

Science for class 7th

Unit No: 1 Human Organ System.

Short Questions:-

Q: 1 How is carbon dioxide produced in our body?

Ans: Cells in our body use oxygen and food to produce energy and carbon dioxide.

Q: 2 How is small intestine important in our digestive system?

Ans: Final digestion and absorption of food occurs in small intestine.

Q: 3 Why are we provided with teeth?

Ans: Our teeth are main tools we use to break down food in the mouth.

Q: 4 What are alveoli?

↑ the end of bronchioles

Ans: Cluster of sack like structures that comprises lungs are called alveoli.

Q: 5 Briefly describe the mechanism of breathing.

Ans: Process of breathing is completed in two steps.

- (i) Inhaling:- when air enters the lungs.
- (ii) Exhaling:- when the air moves out of the lungs.

Q: 6 What measures can be taken to prevent diarrhea?

- (i) Wash your hands after using toilet.
- (ii) Wash all fruits and vegetables before cooking or eating.
- (iii) Don't eat uncooked meat and eggs.

Q: 7 Explain the process of digestion of food in mouth and stomach.

Ans: Mouth:-

Process of digestion begins from our mouth our teeth break down the food by cutting and grinding tongue mixes the saliva. Saliva starts the digestion of carbohydrates. The tongue pushes this food to back of our mouth.

Stomach:-

Our stomach is large J-shaped muscular bag. It mixes the food with digestive juice. Digestion of protein takes place in stomach digestive juice contains an acid which kills the germs present in food.

Q: 8 Describe human respiratory system.

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Ans: Our respiratory system consists of following parts.

- (i) **Nose**:- Air enters through our nose or mouth our nose has hair and mucous to clean and warm the air.
- (ii) **Throat**:- Air enters the throat and passes through the larynx.
- (iii) **Trachea**:- Air passes from larynx into trachea or windpipe it is made up of c-shaped rings of cartilage mucous and tiny hairs in trachea also filters the air.
- (iv) **Bronchi**:- Trachea divides into two branches called bronchi. Bronchi carry air to the lungs.
- (v) **Lungs**:- In each lung bronchus divides into small tubes called bronchioles. At the end of bronchioles small sac like structures are present called alveoli. Alveoli are surrounded by blood capillaries where exchange of gases takes place.

Q: 9 Write note on followings.

Ans: (i) **Constipation**:- constipation is painful or difficult passing of faeces.

Causes:- It is caused by taking food low in fiber lack of physical activity not drinking enough water.

Control:-

- (i) Adopting a proper lifestyle
- (ii) Taking regular exercise
- (iii) Eating lots of fiber of food
- (iv) Drinking more water
- (v) Go to washroom when needed.

(ii) **Pneumonia**:- It is the infections of lungs when a person has pneumonia the alveoli are filled with pus.

Symptoms:- common symptoms are cough fever chest pain rapid breathing etc.

Prevention:-

- (i) Use antibiotics from doctor's advice
- (ii) Wash your hands to avoid germs
- (iii) Use tissue or handkerchief when you cough or sneeze.

Unit No: 2 Transport in Humans and Plants.

Short Questions:-

Q:1 What do you mean by oxygenated blood?

Ans: The blood in oxygen is called oxygenated blood.

Q:2 What is estimated size of our heart?

Ans: Our heart is about the size of our fist.

Q:3 Which arteries carry de oxygenated blood from heart to the lungs?

Ans: Pulmonary arteries carry de oxygenated blood from heart to the lungs.

Q:4 Name at least two diseases that can damage our kidneys.

Ans: (i) High blood pressure or hypertension
(ii) Diabetes.

Q:5 Which tissues does transport water in plants?

Ans: Xylem tissue transport water in plants.

Q:6 Name three parts of circulatory system.

Ans: (i) Heart
(ii) Blood
(iii) Blood vessels

Q:7 Explain why it is important to circulate blood through the body.

Ans: Oxygen and food is transported through blood to all parts of body.

Q:8 How many chambers does the human heart have?

