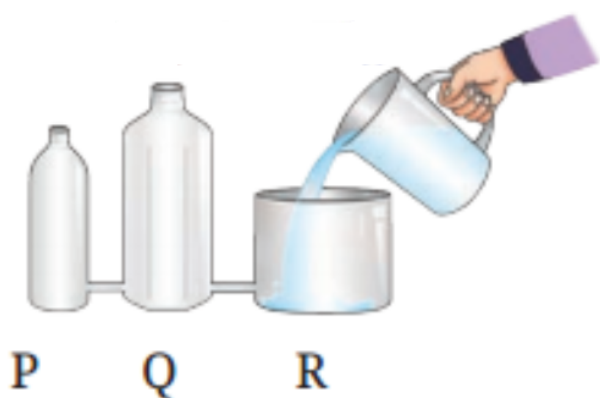


* Choose the correct alternative from those given below question

[18]

1. Look at the Figure carefully. Vessel R is filled with water. When pouring of water is stopped, the level of water will be _____



- (A) the highest in vessel P
(B) the highest in vessel Q
(C) the highest in vessel R
(D) equal in all three vessels

Ans. : (D) equal in all three vessels

2. A rubber sucker (M) is pressed on a flat smooth surface, and an identical sucker (N) is pressed on a rough surface.
- (A) Both M and N will stick to their surfaces
(B) Neither M nor N will stick to their surfaces
(C) M will stick, but N will not stick
(D) M will not stick, but N will stick

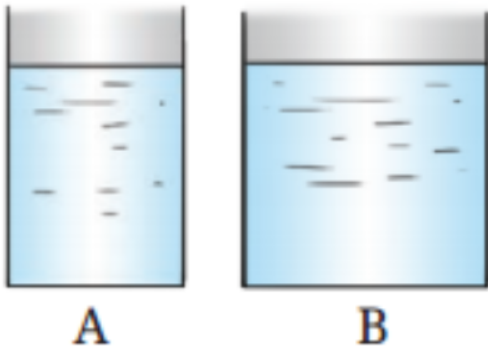
Ans. : (C) M will stick, but N will not stick

3. A water tank is placed on the roof of a building at a height 'H'. To get water with more pressure on the ground floor, one has to
- (A) Increase the height 'H' at which the tank is placed.
(B) Decrease the height 'H' at which the tank is placed.
(C) Replace the tank with another tank of the same height that can hold more water.
(D) Replace the tank with another tank of the same height that can hold less water.

Ans.: (A) Increase the height 'H' at which the tank is placed.

4. Two vessels, A and B, contain water up to the same level as shown in the Figure. P_A and P_B are the pressures at the bottom of the vessels. F_A and F_B are the

forces exerted by the water at the bottom of the vessels A and B.



(A) $P_A = P_B, F_A = F_B$

(B) $P_A = P_B, F_A < F_B$

(C) $P_A < P_B, F_A = F_B$

(D) $P_A > P_B, F_A > F_B$

Ans. : (B) $P_A = P_B, F_A < F_B$

5. SI unit of pressure is:

(A) Newton

(B) Newton/km

(C) Pascal

(D) kilogram/h

Ans.: (A) Newton

6. High-speed winds can

(A) Blow off roofs

(B) create a low-pressure area

(C) Result in lower air pressure above the roofs of the houses compared to air pressure below the roofs

(D) All of the above

Ans. : (D) All of the above

7. Lightning can occur as opposite charges collide

(A) Within a cloud

(B) Between clouds

(C) Between clouds and the ground

(D) All of the above

Ans. : (D) All of the above

8. In Kerala, Karnataka, and Tamil Nadu, thunderstorms are known as:

(A) Kalboishakhi

(B) Bordoisila

(C) Mango showers

(D) None of the above

Ans. : (C) Mango showers

9. During lightning, we should protect ourselves by

(A) Crouching down in a low-lying open area

(B) Standing near the tall objects

(C) Using an umbrella with a metallic rod

(D) Going into water

Ans.: (A) Crouching down in a low-lying open area

10. In a cyclone, the region of the lowest pressure is at the centre, known as:

- (A) The eye of the cyclone
- (B) The body of the cyclone
- (C) The air of the cyclone
- (D) The pressure of the cyclone

