

Emmanuel School

(Electricity and Circuits)

Book Page →
182, 183

As by → Kavi Sheshan Sir (Ch → 13) (CLASS - VIII)

What I Have Learnt

①

I. Multiple Choice Questions

A. Tick (✓) the correct answer.

1. Why is electroplating used?
 - a. To prevent corrosion
 - b. For distillation
 - c. For refining of petroleum
 - d. For purification
2. Iron is electroplated with which of the following to prevent corrosion?
 - a. Gold
 - b. Zinc
 - c. Silver
 - d. Tungsten
3. Which of the following is an insulator?
 - a. Wood
 - b. Metal
 - c. Graphite
 - d. Mercury
4. Which of the following is a non-electrolyte?
 - a. Salt solution
 - b. Distilled water
 - c. Rubber
 - d. Wood
5. The cathode is _____ charged.
 - a. negatively
 - b. positively
 - c. neutrally
 - d. freely
6. The flow of current is from _____ to _____ terminal.
 - a. negative; positive
 - b. positive; positive
 - c. positive; negative
 - d. negative; negative

B. State whether the following statements are True or False. Correct the false statements.

1. During electrolysis of water, the hydrogen gas deposit on anode and oxygen gas deposit on cathode. **False**
2. Tap water is best suited for lab experiments. **F**
3. Liquids do not conduct electricity, except pure or distilled water. **F**
4. Process of dissociation of copper sulphate is a one-time non-reversible process. **F**
5. Layer of cheap metal gets deposited on an expensive metal in the process of electroplating. **F**
6. The positively charged electrode is called cathode and negatively charged electrode is called anode. **F**

C. Match the following.

Column A

1. Anode
2. Electroplating
3. Voltmeter
4. Non-electrolyte
5. Tin coating on food containers

Column B

- a. Distilled water
- b. Prevent spoilage of food
- c. Copper sulphate
- d. Positive electrode
- e. Electrolysis

II. Short Answer Questions.

1. Define electrolysis.
2. Differentiate between electrolyte and non-electrolyte.

By → Kavi Bhushan Sir (Ch-13) (CLASS-VIII)

II Short Answer Questions (2)

① Define Electrolysis.

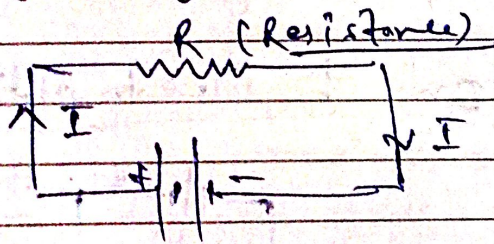
Ans: → Electrolysis is the process by which the electrolytes get dissociated into ions. When electric current is passed through them. The device in which electrolysis takes place is called Voltmeter or Electrolytic cell.

② Differentiate between Electrolyte and Non-Electrolyte?

Soln: → The liquids that allow electricity to flow through them are called Electrolytes and the liquids that don't allow electricity to flow are called Non-electrolytes.

③ In which direction the electric current flow?

Ans: → Electric current flow from positive terminal of Battery to Negative Terminal.



④ Why are Containers for storage of food electroplated?

Ans: → By electroplating tin or iron containers, the food can be stored for a longer period because it doesn't come in contact with Iron.

⑤ \Rightarrow Do Liquids Conduct Electricity?
Justify your answer?

Ans \rightarrow Liquids Conduct electricity. Salt - mixed water or water containing Impurity can conduct electricity; however, pure or distilled water can't conduct electricity.

⑥ Qⁿ \Rightarrow How do Impurities affect electrical conductivity?

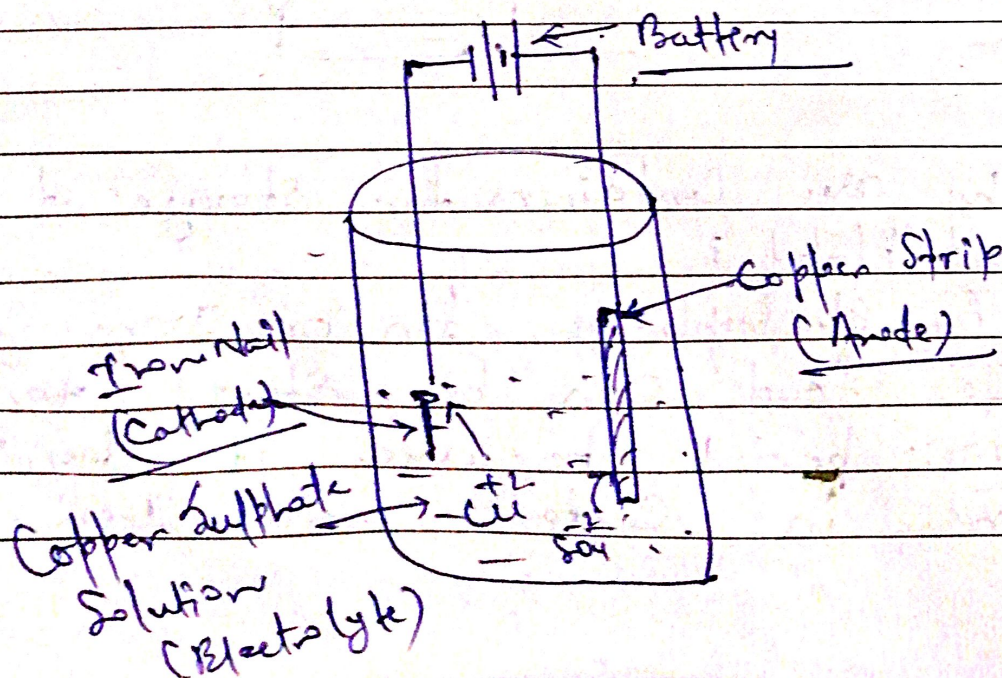
Ans \rightarrow Pure water doesn't conduct electricity, but by adding Impurities like acids, bases and salts to pure water, we can make the water conduct electricity.