Ans: Heart has four chamber Two atria and two ventricles.

Q:1 Describe the structure of human heart.

Ans: Heart is a muscular organ It is about size of our fist It is present in our chest It pumps the oxygen rich blood to the body. Heart has four chambers two upper are called atria and two lower

chamber are called ventricles. Ventricles are larger than the atria blood passes from atria to ventricles. These are valves present between two chambers. They keep blood flow in one direction.

Q:2 Compare structure and function of blood vessels.

Ans: The blood travels throughout the body by blood vessels. There are three types of vessels.

Arteries:-

They carry blood away from the heart. They have thick walls. Most of arteries carry oxygenated blood except pulmonary arteries.

Capillaries:-

Capillaries are smallest blood vessels in body. Food and oxygen from the blood capillaries enters into cells. Waste material and CO² from cells enters into blood of capillaries.

Veins:-

Veins bring blood back to the heart. Most of veins have deoxygenated blood except pulmonary vein.

Q: 3 Describe the structure of plants root permits the movement of materials.

Ans: Roots are underground part of plant it has following parts.

Root hair:- They are present on roots and absorb water and minerals from the soil.

Xylem tissue:- They move water and minerals towards stem.

Phloem tissue:- They help in transportation of food.

Unit No: 3 Reproduction in Plants.

Short Questions:-

Q:1 Differentiate between sexual and asexual reproduction.

Ans: A sexual reproduction is the reproduction in which a cell from only one parents develops into offspring. In sexual reproduction two gametes from both parents combine to form a zygote.

Q:2 What are male and female parts of flower?

Ans: Male part of flower is called stamen Female part of flower is called carpel.

Q:3 Define pollination.

Ans: Pollination is the transfer of flower pollen grains from the stamen to the carpel of a flower.

Q: 4 Name few pollinators.

Ans: Wind, Water, Insects, Birds, and bats etc are few pollinators.

Q:5 Define sperm and egg.

Ans: Male sex cell is called sperm Female sex cell is called egg.

Q:6 Which part of a seed develops into the first root?

Ans: Radical develops into the first root.

Q:1 Write in detail pollination in plants.

Transfer of pollen grains from the anther of a flower to a stigma of the carpel is called pollination. This process with the help of process male sex cell reaches the female sex cell wind insects animal are agents for pollination.

Q:2 Explain fertilization in plants.

Ans: Pollen grains stick to the stigma of carpel. Here a pollen tube grows out from pollen grain. Two sperms are present in pollen tube the tube grows down ward through style and enters the ovary. It reaches the ovule one sperm combines with egg to form zygote the other sperm combines with another cell to make stored food. Process of fusion of sperm with the egg is called fertilization.

Q:3 Describe the structure of a seed.

Ans: Seed

After fertilization of ovule becomes a seed the embryo and its stored food are covered by a tough seed coat embryo is consist of following parts.

Radical:-

This part of embryo develops into first root of new plant.

Plumule:-

This part of embryo develops unto first shoot or stem of new plant.

Cotyledons:-

This part of embryo supplies food to the growing young plant.

Q:4 Write note on fruit:-

Ans: Ripened ovary is called a fruit.

Repicrac:-

Ovary wall forms the fruit wall called pericarp ovule develops into seed pericarp has three layers the outer layer is skin the middle layer is fleshy the inner layer is hard.

Unit No: 4 Environment and Feeding relationships.

Short Questions:-

Q:1 What kind of organisms are these at the start of most food chains.

Ans: Producers (plants) are present at the start of most food chains

Q:2 Name biotic factors of an ecosystem.

Ans: Plants and animals are biotic factors of an ecosystem

Q:3 How are producers consumers and decomposers related to each other?

Ans: Producers use light energy to make food consumers use the food prepared by producers decomposers decompose the dead bodies of producers and consumers.

Q:4 Define an ecosystem.

Ans: A system formed by interaction of living organisms and nonliving things in an environment is called an ecosystem.

Q:5 What do you mean by community in an ecosystem?