Ans.: (A) The eye of the cyclone

11. When the cyclone reaches land, the source of moist air is cut off, and it gradually

- (A) Increases in strength
- (B) Loses its strength
- (C) Becomes lightning
- (D) Thunder and becomes a thunderstorm

Ans. : (B) Loses its strength

12. Assertion (A): We feel more comfortable carrying a bag with broad straps as compared to a bag of the same weight with narrow straps.

Reason (R): Broad straps reduce the pressure exerted by the bag on our shoulders as compared to narrow straps.

- (A) Both (A) and (R) are true, and (R) is the correct explanation of (A).
- (B) Both (A) and (R) are true, but (R) is not the correct explanation of (A).
- (C) (A) is true, but (R) is false.
- (D) (A) is false, but (R) is true.

Ans.: (A) Both (A) and (R) are true, and (R) is the correct explanation of (A).

13. Assertion (A): The base of the dam is kept narrower than the top to keep the dam strong to hold a huge amount of water.

Reason (R): The water stored in the dam exerts pressure horizontally on the side walls of the dam and vertically on the floor due to the height of the water level. The pressure that acts horizontally is very large near its bottom.

- (A) Both (A) and (R) are true, and (R) is the correct explanation of (A).
- (B) Both (A) and (R) are true, but (R) is not the correct explanation of (A).
- (C) (A) is true, but (R) is false.
- (D) (A) is false, but (R) is true.

Ans. : (D) (A) is false, but (R) is true.

14. During the daytime in coastal areas, sea breeze results because

- (A) The land gets heated faster than the water
- (B) The air above the land becomes warmer and lighter and rises to create a low-pressure



(C) The air from the high-pressure region above the sea blows to the low-pressure region over land

(D) All of the above

Ans. : self

15. A sudden flow of charges takes place, producing a bright flash of light called

- (A) lightning (B) thunderstorm (C) pressure (D) Cyclone

Ans. : self

16. Thunderstorm is known as Bordoisila in

- (A) West Bengal (B) Bihar (C) Assam (D) Jharkhand

Ans. : self

17. Cyclones are large storms that form over

- (A) Farmland (B) Warm Ocean water
(C) Flouses in hills (D) Any place on the Earth

Ans. : self

18. A cyclone is caused by the spinning system of

- (A) Clouds (B) Winds (C) Rain (D) All of these

Ans. : self

* Answer the following as requested in detail.

[25]

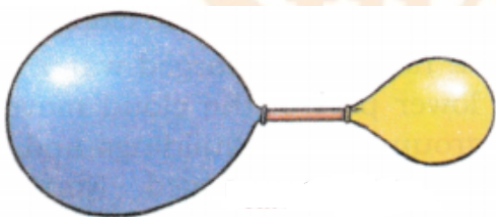
19. Describe an activity to show that air flows from a region of high pressure to a region of low pressure.

Ans. : Activity to show that air flows from a region of high pressure to a region of low pressure.

Materials required: Two similar balloons made of thin rubber, a drinking straw, and some thread.

Procedure:

- Insert one end of the straw into one balloon and secure it with the thread.
- Inflate the second balloon and insert the free end of the straw into the neck of the inflated balloon, and secure it with the thread. (Ensure that the air from the inflated balloon does not leak.)



Observations: Some air moves from the inflated balloon to the uninflated balloon, and the sizes of both balloons change. After some time, both the balloons attain

almost the same size, and the flow of air stops.