III Long Answer Question :-

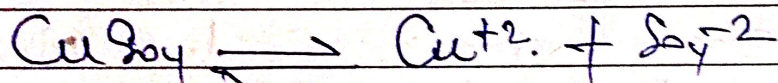
① Define Electroplating. Using Copper Sulphate as an Electrolyte, demonstrate Electroplating.

Ans \rightarrow Electroplating is the process of deposition of a layer of metal on another material by usage of electric current.

Explanation of Electroplating process



When Electric Current ~~is~~ is passed through the copper sulphate solution, the copper sulphate (CuSO_4) get dissociated into Cu^{2+} and SO_4^{2-} ions. As a result, the Cu^{2+} ions started moving towards the negative terminal and SO_4^{2-} ions started moving towards the ~~negative~~ positive terminal, leading to the deposition of copper on the electrode connected to the negative terminal. Also, from the electrode which was connected to the positive terminal, the copper got released into the solution, making the solution blue in colour. In this case, the process is a continuous and reversible.



② Ques :- ~~with~~ with the help of an experiment, show electrolysis of water.

Soln :- \rightarrow Electrolysis is the process by which the electrolyte get dissociated into ions when electric current is passed through them. The device in which electrolysis takes place is called voltmeter.

Aim :- \rightarrow To demonstrate electrolysis of water.

Material Required :- \rightarrow Trough, Tap water, Introduce two electrodes to water, one is positively charged and the other is negatively charged. Switch on the battery.

When electric current is passed through water, water gets split into hydrogen and oxygen gas. Hydrogen ions being positively charged moved towards the cathode (negatively charged) and the oxygen ions being negatively charged move towards the positively charged anode. At the anode, oxidation of ions occurs, whereas at the cathode, reduction of ions occurs. Hence, the hydrogen gas gets deposited at the cathode and oxygen gas deposits at the anode. The rods that help the flow of current in the electrolytic cell are called electrodes. This type of effect produced is called chemical effect.

Q3) Does vinegar conduct electricity? will an LED glow when using vinegar as an electrolyte?

Ans: → No vinegar doesn't conduct electricity.

Aim: → To show conductivity through vinegar

Material required: → Beakers, Vinegar, Bulb, Batteries, wires.

Procedure: → Fill a beaker with vinegar.

Connect the bulbs and batteries to the beakers through wire.

Observation: → The bulb doesn't glow.

However, if we replace the bulb connect to vinegar with LED light, it might just glow. This is because vinegar is conducting some amount.

Q) "All that glitters is not gold." Justify

Ans → "All that glitters are not gold". It means that the attractive external appearance of something is not a reliable indication of its true nature. The process of electrolysis is used in electroplating which is the process of deposition of a layer of a metal on another metal by use of electric current. By electroplating, metals such as gold and silver are electroplated on less expensive metals to give them a superior look. Jewellery often do this to make jewellery more attractive.

Q) Show with the help of an activity that distilled water is a poor conductor of electricity

Ans → Distilled or pure water is a bad conductor of electricity to pass. An activity to check whether distilled water is a conductor or insulator.

Explain Activity-2 (Page-177)

Q) How can pure water be made to conduct electricity?

Ans → We know that the distilled or pure water is a bad conductor of electricity and doesn't allow electricity to pass. However, we can make the distilled water impure by adding things like salt, acids, bases which

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are good conductors of electricity.

Once we make the water impure, it will be able to pass electricity.

For example, the tap water contains some pre-dissolved salts in it. So, if we dip a tester in tap water, we will observe that the tester will glow.

Emmanuel School

Class - 8 (Ch-12)

Date

Page Book: → 171 to 173

Sound

By: → Ravi Bhushan Sir

Objective Type Questions.

A. Tick (✓) the correct answer.

- Which of the following is not a characteristic of sound?
 - a. Quality
 - b. Frequency
 - c. Pitch
 - d. Loudness
- Which part of the ear is located externally and visible?
 - a. Pinna
 - b. Auditory nerve
 - c. Tympanum
 - d. Cochlea
- Echo is used for:
 - a. Mapping
 - b. Navigation
 - c. Surgeries
 - d. All of the above
- Sound cannot travel through
 - a. Air
 - b. Water
 - c. Vacuum
 - d. Wood
- Which of the following is a wind instrument?
 - a. Tabla
 - b. Flute
 - c. Sitar
 - d. Violin
- The number of oscillations per second is called
 - a. Frequency
 - b. Amplitude
 - c. Time period
 - d. Timbre
- Which of the following is harmful to the ears?
 - a. Sound of a breeze
 - b. Sound of an airplane
 - c. Sound of a toy
 - d. Sound of flute
- The middle ear does not consist of which of the following?
 - a. Hammer
 - b. Anvil
 - c. Eustachian tube
 - d. Stirrup

B. State whether True or False. Correct the false statements.

- Pitch is the measure of ^{shrillness} amplitude of sound. **False**
- The unit for measuring loudness of sound is Hertz. **False**
- The cochlea sends sound waves to the brain for interpretation. ^{Decibel} **False**
- If the length of the pendulum is changed, the time period and frequency do not change. ^{Auditory nerve} **False**
- The high-pressure regions are called ^{Compression} rarefactions and low-pressure regions are called ^{rarefaction} compressions. **False**
- Percussion instruments produce music when their strings are plucked. ^{by hitting the stretched skin with hands or a stick} **False**
- Bats use sound-absorbing materials to navigate. ^{ultrasonic} **False**

C. Fill in the blanks.

- If a pendulum makes 10 oscillations in a second, its frequency will be 10.
- Vibrations, called Sound wave, are created which enable us to hear sound.
- The Eardrum vibrates on receiving sound waves.
- The higher the frequency, the higher is the Pitch.
- Loudness of a sound depends on the amplitude of vibration.
- Sound produced by earthquakes, volcanoes is Infrasonic sound.
- The frequency of a guitar can be changed by altering the length of the Strings.