Ans: All populations of different kinds of organisms living together in an area make community.

Q:6 Name the ways by which we can save our natural resources.

Ans: Reduce reusing and recycling are three ways by which we can save our natural resources.

Q:7) What is habitat? Describe its few kinds.

Habitat:-

A natural home of an organism where it lives and reproduces.

Kinds of habitat:-

1 Grass land Habitat.

Grass land is grassy dry area these areas receives a medium amount of rain soil is very fertile grasses are producers.

Animal life:- goats sheep cows deer's etc many kinds of insects are also found.

2 Pond Habitat:-

It is aquatic habitat rich on life

Plant life:- algae duckweed water lily etc

Animal life:- Snail fishes frogs and some microorganisms.

3 Desert Habitat:-

Deserts are driest land areas they received very little rainfall.

Plant life:- Cacti euphoria etc.

Animal life:- lizards snakes camel rat etc.

4 Rain forest Habitat:-

Rain forests are always wet they received rain whole year

Plant life:- Herbs Shrubs and trees

Animal life:- parrots frogs cats butterflies etc.

Q:2 Describe the factors that can bring daily and yearly changes in habitat.

Ans: (i) Sun light

Sun light is basic source of energy light intensity affects the plants decrease in number of plants may result in decrease of animals.

(ii) Temperature

Any rise or fall in temperature may disturb the habitat.

(iii) Water

Water is essential for life availability of water in a habitat can affect the organisms

(iv) Migration

It is the factor that can change the size of population.

(v) Drought

It is a period when there is no rain for long time many plants and animals die due to drought

(vi) Lightening

Sometimes lightning cause's forest fires many plants and trees burnt out.

(vii) Earthquakes

Earthquakes are sudden shocks which can change habitat and destroy many buildings.

Q:3 Describe the adaptations of some aquatic animals to live in their habitat.

Ans: 1 Stream lined body helps to move easily in the water

2 webbed feet of ducks frogs work like oars to help in water

3 Floating leaves and submerged roots are important to live in water.

Q:4 Explain a food chain and food web with examples.

Ans: Food chain:-

Eating and being eaten by others is a feed relation among organisms is called food chain

Grass _____ Zebra _____ Lion

Food web:-

Several food chains in an ecosystem overlap to form a network called food web.

Example:-

A snake does not feed on frog alone it also eat birds rat and even rabbits birds eat grains they also eat insects it look like a web.

Unit No: 5 Water.

Short Questions:-

Q:1 Why is fresh water important?

Ans: All living things need water to survive plants fishes insects birds and other animals all need water to grow.

Q:2 Where is most of fresh water found?

Ans: Most of fresh water is frozen it is found in form of glaciers.

Q:3 Why is most of Earth's water salty?

Ans: About 97% of Earth's water is found in oceans it is salt water contain mixture of gases and salts.

Q:4 If water runs downhill to the seas how does fresh water becomes polluted?
Ans: It dissolves the impurities like soil sand chemicals while the course of its flow.

Q:5 Why clear water is not necessarily safe to drink?

Ans: It may contain microorganisms which cannot be seen with naked eye.

Q:1 Explain how water is most essential part of life?

Ans: All living things need water for their life. Plants use water to make food during photosynthesis aquatic plants and animals live only on water. Animals use oxygen from water our body also needs water. Water helps to digest food remove waste from body it keeps our body cool in hot days.

Q:2 Water makes our water impure?

Ans: These are three major sources by which water can be polluted.

Human waste:-

People release sewage into drains which carry it to rivers. It contains toilet wastes food particles detergents harmful bacteria etc.

Industrial waste:-

Industries release a large amount of two chemicals into rivers and canals. Smoke releases two gases which cause acid rain.

Fertilizers:-

Farmers use fertilizers and particles in their crops. The rain water carries these chemicals to water.

Q:3 How can we preserve water?

Ans: We can preserve water for following ways.

- (i) Turn off tap when you brush teeth.