Conclusion: The inflated balloon has higher pressure inside it, and the uninflated balloon has low pressure inside. When the two balloons are connected through a straw, air moves from the high-pressure area (inside the inflated balloon) to the low-pressure area (inside the uninflated balloon).

20. What is a thunderstorm? Explain the process of its formation.

Ans. : (i) During the rainy season, when land gets heated in hot, humid, and tropical regions of India, the warm and moist air being lighter rises, thus creating a low-pressure area. Cooler air from surrounding high-pressure areas flows to take its place. This air again gets heated and rises, thereby resulting in a continuous process of wind circulation. As the rising air expands, it cools and moisture in it condenses to form water droplets forming clouds. The water droplets merge to form heavier drops, which come down as rain, hail, or snow. The strong winds accompanied by rain are called a storm.

(ii) During a storm formation, under certain conditions, warm air rises to great heights, and the low temperature there changes water droplets into ice particles. Strong winds blowing upwards and downwards result in rubbing between water droplets and ice particles. This generates electric charges within clouds. Ice particles are positively charged, and they move upwards in the upper part of the clouds. Water droplets are negatively charged and occupy the lower part of the clouds. When negatively charged water droplets in the lower part of the cloud move closer to the ground, trees, buildings, and the ground become positively charged. Normally, air acts as an electrical insulator and does not let opposite charges meet. This insulating property of the air breaks down when the build-up charges becomes very large. A sudden flow of charges takes place, resulting in a bright flash of light called lightning. Lightning can occur as opposite charges collide within a cloud, between clouds, or between clouds and the ground. Lightning rapidly heats the air around it. This results in expansion of air to produce a loud sound called thunder. A storm accompanied by lightning and thunder is called a thunderstorm.

21. Explain the process that causes lightning.

Ans. : During a storm formation, under certain conditions, warm air rises to great heights, and the low temperature there changes water droplets into ice particles. Strong winds blowing upwards and downwards result in rubbing between water droplets and ice particles. This generates electric charges within clouds. Ice particles are positively charged, and they move upwards in the upper part of the clouds. Water droplets are negatively charged and occupy the lower part of the clouds. When negatively charged water droplets in the lower part of the cloud move closer to the ground, the trees, buildings, and the ground become positively charged. Normally, air acts as an electrical insulator and does not let opposite charges meet. This insulating property of the air breaks down when the build-up charges becomes



very large. A sudden flow of charges takes place, resulting in a bright flash of light called lightning. Lightning can occur as opposite charges collide within a cloud, between clouds, or between clouds and the ground. Lightning rapidly heats the air around it. This results in expansion of air to produce a loud sound called thunder.

22. Explain why holes are made in banners and hoardings.

Ans. : Holes made in banners and hoardings save these from blowing off with high-speed winds. High-speed winds are accompanied by a reduced pressure. If there are no holes in the banners or hoardings, they block the wind, but the wind blows on the sides of these banners and hoardings. This forms low-pressure area on sides and opposite side of the banners/hoardings. There remains a high-pressure area on the side of the banner or hoarding that faces the direction from which wind is blowing. When the pressure difference is large the banners or the hoardings are blown away. With the holes in the banners or hoardings, the wind blows through these holes, and the pressure difference is minimised, keeping them intact.

23. (1) What is a cyclone?

(2) Describe in detail the formation of a cyclone. Give a suitable diagram to explain the phenomenon.

(3) When does a cyclone lose its strength?

Ans. : (1) Cyclones are large storms that form over warm ocean waters.

(2) As the ocean water gets heated, the warm and moist air above it rises, and the water vapour condenses to form raindrops.

- During evaporation, water takes up heat to change into vapour. When this water vapour condenses into raindrops, heat is released back into the atmosphere.