D. Find the odd one out.

1. auricle, ear canal, Eustachian tube, tympanum
2. pitch, loudness, timbre, amplitude
3. vacuum, air, water, solid

4. flute, tabla, trumpet, bugle
5. hammer, anvil, ear drum, stirrup

E. Give one word for the following:

1. Shrillness of the sound **Pitch**
2. Number of oscillations in one second **Frequency**
3. Sound of frequency higher than 20 kHz **Ultrasonic Range**

4. Sends sound waves to the brain **Auditory nerve**
5. Reflection of sound **Echo**
6. Pollution caused due to loudspeakers **Noise**

II Short Answer Questions.

11. Short Answer Questions.

1. How is sound produced?

Ans: → Sound is produced by the rapid to and fro movement of particles and this rapid to and fro movement is called vibration.

② Draw a well-labelled diagram of the human ear.

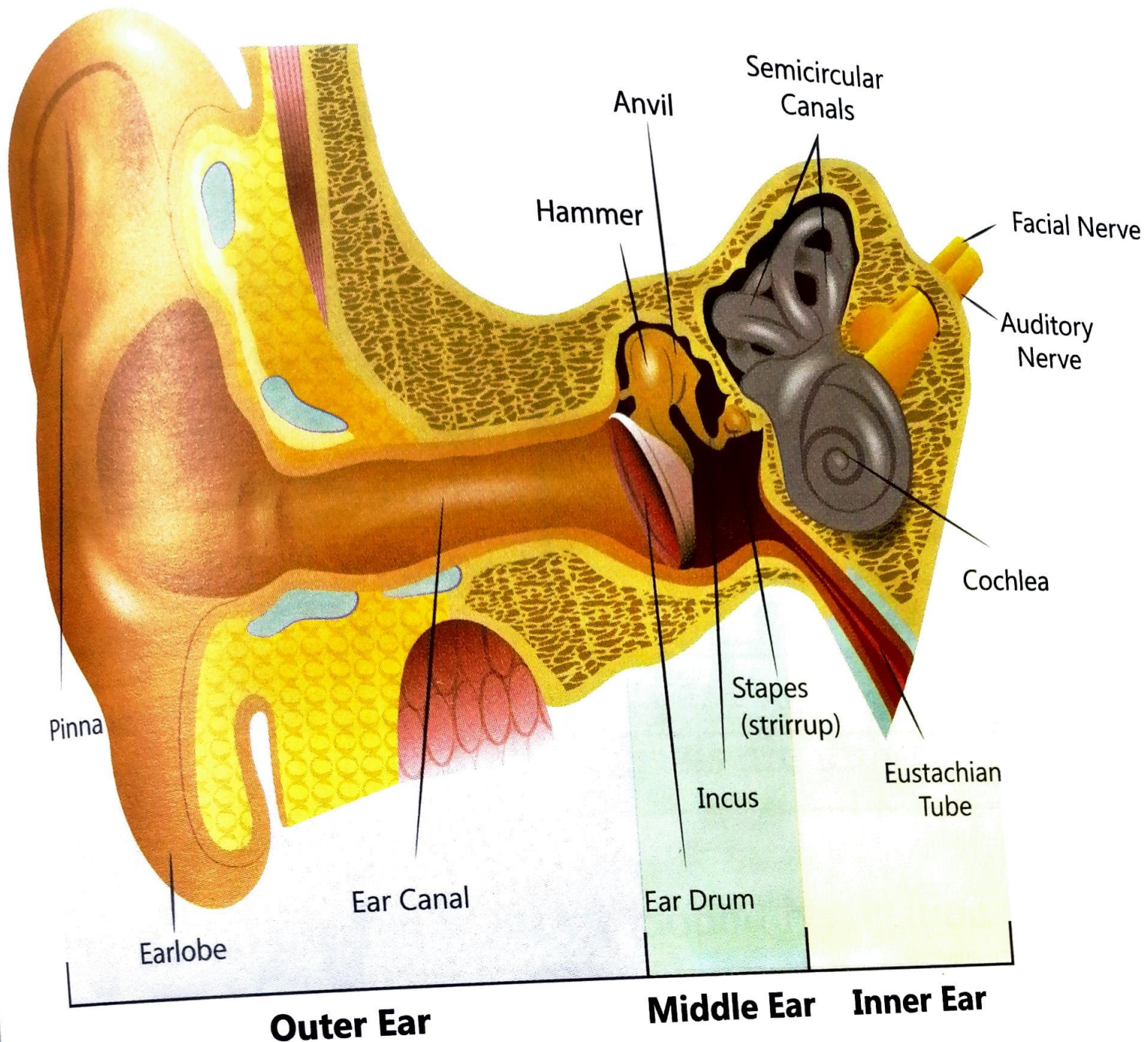


Fig. 12.5 Structure of Human Ear

3

Describe the characteristics of sound.

Soln

A sound exhibits the following characteristics

(i)

Pitch :->

The shrillness of the sound is called its pitch. The pitch depends upon the frequency of vibrations.

(ii)

Loudness :->

Loudness of the sound depends upon amplitude of vibration. The greater the amplitude, the louder is the sound produced.

(iii)

Quality :->

The characteristic of the sound that enables us to distinguish between two sounds of the same pitch and loudness produced by two different sounds is called quality or timbre.

4

Can sound travel through water? Justify your answer.

Soln

:->

Sound can travel in water with the speed of 330 m/s. we can justify by saying that we can listen

to the sounds of dolphins and the large ships inside the water. Some fishes communicate in water through

- (5) with the help of the diagram of a pendulum, define the following.
- (a) Amplitude (b) Oscillations
(c) Time period (d) Frequency.