- (ii) Wash fruits and vegetables in bowl.
- (iii) Don't wash dishes under running water.
- (iv) Only use washing machine with full load.
- (v) Water your lawn in evening.
- (vi) Check regularly leaks in water pipes.

Q:4 Describe few methods to clean water. Any two.

Ans: 1 By Filtration:-

In this method impure water is passed through filter paper. Suspended particles and insoluble salts are left on filter paper. Whereas clean water is collected in beaker.

2 By Boiling:-

It is safest way to clean water. In this method water is boiled for 15-to 30min at high temperature and bacteria germs are killed.

3 By Chlorination:-

In this method we add liquid chlorine to the water. For this purpose water is placed in a clean container and add some bleach in it.

4 By Potash Alum:-

We can add potash alum to the water to purify it. Clay and other impurities will settle down water will be pure after decantation.

Unit No: 6 Structure of An Atom.

Short Questions:-

Q:1 What does give positive charge to the nucleus of an atom?

Ans: Proton are present inside the nucleus proton has positive charge which makes nucleus positive in charge.

Q:2 Define a cation and an anion.

Ans: Cation:- when an atom has number of protons more than that of electrons It becomes positive ion or cation.

Anion:- When an atom has number of electrons more than that of protons It becomes negative ion or Anion.

Q:3 List the names charges and locations of three kinds of particles that make up an atom.

Ans:

Names	Charges	Locations
Electrons	Negative	Revolve around nucleus
Protons	Positive	Present inside nucleus
Neutrons	No Charge	Present inside nucleus

Q:4 How are the isotopes of an element alike and how are they different?

Ans: Isotopes of an element have same atomic number but different mass number

Q:5 A chlorine atom has 17 protons and 18 neutrons, What is its mass number? What is its atomic number?

Ans: Its mass number (A) is 35

Its atomic number (Z) is 17

Q:6 Why an electrical charge on atom is zero of neutral?

Ans: In an atom number of protons and electron are equal. As a result total positive charge is balanced with total negative charge that makes atom neutral in charge.

Q:1 Describe structure of an atom.

Ans: Atoms are made of smaller particles called electrons protons and neutrons.

Nucleus:-

The central part of an atom is called the nucleus protons and neutrons are present in the nucleus.

Electrons:-

They revolve around the nucleus. An electron has negative charge. Its mass is extremely small.

Protons:-

They have positive charge number of protons is equal to number of electrons. It has mass 1873 times greater than that of electrons.

Neutrons:-

They have no charge mass of neutrons is almost equal to mass of protons.

Q:2 What is an ion ? How ions are formed?

Ans: An atom with positive or negative charge is called an ion.

Example:-

(Na⁺) sodium ion

(Cl⁻) chlorine ion

when an atom releases its one or more electrons from the outermost shell the number of protons more than that of electrons. It becomes a positive ion of cation. When an atom absorbs one or more electrons in its outermost orbit the number of electrons more than protons. It becomes a negative ion or an anion.

Q:3 Define the term isotopes. Write about the applications of isotopes in the field of medicine and agriculture.

Ans: Isotopes:-

The atoms of the same element having same atomic numbers are called isotopes.

Example:-

Hydrogen has three isotopes

Protium (¹₁H)

Deuterium (²₁H)

Tritium (³₁H)

Q: 4 Applications of isotopes:-

Carbon -14 It is used to calculate the age of plants.

Nitrogen-15 It is used to study the effect of nitrogenous fertilizers in plants

Sodium-24 It is used to study the blood circulation

Phosphorus-32 It is used in treatment of blood cancer and bone diseases.

Chromium-51 It is used to study red blood cells in patients.

Iron-59 It is used to study absorption of iron in human body.

Cobalt – 60 It is used in cancer treatment.

Iodine – 131 It is used to treat a disease called goiter.

Q:5 State the law of constant composition and give examples.

Ans: Law

“The law states that the composition of a compound is always the same regardless of how the compound was made or obtained”

Composition refers to the type and number of atoms present in substances. French scientist Joseph Proust presented this Law.