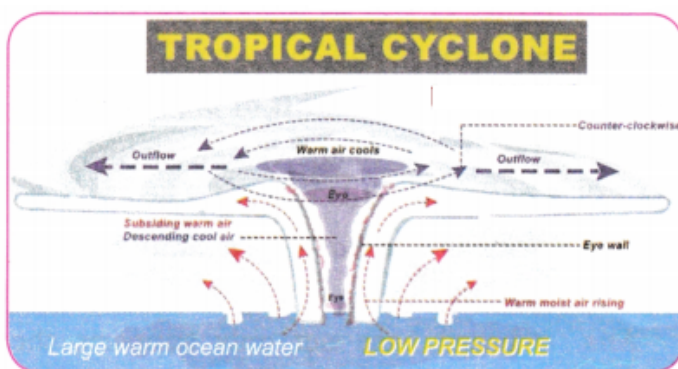
- This causes more warming of the ascending air, leading it to rise even further, causing still lower pressure.

- Air from the surrounding areas rushes in, and it also starts rising.

- The Earth's rotation causes the moving air to spin.

- This cycle is repeated, resulting in the creation of a very low-pressure area with high-speed winds revolving around it.

- This spinning system of clouds, winds, and rain is called a cyclone.



In a cyclone, the region of lowest pressure is at the centre, known as the eye of the

cyclone. At the eye, the wind is calm, but the surrounding region experiences strong winds and heavy rainfall.

(3) As the cyclone moves from the ocean towards the land, higher wind speeds are generated compared to those produced by the regular thunderstorms. Once the cyclone reaches land, the source of moist air is cut off, and it gradually loses its strength.

*** Fill in the blanks:**

[13]

24. _____ is the force per unit area.

Ans. : Pressure

25. SI unit of force is _____

Ans. : Newton

26. SI unit of pressure is _____

Ans. : newton/m²

27. The envelope of air surrounding the Earth is called _____

Ans. : Atmosphere

28. Sea _____ and _____ breeze blow mainly due to the pressure differences over the land and the sea in coastal areas.

Ans. : Breeze, Land

29. A sudden flow of charges taking place, producing a bright flash of light is called _____

Ans. : Lightning

30. Lightning rapidly heats up the air around it causing the air to expand and produces a loud sound known as _____

Ans. : self

31. The pressure exerted by air around us is known as _____

Ans. : self

32. The SI unit of _____ is also known as Pascal (Pa).

Ans. : self

33. The air pressure is higher in _____ balloon compared to _____ balloon.

Ans. : self

34. At night, wind blows from the _____ to the _____ in coastal areas. It is called _____

Ans. : self

35. A storm accompanied by lightning and thunder is called a _____

Ans. : self

36. Thunderstorm in Assam is known as _____

Ans. : self

* Answer the following questions in short.

[50]

37. Why do fall leaves rise in the air or trees bend when a strong wind blows?

Ans. : The force exerted by the wind creates wind pressure, which causes fallen leaves to rise in the air and the bending or swinging of trees when a strong wind blows.

38. Does the difference in air pressure have anything to do with the formation of winds?

Ans. : Air moves from a high-pressure region to a low-pressure region. Moving air is called wind. Thus, it is the difference in air pressure that results in the formation of wind.

39. Figure (a) shows a boy lying horizontally, and Figure (b) shows the boy standing vertically on a loose sand bed. In which figure does the boy sink more into the sand? Give reasons.



(a)



(b)

Ans. : The boy in Figure (b) will sink more. The weight of the boy is the same, but in Fig. (a), the force (of the weight) is acting on a large area. The pressure in this case is less. In Fig. (b), the same force (of the weight) is acting on a small area. The pressure, therefore, is more. The boy will sink more into the sand in this case.



40. What is the magnitude of atmospheric pressure? Why are not we crushed under this weight?

Ans. : The force exerted by the atmospheric air column over an area of 15 cm x 15 cm is nearly equal to the force of gravity on an object of mass 225 kg (2250 N). We are not crushed under this weight because the pressure inside our bodies is also equal to the atmospheric pressure. This balances the pressure exerted from outside.