Ans :->

P.E = Maximum

K.E = 0



Extreme position

P.E = Maximum

K.E = 0



(Extreme position)



Mean position

P.E = 0

K.E = Maximum

(a) Amplitude :-> The Maximum distance which the ball covers away from initial position is called Amplitude.

(b) Time period :-> The Time taken by the pendulum to complete one oscillation is called Time-period. It is measured in seconds.

(b) Oscillation : \rightarrow Oscillation is a definite distance covered by the movement about its equilibrium position.

(d) Frequency : \rightarrow Number of oscillation per second called frequency.

Its S.I Unit is Hz.

(6) Why do bats use echo?

Ans \rightarrow Bats can't see in night, therefore, for navigation purpose, they use echo.

(7) Why are auditoriums provided with sound-absorbing materials?

Solⁿ : \rightarrow In auditoriums or theatre, sound-absorbing materials are used in walls to avoid the reflection of sound and thus prevent the occurrence of an echo.

III Long Answer Questions :-

(1) Describe the structure of human ear?

Solⁿ : \rightarrow The human ear consists of three parts :-

(a) Outer Ear : \rightarrow It is the only part of the ear that is visible to us and can be felt. It consists of the pinna, the ear canal and the ear-drum, also called the tympanum. The pinna, also called the auricle, helps in locating the source of the sound and directs the sound in the ear. The ear canal connects the pinna and the eardrum. The eardrum vibrates on receiving sound waves.

(B)

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(b) Middle Ear \Rightarrow The middle ear consists of the hammer, anvil and stirrup. The hammer receives vibrations from the eardrum, sends it to the anvil, which in turn sends it to stirrup, finally into the inner ear.

(c) Inner Ear \Rightarrow The inner ear consists of cochlea and a liquid. The cochlea is a shell-like structure, the Eustachian tube controls the amount of pressure in the ear. When the vibrations from the stirrup enter the inner ear, they are moved to the auditory nerve. This nerve receives the sound and sends it to the brain for interpretation.

(2) Show with the help of an activity that sound can't travel in vacuum, whereas it can travel in water.

2. Sound cannot travel in vacuum; however it can travel in water. We can justify this through these two experiments, respectively:

Experiment 1:

Aim: To study that sound travels in air and not vacuum.

Materials required: glass jar with lid, vacuum pump, battery, electric bell

Procedure:

1. Suspend an electric bell inside the air-tight glass jar. Connect it to a vacuum pump.
2. Switch on the apparatus. The sound of the bell can be heard loudly and repeatedly.
3. Slowly remove the air from the bell jar using the vacuum pump.
4. Record your observations.

Observations: The intensity of the sound keeps decreasing when the air has been removed and eventually completely fades out.

Conclusion: As long as air was present inside the jar, the sound of the bell could be heard but as soon as air was drawn out, the sound faded away. From this, it can be concluded that sound cannot travel through vacuum.

Experiment 2:

Aim: To study that sound travels in water.

Materials required: bucket of water, bell

Procedure:

1. Take a bucket full of water.
2. Lower the bell inside the bucket such that the bell is not touching the sides of the bucket or the bottom of the bucket. Can you hear the bell?
3. Now take your ear closer to the bucket.

Observations: You will observe that when ears are closer to the bucket, the ringing of the bell can be heard.

Conclusion: Sound can travel through water.

(11)

Q3) What are then some ways in which we can control noise pollution?

Ans :-> Some ways to control noise pollution are :-

① Industries that produce noise should be set up far away from the residential area.

② Silencers should be fitted inside vehicles and even machines so that they

- 3) make less noise.
Honk on the road only when necessary.
- 4) Watch TV and listen to radios/music on low volume.
- 5) Plant trees alongside the road to decrease the noise of roads from reaching inside the houses.
- 6) Areas around the schools and hospitals should be no-tolerance zones, where noise should be controlled.

4) Why does our voice echo on hills?
Soln: → Our voice echoes on hills due to the reflection of sound.

5) How does sound travel?
Soln: → Sound requires a medium to travel, such as air or water.

When the air is sucked out of any object, it is said to create a vacuum. Sound can't travel through vacuum.

8) Differentiate Between:-

- String and Percussion Instruments.
- Pitch and loudness
- Ultrasonic and Infrasonic range

Soln: a) String and Percussion Instruments:

String instrument :-> Instruments such as guitar, violin, Sitar are examples of string instruments. They are so-called because their strings need to be

plucked to produce some kind of music from them. We pluck the strings, causing vibrations in the instrument and hence sound. The frequency can be varied by changing the length of the strings.

Wind Instrument :-> Instruments such as flute and trumpet are categorized as wind instruments.

Percussion Instrument :-> Tabla, drums, and dholaks are percussion instruments. The vibrations in these instruments are produced by hitting the stretched skin with hands or a stick. If the skin is struck harder, the loudness increases. To increase the pitch, the membrane of the skin is adjusted.

(b) Pitch and Loudness

Pitch :-> Pitch depends upon the frequency of vibrations. Different sounds of different pitch have different frequencies. The shrillness of sound is called pitch.

The higher the frequency, the higher is the pitch.

Loudness :-> Loudness of sound depends on the amplitude of vibrations. The greater the amplitude, the louder is the sound produced. A higher amplitude sound wave will produce loud sound and a low amplitude sound wave produces soft sound.

(C)

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Ultrasonic and Infrasonic Range

Infrasonic Sound \rightarrow If the frequency of the sound is less than 20 Hz, it is called infrasonic sound. The sound produced by avalanches, meteors and earthquakes can be categorised as infrasonic sound, ~~whereas bats and dolphins produce ultrasonic~~

Ultrasonic Sound \rightarrow If the frequency of sound is greater than 20,000 Hz (20 kHz), it is called ultrasonic sound. Bats and dolphins produce ultrasonic sound for communication.

