



KALPAVRUKSHA MODEL SCHOOL_

Answers of Online class Assignments-5

Class: VIII

Sub: Physics

Date: 15.9.2021

Topic: PRESSURE

I .Answers:

1. Explain briefly the construction and working of an open tube manometer.

ANS: Construction and working of an open tube manometer

A manometer is a simple device used to measure liquid pressure. It has a U-shaped glass tube which is fixed to a wooden board having a scale. The U-tube is filled with coloured water such that its limbs are half filled. One end of the U-tube is open. The other end is fixed to a rubber tube which in turn is connected to a thistle funnel. This improvised apparatus is called a manometer. Take this apparatus and cover the mouth of thistle funnel with a tight thin rubber sheath taken from a balloon. If you press the rubber sheath lightly with your fingers, the pressure on it increases. Due to this, the water level in limb A will go down and in limb B will go up. You can read the difference in water levels on the scale. This is a measure of pressure exerted on the rubber sheath.

Dip the funnel of a manometer in water taken in a beaker or a bucket, to a depth of 10cm. You will see that the level of water in limb A of U-tube falls down and in limb B it rises up. Note the difference in water levels of limb A and B. This difference gives the pressure of liquid at that depth.

2. Explain Otto von Guerickes Experiment.

ANS: A very spectacular demonstration of this was done by the German physicist Otto von Guericke in the 1600s. In this demonstration he took two semicircular bowls made of copper, fitted them together to form a hollow sphere and removed the air inside this sphere using the suction pump he had invented. These two semicircular bowls were held together only by the pressure of the atmosphere. He then got two teams of eight horses each to pull the bowls apart. Then also the bowls held tightly together demonstrating the enormous force of atmospheric pressure. The atmospheric pressure outside dominates, pushing the hemispheres together and keeping them from being separated.



3. How is the boy able to drink juice using straw?

1)Drinking straw

The drinking straw is a very thin pipe which is used to drink Soft drinks. The drinking straw works on the existence of atmospheric pressure. The lower end of drinking straw is dipped in the soft drink. When we suck at the upper end of the straw with our mouth, the pressure of air inside the straw and in our inner mouth is reduced. But the pressure acting on the surface of soft drink is equal to the atmospheric pressure. Greater atmospheric pressure acting on the surface of the soft drink pushes the soft drink up the straw into our mouth.

4. Would you be able to suck juice with a drinking straw on the moon? Give reasons.

ANS: It can't, because there is no such force as "suction," only atmospheric pressure rushing in to fill the void. On the moon (outside a pressurized habitat) there is no air pressure, so straws don't work.

5. List out the ten applications of pressure daily life.

ANS: applications of pressure daily life.

1. The area of the edge of a knife's blade is extremely small. ...
2. Syringes are used to take blood for blood tests. ...
3. Air pressure in car tires supports the weight of the car.
4. Sucking a drink through straw - fluid flows because of pressure difference.
5. Aircraft fly because of the air pressure on the wings.
6. Bullet fired from a gun is driven by gas pressure.
7. Toy balloon inflates because of air pressure inside.
8. Rubber suckers are used to making suction hooks fixed on walls, doors and admirals.
9. Skis have a large area to reduce the pressure on the snow. This ensures that the skis do not sink into snow too far.
10. The pressure under studs on the soles of football shoes is high enough for them to sink into the ground which gives extra grip.

6. Explain how vacuum cleaners work?

Ans: A vacuum cleaner has a fan inside that creates a low pressure inside the device. Consequently air and dirt particles are sucked into the device.