41. What is the term given to a localised thunderstorm in Bihar?

Ans. : self

42. In which state is thunderstorm known as mango showers?

Ans. : self

43. What is the benefit of mango showers?

Ans. : self

44. Define a lightning conductor.

Ans. : self

45. Define cyclone.

Ans. : self

46. What is the term given to the region of lowest pressure at the centre of a cyclone?

Ans. : self

47. Why do we feel more comfortable carrying a bag with broad straps?

Ans. : self

48. While carrying vegetable baskets or pots on their heads, why do people place a thick, round piece of cloth under the loads?

Ans. : self

49. Why are overhead tanks kept at a place higher than even the top floor of our houses?

Ans. : self

50. Why do we have to apply more force to pull the sucker off the smooth surface?

Ans. : self

51. How lightning conductor protect a building from the damage caused by lightning?

Ans. : self

52. When does a cyclone lose its strength?

Ans. : self

53. In which regions are there more cyclones?



Ans. : self

54. How can we stay updated about cyclones?

Ans. : self

55. Explain the Land breeze and the Sea breeze.

Ans. : self

56. How are cyclones destructive? Describe it.

Ans. : self

57. What is the benefit of weather monitoring satellites?

Ans. : self

58. Give the differences between lightning and thunderstorms.

Ans. : self

59. How are cyclones formed?

Ans. : self

60. A thunderstorm under certain conditions becomes a cyclone. Factors like wind speed, wind direction, temperature, and humidity contribute to the development of a hurricane. Cyclones also occur frequently in tropical regions.

(a) What is a cyclone?

(b) Can a cyclone occur in Delhi? Give reasons.

(c) Which factors contribute to the development of a cyclone?

Ans. : self

61. A difference in air pressure causes winds to blow.

Ans. : self

*** State whether the following sentences are true or false. Correct the false sentences and rewrite them. [17]**

62. Air flows from a region of higher pressure to a region of lower pressure.

Ans. : true

63. Liquids exert pressure only at the bottom of a container.

Ans. : False (liquids exert pressure in all directions, including on the walls of the container.)

64. The weather is stormy at the eye of a cyclone.

Ans. : false (it is calm at the eye of a cyclone.)

65. During a thunderstorm, it is safer to be in a car.

Ans. : true

66. The SI unit of pressure is newton.

Ans. : false

67. Thunderstorm in Bihar is known as Kalboishakhi.

Ans. : true

68. Do not use an umbrella with a metallic rod during lightning.

Ans. : true

69. Cyclones are large storms that form over land.

Ans. : false

70. The peak wind speed of Cyclone Amphan in 2020 was 270 km/h.

Ans. : true

71. Weather monitoring satellites can track cyclones and predict their path.

Ans. : true

72. Positive and negative charges are created in the clouds by weak winds blowing upwards and downwards.

Ans. : false

73. Force is pressure per unit area.

Ans. : self

74. A safe position during lightning is near tall buildings.

Ans. : self

75. A lightning conductor transfers the electric charge to the ground.

Ans. : self

76. In a cyclone, the region of lowest pressure is at the centre, known as the eye of the cyclone.

Ans. : self

77. During a cyclone, land water from rivers rushes into the sea and contaminates the seawater.

Ans. : self

78. The India Meteorological Department (IMD) issues warnings, periodic alerts, and weather reports so that we remain updated about the weather.

Ans. : self

*** Answer the following questions in short.**

[36]

79. Can the shape or size of the straps make a difference, provided both bags are equally heavy?

Ans. : When we carry a bag, we feel its weight because of the force of gravity acting on our shoulders. The weight of the bag with narrow straps acts on a smaller area of

our shoulders, whereas the weight of the bag with broad straps is spread over a larger area of our shoulders. Although both bags have equal weight, we feel more comfortable carrying a bag with broad straps. Broad straps reduce the pressure exerted by the bag on the shoulders.