(7) what are the main cause of noise pollution

Soln \rightarrow Pollution created by noise is called noise pollution. Excessive unwanted sounds produce noise pollution. The major cause of noise pollution are horns of cars, buses and trucks, listening to radio and watching TV. at loud volumes, bursting of crackers, air conditioners, sound of airplanes, thunder, people fighting and many more.

EMMANUEL SCHOOL

CLASS → 8

FORCE AND PRESSURE

SUB. → PHYSICS

CH-10

Page → 147/148

BY: → Ravi Bhushan Sir

I. Objective Type Questions.

Answer (✓) the correct answer.

1. Which of the following is not an effect of force?
a. Change in speed
 b. Change in motion
c. Change in shape
d. Change in direction
2. Force applied by arms and legs is called
a. Gravitational force
b. Electrostatic force
c. Magnetic force
 d. Muscular force
3. Pressure is defined as
 a. Force per unit area
b. distance per unit time
c. mass \times acceleration
d. mass per unit velocity
4. A body of 5 N is applying force on an object from direction A and another body of 10 N is applying force from direction B. What will be the resultant force on that object?
a. 0 N
 b. 5 N
c. 15 N
d. No effect
5. Two magnetic bodies exhibit this force.
 a. Magnetic force
b. Frictional force
c. Electrostatic force
d. Muscular force
6. If you weigh 72 kg on Earth, what will be your weight on the Moon?
a. 15 kg
 c. 12 kg
b. 65 kg
d. 10 kg
7. To cut a fruit, we will use
a. blunt knife
 b. Sharp knife
c. Any knife
d. No knife
8. 1 Newton per square metre is _____ Pascal.
a. 10
c. 5
 b. 1
d. 100

Page No. 2

B. State whether the following statements are True or False.

1. Pressure is inversely proportional to the area. *True*
2. Liquid pressure is measured using a barometer. *False*
3. The SI unit of force is Pascal. *False*
4. If the force is acting on an object from two different directions, the resultant force is obtained by subtracting the two forces being applied. *True*
5. Pieces of paper get attracted to a comb due to magnetic poles. *False*
6. The gravitational force on Earth is more than that on the Moon. *True*
7. The atmospheric pressure is maximum at the sea level. *True*
8. Bicycles with thin tyres are used on soft sand, as the pressure exerted will be more. *True*

C. Make a concept map on 'Types of forces'.

II. Short Answer Question

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① Why is it preferable to carry shoulder bags that have broad straps?

Soln: → We know that Pressure is Inversely proportional to Area. If Area is increase then Pressure is Reduced. Shoulder bags that have broad straps to reduce pressure.

② What are the effects of force.

Soln: → Effect of Force written below.

① It can change the direction of a moving objects.

② It can change the shape of the object.

③ It can change the shape of the object.

④ It can stop a moving object or even move a stationary object.

③ Differentiate between Contact and NonContact Force.

Soln: → Contact force : → When two bodies are in physical contact with each other then the force act is called Contact force.

Ex: → Muscular force, Frictional force.

Non Contact force : → When two bodies are not in physical contact with each other, then the force applied is called

non-contact force. This is called action-at-a distance forces.

Ex: → Gravitational force, Magnetic force, Electrostatic force.

④ If the pressure exerted by an object on an area of 20m^2 is 20N , what will be the pressure applied by the object.

Sol: →

Given data.

$$F = 20\text{N}$$

$$A = 20\text{m}^2$$

$$P = (F/A) = \frac{20\text{N}}{20\text{m}^2} = 1\text{Pa.}$$

$$\boxed{P = 1\text{Pa.}} \quad \underline{Ans}$$

⑤ Why does an inflated balloon burst even with a small prick of a pin?

Sol: → The pressure inside the inflated balloon is much more than the atmospheric pressure when a pin is pricked, all the gaseous particles present in balloon intend to move from high pressure to low pressure, due to which the balloon burst.

⑦ Why do iron fillings get stick to a magnet?

Sol: → Magnet attract iron due to the influence of their Magnetic force upon the Iron. So Iron

fillings get stick to a magnet.

⑧ Describe in brief the working of a Spring Balance.

Soln: → It consists of spring fixed at one end with a hook to attach an object at the other. It works by Hooke's law, which states that the force needed to extend a spring is proportional to the distance that spring is extended from its rest position. Therefore, the scale markings on the spring balance are equally spaced.

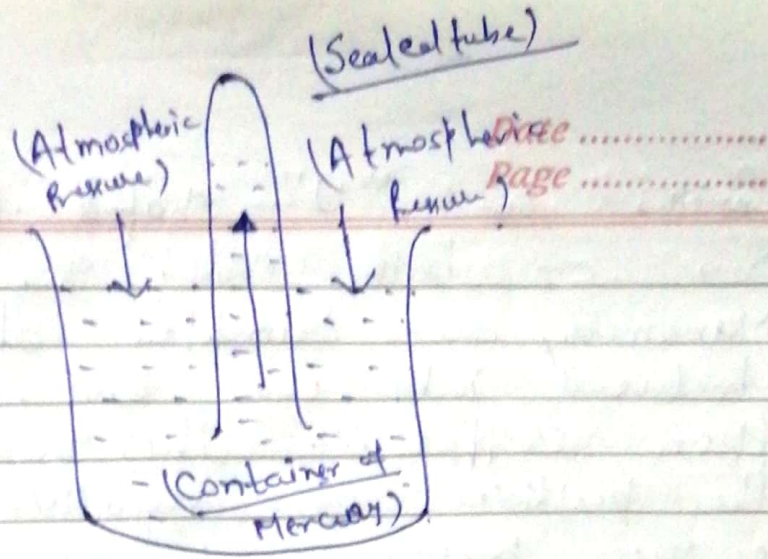
⑨ What causes nose bleeding at higher altitudes?

