally on the glass and on the cardboard.
 (c) The force of gravity pulling the cardboard is negligible.
 (d) Air exerts pressure on the cardboard in the upward direction.
- 36.** Identify the correct statement among the following.
 (a) Wind movements are caused by uneven heating of air on the earth.
 (b) The movement of air from land to sea is called sea breeze.
 (c) When the air moves from sea to land it is called land breeze.
 (d) When air moves from low pressure to high pressure it is called wind.

- 37.** What causes tropical cyclone?
- (a) The strong air pressure
 - (b) The energy of the ocean waves
 - (c) The energy of the wind
 - (d) The sun's energy
- 38.** Choose the correct statement from the following.
- (a) High speed winds are accompanied by reduced air pressure.
 - (b) High speed winds are accompanied by increased air pressure.
 - (c) Change in pressure does not affect the wind velocity.
 - (d) Humidity can change the velocity and direction of wind.
- 39.** Which of the following is NOT correct of thunderstorms?
- (a) They develop in hot, humid tropical areas like India very frequently.
 - (b) They develop in cold, humid areas like polar region very frequently.
 - (c) The swift movement of falling water droplets along with rising air create lightning and sound.
 - (d) Upward rising winds produced by rising temperatures carry water droplets upwards.
- 40.** How is wind useful to mankind?
- (a) It helps to maintain average temperature on the earth
 - (b) It disperses fresh air from one place to another
 - (c) It helps in the formation of clouds
 - (d) All of the above

Answers With Solutions

1. (b) Warm air rises higher. This is because gases expand more when they absorb heat further.
2. (b) An anemometer is a device used for measuring wind speed.
3. (b) The 'eye' of a cyclone is the least pressure area with very high speed winds revolving around it.
4. (c) The photographs taken by the satellites help in detecting cyclones.
5. (c) Lightning hits tall structures, water and metallic bodies easily. So, avoiding them will be safer.
6. (b) The energy contained in the gaseous form (vapour) is more than the energy contained in the liquid form (water). Therefore, when vapour changes to water it loses some heat.
7. (a) Sea and land breezes are caused because of the uneven heating of the earth through convection currents.
8. (b) Winds that are cold usually show lateral (sideways) movement while the ones that are warm show vertical movement. Since, the winds blow from the north and the south towards the equator, it must be hotter than the other places.
9. (c) The rotation of the earth from west to east (pulls) changes the north-south winds to northeast-southwest direction and the south-north winds to southeast-northwest direction.
10. (a) When a vehicle moves very fast, a low pressure is produced temporarily and the wind nearby rushes in to fill its place.
11. (d) The winds coming from the southwest blow over the Indian ocean and bring lots of rains.
12. (a) Upon heating, the molecules in the gases go further away from each other and thus become lighter.
13. (a) When winds blow over a weak thatched roof, it creates a low pressure over it and a high pressure inside the hut causing the roof to blow off. Opening the doors and windows reduces this pressure difference and prevents the roof from being blown off.
14. (b) Only Indonesia is nearer to the sea and most likely to be affected by cyclones.

15. (d) Pressure is highest in a bottle or any container which is closed.
16. (c) A ball falls to the ground because of gravity, not because of atmospheric pressure.
17. (c) Evaporation causes an increase in humidity, the amount of water vapour present in the air. Formation of dew drops on leaves is the result of condensation and not of evaporation.
18. (a) Change of water vapour to water (condensation) takes place at a low temperature. Since, clouds are formed high up in the air, we can conclude that temperature decreases as we go higher in the atmosphere.
19. (d) The difference of air pressure between the surface of the liquid and inside the straw or an ink filler pushes the liquid up. Hence, both of them work on atmospheric pressure.
20. (c) Warm air is lighter than cold air because the air in contact with the hot surface of the earth gets heated up, so it expands and becomes lighter.
21. (a) During the day time, the surface of land becomes warmer as compared to the sea. Thus, warm air moves up. The cool sea breeze moves in to occupy its place.



22. (d) Volcanoes erupt on their own and not because of a difference in air pressure.
23. (b) The rotation of the earth causes the cold winds from the polar regions to blow towards the equator, and they also move partially towards the west.
24. (a) In a syringe, low pressure is created inside by pulling the sucker. This sucks the liquid into the syringe. When the sucker is pushed, liquid gushes out through the needle, due to increase in pressure.



- 25.** (c) The candle has used up all the oxygen inside the jar and due to the lack of oxygen, further burning was not possible and so it extinguished.
- 26.** (a) The composition of air slightly changes from place to place due to the pollution present in that particular area.
- 27.** (b) The water vapour in the clouds condenses and forms drops of water around the dust particles in the air.
- 28.** (a) When water vapour condenses around dust particles in the air, it forms mist or fog. In cool weather, when water vapour condenses into fine drops it is called as mist. A thick mist is called a fog.
- 29.** (b) In the coastal areas, during the night, hot air above the sea rises. Cool air from the land blows towards the sea to take its place. Due to this. The coastal areas have moderate temperature and the climate remains almost the same throughout the year.
- 30.** (d) The rate of evaporation depends on the temperature of the liquid, area of the liquid exposed to heat and wind blowing over the liquid.
- 31.** (c) The equator gets more heat than the poles. The warm air near the equator rises while the cool air from the poles blows towards the equator. This essentially causes wind currents.
- 32.** (c) The floating of a heavy ship in water is due to the buoyancy (up thrust of water).
- 33.** (c) When wet clothes are dried, water evaporates continuously due to sun's heat and wind. This process continues till the clothes become dry.
- 34.** (c) Air on the surface of the earth on getting heated, becomes lighter and goes up. It gets cooled and comes down. Thus, convectional currents occur on the earth.
- 35.** (d) Air exerts upward pressure and hence the cardboard does not fall.
- 36.** (a) Wind movements are caused by uneven heating of air on the earth.

- 37.** (d) The sun warms the surface waters in the tropical zone near earth's equator. The change in temperature causes movement of air. This causes pressure changes and so tropical cyclones take place.
- 38.** (a) Reduced pressure conditions cause the flow of air from high pressure region to low pressure regions.
- 39.** (b) In cold polar regions hot rising winds are rare.
- 40.** (d) Options (A), (B) and (C) are the uses of wind that are most beneficial to mankind.