80. Why does water spurt out like a fountain from leaking joints or holes in water pipes?

Ans. : Water in water pipes has long water columns, as the water tanks to which the water pipes are connected are placed at heights. The pressure inside the pipes is high. The water exerts pressure in all sides of the container including the bottom and walls of the pipe. When this water exerting pressure on all sides, finds a narrow opening like a hole or a leaking joint, it spurts like a fountain.

81. What happens when an inflated balloon is kept without closing its mouth?

Ans. : The inflated balloon has air inside, which exerts pressure on the walls of the balloon, resulting in expansion of the balloon on all sides. The elastic walls of the balloon exert equal but opposite pressure on the air. When we keep the inflated balloon without closing its mouth, the air from within the balloon escapes through its mouth from high pressure inside the balloon to low pressure outside the balloon.

82. An elephant stands on four feet. If the area covered by one foot is $0.25m^2$, calculate the pressure exerted by the elephant on the ground if its weight is 20000 N.

Ans. : Force (the weight) of the elephant acting on the ground = 20000 N

Area on the ground covered by the four feet of the elephant = $4 \times 0.25m^2 = 1m^2$

Pressure exerted by the elephant on the ground = $\frac{\text{Force}}{\text{Area}}$

$$= \frac{20000N}{1m^2}$$

$$= 20000 \text{ Pa}$$

83. Would lightning occur if air and clouds were good conductors of electricity? Give reasons for your answer.

Ans. : In case the air and the clouds were good conductors of electricity, the charges could not accumulate in the clouds (because they would flow into the air), there would be no charge buildup, which is necessary for lightning to occur. Therefore, if air and clouds were good conductors of electricity, lightning would not occur.

84. What will happen to the two identical balloons A and B as shown in Figure when water is filled into the bottle up to a certain height? Will both the balloons bulge?



If yes, will they bulge equally? Explain your answer.



Ans. : When water is filled into the bottle up to a certain height (sufficiently above the level of the entry points of water from the bottle) both the balloons will bulge. The entry points of water from the bottle to the balloons are at the same height. The balloons, being elastic, exert some force on the water. Assuming that the balloons are equally elastic, both balloons will bulge equally.

85. The figure shows trees along the sea coast on a summer afternoon. Identify which side is land – A or B.



Ans. : During the daytime on a summer afternoon, there is a sea breeze that blows from sea to land. This happens because the land gets heated faster and the air above land rises resulting in low-pressure region over land. Cooler air over sea moves from high- pressure region towards the land. The bending of trees due to wind, as shown in the figure, suggests that wind is blowing in the direction from B to A. This suggests 'A' side is land.

86. What necessary precautions should we take to protect ourselves from lightning?

Ans. : The following precautions should be taken for protection from lightning:

- Stay away from tall objects like trees, buildings, etc. during lightning.

- Crouch down on a low-lying open area in such a way as to have minimal contact with the ground (not lying flat on the ground).
- Avoid using an umbrella with a metallic rod.
- Do not stay in water.
- It is comparatively safer inside a bus or a car.

87. (1) What is pressure?

(2) What is the SI unit of force and pressure?

(3) If we apply a force of 100 N on a cardboard of area 2 m², calculate the pressure applied on the cardboard.

Ans. : (1) Pressure is defined as the force per unit area.

(2) The SI unit of force is the newton, denoted by N. The SI unit of pressure is newton/metre² (N/m²).

It is also called Pascal, denoted by Pa.

(3) Force applied = 100 N

Area of the cardboard = 2 m²

Therefore, Pressure = $\frac{\text{Force}}{\text{Area}} = \frac{100\text{N}}{2\text{m}^2} = 50\text{N/m}^2$

88. Our Earth is surrounded by a large amount of air consisting of Nitrogen, Oxygen, Argon, Carbon dioxide, and traces of other gases. Layers of air surrounding the Earth are called the atmosphere.