Soln: → We know that height increases atmospheric pressure decreases. At higher altitudes blood pressure increases from atmospheric pressure so nose starts bleeding.

Long Answer question

① Explain the working of a Barometer.

Ans: → A Torricellian barometer is an inverted (upside-down) glass tube standing in a bath of mercury. Air pressure pushes down on the surface of the mercury making some rise up the tube. The greater the air pressure, the higher the mercury rises.



A barometer is an instrument used to measure atmospheric pressure. To measure the atmospheric pressure, a long glass-tube filled with mercury is dipped into a trough containing mercury. This glass tube which is about 100 cm long, is closed from the top and has a hole at the lower end, dipped in the trough.

The hole is opened to allow the flow of mercury into the trough. Not all mercury flows from the tube to the trough. A small vacuum gets created at the top of the glass tube.

The vacuum gets created at the top of the glass tube. The vacuum gets created because of the balance between the atmospheric pressure outside the tube and the water pressure inside the tube. The water level decreases until the levels of pressure outside the column and inside the column are the same.

The length of the column is equal to the pressure exerted by air.

② Explain the working of a manometer.

30m A manometer is a device that measures air pressure using a container

with a "U" shaped tube, open at one or both ends. In a closed manometer, a sample of gas is introduced into one end, which is then capped. This pressure represents the positive or negative difference between the gas pressure and atmospheric pressure.

The principle behind a manometer gas or liquid pressure gauge is extremely simple. Hydrostatic equilibrium shows that the pressure when a liquid is at rest is equal at any point.

③ Why does a porter/coolie keep a round cloth on his head before putting luggage?

Soln: → Porters place a thick, round piece of cloth on their head when carry they have loads to increase the area of contact of the load with their head. Since the load now falls on a larger area of head, the pressure on head is reduced and it becomes easier to carry the heavy load.

④ Describe the different types of non-contact forces.

Soln: → Different types of non-contact force are:

- ① Gravitational force
- ② Magnetic force
- ③ Electrostatic force.

Gravitational force \rightarrow The force by which earth pulls everything towards it called Gravitational force

Magnetic force \rightarrow The force exerted between a magnet and a substance.

Electrostatic force \rightarrow The attraction or repulsion force acts between ~~two~~ charged particles is called Electrostatic force.

⑤ Describe an experiment to prove that liquid exerts pressure.

Ans \rightarrow The liquid exerts pressure can be demonstrated from the fact that if we have a liquid kept in a container then if we make an opening in it then the water will rush out through the hole with some speed. This is due to the fact that water exerts some pressure on the walls of the container.

⑥ An object weighing 500N is placed on an area of 100 m². What will be the pressure exerted by the object on the area?

Soln \rightarrow

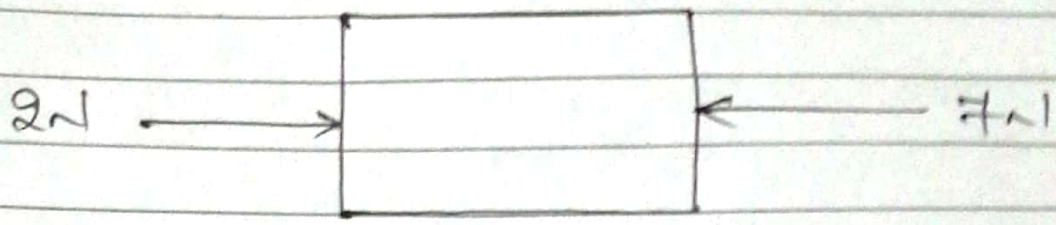
$$F = 500\text{N}$$

$$A = 100\text{m}^2$$

$$P = F/A = \frac{500\text{N}}{100\text{m}^2} = 5\text{Pa.}$$

$$\text{Pressure} = 5\text{Pa.}$$

(7) In the following figure, find out the resultant force and the direction in which box will move.



Soln Resultant Force = $(7N - 2N)$
 $= 5N$
Box will move left direction.

(8) We know that by applying a force, we can move a stationary object. Why are we not able to move a wall then?

Soln \Rightarrow When we apply a force to a stationary object we need to apply a minimum to overcome the static friction between the object and the ground. A wall is attached to the ground so man could not provide a force strong enough to dismantle it from the ground and then also move it.

① Objective type question.

① which one of the following is not true for friction?

Ⓐ It is opposed by the applied force

Ⓑ it is a contact force

Ⓒ A smooth surface cause more friction

Ⓓ We are able to walk because of friction.

② Which of the following is used to reduce friction?

Ⓐ Ball Bearing Ⓑ oil Ⓒ Grease Ⓓ All

③ If force is applied from right side, friction will act on the :-

Ⓐ Left side Ⓑ right side Ⓒ both the side

Ⓓ Vertically.

④ which of the following is a disadvantage of friction?

Ⓐ It causes wear and tear of surface

Ⓑ Energy is not wasted due to friction

Ⓒ Friction produces sound

Ⓓ Both Ⓐ and Ⓒ

⑤ which of the following is not an example of friction?

Ⓐ Car moving on a road

Ⓑ writing on a paper

Ⓒ Flying in an aeroplane

Ⓓ Hammering a nail

B. State whether the following ^{Page} Statement are True or False. Also correct the incorrect statements.

① Friction has no disadvantage (False)

② ~~Correct~~ Correct statement: → Friction has disadvantage

③ Static friction acts on the body in motion. (False)

True statement: → Static friction acts on the body at rest.

④ Lubricants are used to reduce friction (True)

⑤ Friction makes it possible for us to write (True)

⑥ No external force is required for the friction to occur. (False)

True → External force is required for the friction to occur.