Example:-

Water can be obtained from many sources (rivers well sea etc.) but its composition is always same there are 2 atoms of hydrogen and 1 atom of oxygen present in a molecule of water (H_2O)

Unit No: 7 Physical and chemical changes and processes.

Short Questions:-

Q:1 What is meant by a physical change?

Ans: The change in which only physical properties of a substance change and its chemical composition remains the same.

Q:2 Define chemical change.

Ans: The change in which new substance is formed chemical changes are permanent and are not easy to reverse.

Q:3 Give example to show that people change the environment.

Ans: Smoke from the factories reacts chemically with rain water to make it acidic. Acid rain destroys forests.

Q:4 What is hydrogenation?

Ans: A chemical process hydrogenation changes the vegetable oil into solid fat in presence of nickel vegetable oil + Hydrogen Nickel Banaspati (ghee)

Q:5 What is plastic?

Ans: A plastic is any material that can be molded into any form.

Q:1 Explain with examples that a chemical change brings change in the properties of substances.

Ans: Chemical change in which new substance is formed It is permanent change and not easy to reverse.

Example:-

Turning of milk into yogurt

Rusting of iron burning of paper

Coal is carbon when we burn

Coal it changes into smoke energy and ash.

Q: 2 Write a brief note on

(i) Plastics

Plastic is any material that can be molded into any form plastics are very large molecules made from many smaller molecules called monomers. That is why plastics are also called polymers. Monomers are obtained from crude oil. Polyethylene and PVC are examples of plastic.

(ii) Change of vegetable oil into fat.

Conversion of vegetable oil into fat is a chemical change when hydrogen is passed through vegetable oil in presence of nickel it converts into solid fat. This process is called hydrogenation. A large amount of heat is used to bring about this change

Vegetable oil + Hydrogen Nickel Banaspati ghee

Q:3 How are fertilizers useful and harmful for us?

Ans: Benefits of Fertilizer:-

A substance which adds mineral to soil is called fertilizers. They increase the soil fertility fertilizers supply nitrogen (N) phosphorous (P) potassium (K) to soil.

Harmful Effects:-

Excessive use of fertilizers causes soil pollution. When carried by rain water into rivers canals. it make water poisonous as well. Lot of fuel is used to make fertilizers which results in their loss from environment.

Q:4 Explain reversible and irreversible changes with example.

Ans: Reversible change:-

A change that can go forward or backwards is called reversible change. It is temporary change. Melting of ice into liquid water switching on a tube light mixing of salt in water are reversible changes.

Irreversible change:-

A change that can't go back is called a irreversible change. Turning of milk into yogurt burning of paper or wood are example of irreversible change.

Unit No: 8 Transmission of Heat.

Short Questions:-

Q:1 what do we use cooking pots made of metals?

Ans: Metal part of the cooking pots allows heat to pass through it which makes cooking easier.

Q: 2 what is convection current?

Ans: Upward and downward movement of molecules of water or air is called convection current.

Q:3 Which surfaces do absorb maximum heat?

Ans: Black surface are good absorbers of heat.

Q:4 Why do we woolen clothes and blankets during winter days?

Ans: Woolen cloths and blankets slow down the transfer of heat. They trap air in them because air is bad conductor of heat.

Q:5 What is advantage of gliding flight for a bird?

Ans: Convection current also takes place in atmosphere birds take advantage of this process. They do not move their wings but glide on air current.

Q:1 What is convection? How does it occur?

Ans Convection:-

The transfer of heat in which molecules of medium move to the source of heat energy to absorb and then move away from it is called convection. Convection occurs in liquid and gases only because their molecules can move freely. The molecules of a solid are held closely together.

Therefor convection is not possible in solids. The upward and downward movement of molecules of water or air is called convection current.

Q:2 Write a few everyday application of conduction of heat.

Ans: Cooking utensils iron etc is made of metals to conduct heat. Birds have feathers which keep their body warm because feathers are bad conductor of heat. Woolen clothe and blankets slow down the transfer of heat. Ice is covered with jute rugs to reduce its melting. There are bad conductors.