Q.1. What is atmosphere?

Q.2. What is atmospheric pressure?

Q.3. Is the pressure inside our bodies equal to the atmospheric pressure? Why are we not crushed?

Ans. : (1) The layers of air surrounding the Earth are called the atmosphere.

(2) The pressure exerted by air on the surface of the earth is known as the atmospheric pressure.

(3) Yes, the pressure inside our bodies balances the outside pressure of the atmosphere. That is why we are not crushed under the atmospheric pressure.

89. Lightning conductors are installed on all tall buildings for safety against lightning. There is a pointed metal rod on the top of the building. It is connected to a metal plate buried in the ground with a metal strip or a flat wire.

Q.1. What is the function of the lightning conductor?

Q.2. Where is the pointed end of the lightning conductor placed?

Q.3. When can lightning occur?

Ans. : (1) It transfers the electric charges produced during lightning into the ground.

(2) It is placed higher than the highest point of the building.

(3) Lightning can occur when opposite charges collide within a cloud, between the clouds or between the clouds and the ground.

90. Why should we keep doors and windows open when high-speed winds blow over our houses?

Ans. : High-speed winds are accompanied by a reduced pressure. So, the air pressure above the roofs of the houses is lower than the pressure below them. If the difference is large and the roofs of the houses are not strong enough, they may be blown away. To keep our roofs safe, we should keep the doors and windows of the houses open during storms with high-speed winds. When the same wind moves over the roofs and through the houses, the pressure difference inside the house and over the roof is reduced considerably, making our roofs safe.

* Answer the following questions in details [4 marks]

[16]

91. (1) Why are overhead tanks kept at a height?

(2) Suppose you are living on the second floor of a three-story building and an overhead tank is placed on the top floor. Will you or your friend on the first floor receive a more powerful stream of tap water? Give reasons.

Ans. : (1) Overhead tanks are placed at a height so that the pressure in the taps is increased, resulting in a good stream of water from the taps.

(2) Pressure exerted by water increases with the increase of height of the liquid column. Suppose I live on the second floor of the building that has three floors, and the overhead tank is installed on the top floor. The pressure of water and hence the power of water stream from the taps will depend on the height of the overhead tank above the taps of the second floor. My friend living on the first floor will have a longer distance from the taps to the overhead tank, which means the height of the water column above his taps will be more compared to my water taps on the second floor. Therefore, my friend will receive more powerful stream of tap water.

92. There are two boats, A and B. Boat A has a base area of 7 m², and 5 persons are seated in it. Boat B has a base area of 3.5 m², and 3 persons are seating in it. If each person weighs 700 N, find out which boat will experience more pressure on its base and by how much?

Ans. : Force of the weight of 5 persons acting on the base of boat A = 5 × 700 N = 3500 N

Base area of boat A = 7m²

Pressure exerted on the base of boat A = $\frac{\text{Force}}{\text{Area}}$

$$= \frac{3500N}{7m^2}$$
$$= 500 \text{ Pa}$$

Force of the weight of 3 persons acting on the base of boat B = 3 × 700 N = 2100 N

Base area of boat B = 3.5m²

Pressure exerted on the base of boat B = $\frac{\text{Force}}{\text{Area}}$

$$= \frac{2100N}{3.5m^2}$$



= 600 Pa

Therefore, boat B will experience more pressure on its base by 100 Pa.

93. Explain how a storm becomes a cyclone.

Ans. : Cyclones are large storms that form over warm ocean waters.

- As the ocean water gets heated, the air above it becomes moist and warm and rises to a height where water vapor condenses to form raindrops.
- Condensing water vapor releases heat back into the atmosphere.
- This further warms the ascending air, leading to its further rise, creating an even lower pressure.
- Air from the surrounding regions rushes in, and it also starts rising.
- The moving air starts to spin under the influence of the Earth's rotation.
- This cycle is repeated, resulting in the creation of a very low-pressure area with high-speed winds revolving around it.
- This spinning system of clouds, winds, and rain is called a Cyclone.