⑦ Static friction is less than the sliding friction. (False)

* True statement: → Static friction is more than the sliding friction.

C Use the clues to complete the crossword

Across	Down
② Streamlined shape	① Tear
③ Wear	② Static
⑤ Friction	
⑥ Smooth	

II Short Answer Questions:-

① Que: → Is friction a contact or a non-contact force? Justify your answer.

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Ans: → Friction is a contact force.
It opposes the relative motion

② How is friction related to the smoothness of a surface.

Ans: → The smoother a surface is, the lesser the effect of friction will be on the object.

③ A ball on the smooth surface is rolling faster than on ball on the rough surface why?

Ans: → We know that smooth surface having less friction than rough surface. So a ball on smooth surface is rolling faster than a ball on the rough surface.

④ Friction produces heat. Is this an advantage or a disadvantage? Explain.

Ans: Friction produces heat. This is an advantage ~~or~~ a disadvantage both. If we rub the palms of our hands they become warm in winter season. In case of unwanted heat produce sometimes damage the ~~work~~ machine. This is disadvantage.

⑤ Differentiate between static and sliding friction.

Ans: → Static friction → friction acting on the body which is at rest.

Sliding friction → friction acting on the body which is already in motion.

Q1 Show with the help of an activity that a box on a floor will move with ease than a box that has a carpet underneath it

Soln :-> When we apply external force on box keep on floor, it will move easily because box gain kinetic friction. If box keep on carpet and apply external force doesn't move easily due to large static friction.

Q2 List some advantages of friction.

Ans -> Advantages of friction are :-

1) We are able to walk because of friction

2) A horse is able to pull its cart because of friction.

3) Friction enables us to write.

4) Friction enables us to hold object

5) Cars, cycles, and buses move on roads due to friction.

6) we are able to light a matchstick due to friction.

Q3 How can you reduce friction?

Soln :-> Some ways in which we can reduce friction are :-

1) Using lubricants :-> Lubricants, such as oil, or graphite powder are used to reduce friction.

2) Streamlined shape :-> Some objects are designed such that they have

a Streamlined body, which minimises the friction between the object and the medium in which it is moving.

Ex: → Shape of cars and ships.

③ Ball Bearing: → Ball Bearing are also used for reduce friction.

It placed in between the moving parts.

Ex: → Roller skates.

④ Why is sliding friction less than the static friction?

Ans: → Sliding objects find less time to get interlocked against each other. So they get less friction. Sliding friction is always less than static friction.

⑤ How is friction applied in our everyday life?

Ans: → Friction is applied in our everyday life written below.

⑥ Note: → Write same answer of ②

⑦ Why is friction considered disadvantageous?

Ans: → Disadvantages of Friction:-

- ① Friction cause wear and tear of the surface
- ② Friction also cause machine to make noise
- ③ It generates heat
- ④ It increases power consumption.
- ⑤ It fades away the marks on roads.

Date → 09/05/20

Pressure PHYSICS
(Class-8)

(Ch-10)

Pressure : → Pressure is defined as perpendicular force (Thrust) per unit Area.

$$\text{Pressure (P)} = \frac{\text{Force Thrust}}{\text{Area}}$$

Thrust = perpendicular force

$$P = F/A$$

→ S.I Unit of Force is (Newton (N)) and Area is (meter²).

So, S.I Unit of Pressure is N/m².
It is also written as Pascal.

$$1 \text{ N/m}^2 = 1 \text{ Pascal (Pa)}$$

Numerical question

Prob: → A body weighing 200N is placed on a wooden board of area 4m². what will be the pressure exerted by the body on the wooden board?
(Class-8) Page (1)

Soln

$$F = 200\text{N}, \quad A = 4\text{m}^2$$

$$\text{Now, } P = F/A$$

$$\Rightarrow P = \frac{200}{4} = 50 \text{ Pa.}$$

$$\Rightarrow \boxed{P = 50 \text{ Pa.}}$$

Prob 2 \Rightarrow Calculate the pressure exerted by an object weighing 450N on an area of dimension 10cm by 5cm .

Soln

$$F = 450\text{N}$$

$$A = 10\text{cm} \times 5\text{cm} = \frac{10}{100} \times \frac{5}{100}$$

$$\boxed{A = 5 \times 10^{-3}}$$

$$P = F/A = \frac{450}{5 \times 10^{-3}} = 90 \times 10^3 \text{ Pa.}$$

$$\boxed{P = 90,000 \text{ Pa.}}$$

Manometer \Rightarrow An Instrument used to measure pressure of liquids is known as Pressure gauge. Manometer is the simplest form of Pressure gauge, that is used to measure the pressure difference.

Atmospheric Pressure \Rightarrow The Pressure exerted by atmosphere is called Atc 2

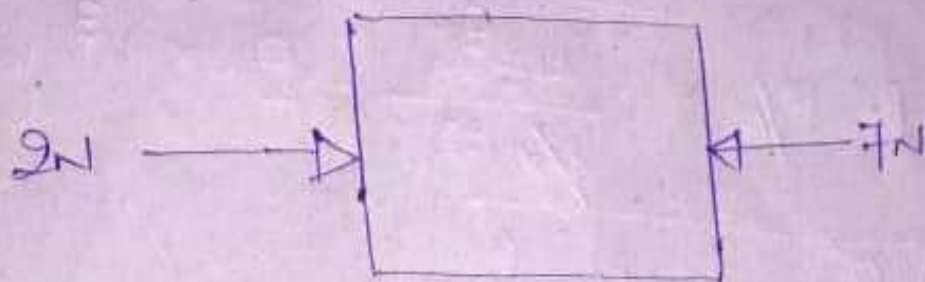
Atmospheric Pressure ^{Pressure} ^{exerts} ^{on} ^{our} ^{body} ^{as} ^{well}. The air above in the atmosphere pushes down against our bodies.

Barometer \rightarrow A Barometer is an instrument used to measure Atmospheric Pressure.

Short Answer question

① If the pressure exerted by an object on an area of 20m^2 is 20Pa , what will be the force applied by the object?

②



In the following figure, find out the resultant force and the direction in which the box will move.

③ An object weighing 500N is applied on an area of 100m^2 . What will be the pressure exerted by the object on that area?

- ④ what cause nose bleeding at higher altitudes?
- ⑤ Describe in brief the composition of the air.
- ⑥ why does an inflated balloon burst even with a small prick of a pin?

Long Answer question

- ① Explain the working of a Barometer?
- ② Explain the working of a aneroid.
- ③ Describe the different type of forces.
- ④ We know that by applying force, we can move a stationary object. Then, why can't we move a wall?

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By: → Ravi Prakash Sir

Ch - 10

Force and Pressure

Force : → Push and pull gives the ~~concept~~

Concept of ~~the~~ Force .

Other words

Force is the Interaction between two object .

other words

Force is the Cause of Motion .

Effect of Forces

① It can change state of Motion .

② It can change Configuration of any object .

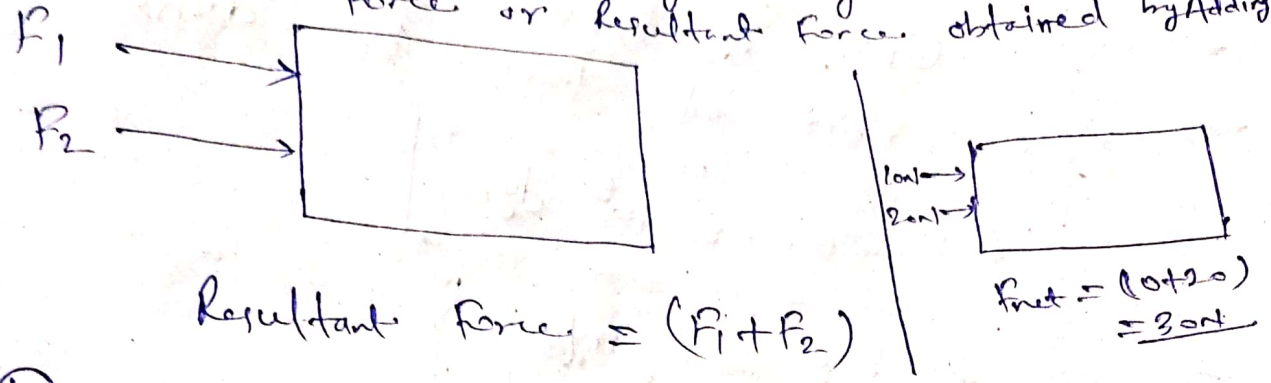
③ It can change direction of any object

It can change speed of any object .

Magnitude of force

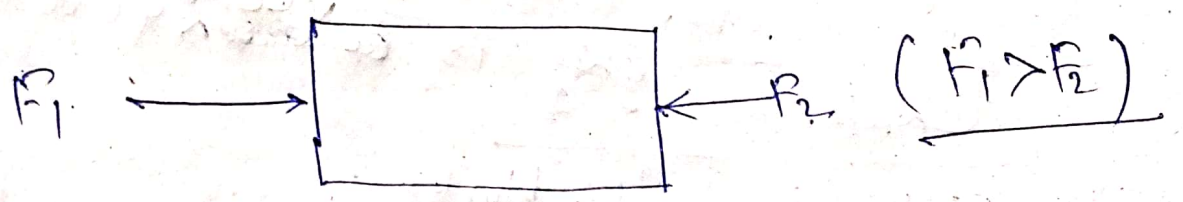
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(a) If forces acting along same direction then net force or resultant force obtained by adding.



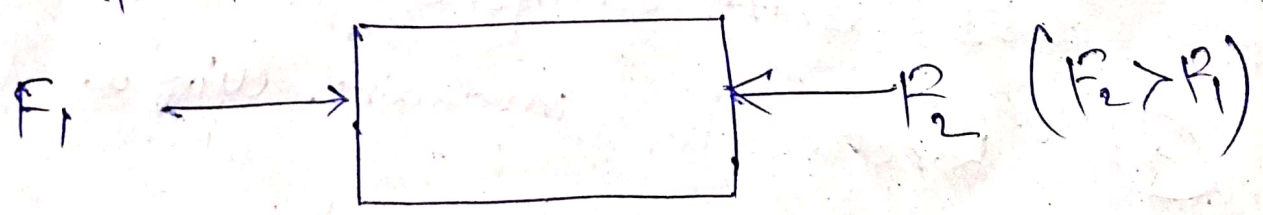
Resultant force $= (F_1 + F_2)$

(b) If two forces acting along opposite direction then net force obtained by subtracting two forces.



Magnitude of net force $= (F_1 - F_2)$

Direction $=$ rightward direction of motion



Magnitude of net force $= (F_2 - F_1)$

Direction of motion $=$ leftward direction

Class-8

Unit of force

Page-②

- S.I Unit of force is Newton (N)
→ C.G.S Unit of force is dyne.

$$1 \text{ Newton} = 10^5 \text{ dyne}$$

$$1 \text{ N} = 1 \text{ kg m/s}^2$$

$$1 \text{ dyne} = 1 \text{ g cm/s}^2$$

$$1 \text{ kgf} \approx 10 \text{ N}$$

→ One kilogram force
This is ~~scalar~~ ^{vector} quantity.
Check point - 1

Fill in the blanks

- (i) Force is a result of or
- (ii) Force is a quantity and the SI Unit of force is
- (iii) Force is measuring using a
- (iv) Force can change the and of a moving object.

Short question.

- (a) What is force? Write its S.I unit
- (b) Explain effects of forces.
(Class-8)