94. (1) How do cyclones cause flooding of coastal areas?

(2) How can we protect ourselves during cyclones?

Ans. : (1) Strong winds during a cyclone push ocean water towards the shore, creating a wall of water that can be as high as 3 – 12 metres. This results in flooding of the coastal areas and even areas far from the sea. Heavy rainfall, along with cyclones, may cause rivers to overflow, resulting in floods, and in some places can trigger landslides.

(2) If we live in a cyclone-prone area, we can protect ourselves during cyclones by

- Staying updated on weather reports and periodic alerts and warnings issued by IMD and weather monitoring satellites.
- Several national and international organisations work together to monitor cyclone-related disasters.
- We should keep an emergency kit always ready and handy with essential items.
- During a cyclone or on getting a warning of a severe cyclone, we should quickly move to a nearby cyclone shelter.

* Answer the following questions in one sentence

[12]

95. Define pressure.

Ans. : Pressure is defined as the force per unit area.

96. What is the SI unit of force?

Ans. : Newton.

97. What is the SI unit of pressure?

Ans. : The SI unit of pressure is newton/m². It is also called Pascal, denoted by Pa.

98. Why is the base of a dam broader than the top?

Ans. : A broad base not only supports the structure of the dam, but also withstands the horizontal pressure of water, which is the highest near the floor.

99. What is atmosphere?

Ans. : The envelope of air surrounding the Earth is called the atmosphere.

100. Name the gases present in the atmospheric air.

Ans. : The atmospheric air contains nitrogen, oxygen, argon, carbon dioxide, and traces of other gases.

101. Define lightning.

Ans. : Lightning is a sudden flow of charges producing a bright flash of light.

102. What is a thunderstorm?

Ans. : A storm accompanied by lightning and thunder is called a thunderstorm.

103. If you are living in a cyclone-prone area, what would you do during a cyclone?

Ans. : If we live in a cyclone-prone area, we should keep an emergency kit always ready with essential items, and during a cyclone, immediately move to a safer area like a designated cyclone shelter nearby.

104. How does lightning occur?

Ans. : Lightning can occur when opposite charges collide within a cloud, between the clouds, or between the clouds and the ground.

105. What is a thunderstorm?

Ans. : A storm accompanied by lightning and thunder is called a thunderstorm. Lightning rapidly heats the air around it, causing the air to expand and produce a loud sound known as thunder.

106. How is pressure caused inside our bodies?

Ans. : The pressure inside our bodies is caused by the movement of fluids and gases in tissues and organs of the body.

* **Match the Following.**

[8]

107.

Column A	Column B
Q.1. Positive and negative charges are created in the cloud by	(a) Atmospheric Pressure
Q.2. When positive and negative charges meet in clouds	(b) Track cyclones and predict their path
Q.3. Weather monitoring satellites	(c) Rubbing of strong winds blowing upwards and downwards
Q.4. The pressure exerted by air around us	(d) They cause lightning

Ans. :

Column A	Column B
1. Positive and negative charges are created in the cloud by	(c) Rubbing of strong winds blowing upwards and downwards
2. When positive and negative charges meet in clouds	(d) They cause lightning
3. Weather monitoring satellites	(b) Track cyclones and predict their path
4. The pressure exerted by air around us	(a) Atmospheric Pressure

108.

Clounm A	Column B
Q.1. During a cyclone sea seawater rushes inland	(a) Force per unit area
Q.2. India Meteorological Department	(b) Atmosphere
Q.3. Normally, air acts as an electrical insulator	(c) Contaminates drinking water sources and damages farmland
Q.4. The envelope of air around us	(d) Updates on weather reports, predicts alerts, and issues warnings about cyclones
	(e) It does not let opposite charges meet

Ans. : self

Student Bro