* **Q:3 Write a note on vacuum flask.**

Ans: Vacuum flask is a container which can keep hot thing hot and cold thing cold. It reduces the heat transfer by all three ways i.e conduction convection and radiation. Vacuum prevent transfer of heat by conduction and convection. The silvered smooth walls prevent transfer of heat by radiation. The lid of flask is made of cork or plastic glass bottle is protected by fixing it in a metal or plastic container.

Q:3 Write a note following.

(1) Ocean currents and winds.

Heat of sun heats up the air warm air expand and rise up word cold air from the surrounding areas move to replace its place, warm air on upper region gets cool and sinks down in warm area. In this way air current flows. Ocean currents also set up due to convection. Water f the surface warms and gets lighter and moves along the surface of ocean. Cold water gets heavy and travels at the bottom of ocean. In this way ocean current develops.

(ii) Gliding flight of birds.

Convection current also takes place in atmosphere. Birds like eagles hawks vultures and gulls take advantage of this phenomenon. They enjoy gliding during gliding flight a bird does not move its wing but glides on air current. A lot of energy saved during gliding.

Unit No: 9 Dispersion of light.

Short Questions:-

Q:1 What happens when light travels from glass into air at an angle?

Ans: When light passes from glass into air it bends away from the normal. The angle of reflection is greater than the angle of incidence.

Q:2 What is refractive index?

Ans: Refractive index is the ratio of speed of light in vacuum to its speed in the medium.

Q:3 How can you calculate the refractive index of water?

Ans: We can calculate refractive index by following formula:-

$$\text{Refractive index of medium} = \frac{\text{Speed of light in vacuum}}{\text{Speed of light in medium}}$$

Q:4 What happens when the primary colours of light are mixed in equal proportions?

Ans: Red blue and green are the primary colours when these are mixed in equal proportion they produce white colour.

Q:5 Define critical angle?

Ans: The angle of incidence for which the angle of reflection is 90° is called the critical angle

Q:6 State law of reflection.

Ans: There are two law of reflection

1 "The incident rays the refracted ray and the normal at the point of incidence all lie in the same plane"

2 "The ratio of speed of light in vacuum to its speed in another medium is always constant"

★ **Q:1 Define reflection of light. Discuss the effect of refraction with examples.**

Ans: Refraction of light:-

- 1 When light passes from one transparent medium to another. It changes its speed and direction.
- 3 This bending of light is called refraction of light.

Effects:-

- 1 Refraction makes image in our eyes. Beautiful colours in film on the surface of water are due to refraction. Sometimes refraction forms fall images e.g. the shallow bottom of water tub which is actually deep.

Q:2 Define total internal reflection. Explain the phenomenon of mirage.

Ans: Total Internal Reflection:-

When the angle of incidence (i) is greater than the critical angle 'c' the light rays reflect back into the same denser medium this phenomenon is called total internal reflection.

Mirage:-

A mirage is an image of some distant object which appears to us due to the refraction and total internal refraction of light upper air is cooler than the air near the ground. The light rays bend as they travel down ward due to refraction. Light rays continue to bend near ground. These rays seem to us as reflecting from water. As a result we see mirage. Desert travellers often observe mirages.

Q:3 What is dispersion of light? Why does white light get dispersed?

Ans: Dispersion of Light:-

Splitting of light into its component colours is called dispersion of light.

When a beam of light enters a prism all the colours of white light refract at different angles. It causes the white light to split into its component colours. Red light bends least Violet light bends the most and refracts by the largest angle.

Unit No: 10 Sound Waves.

Short Questions:-

Q:1 Sketch a transfer wave and label a crest a trough a wave length and amplitude.

Ans:



Q:2 Define a wave length of longitudinal wave.

Ans: The distance between two adjacent compressions or rarefaction is called wave length of longitudinal waves.

Q:3 Name a few devices that use different sounds in our everyday life.

Ans: Door bell, Telephone, Siren, Radio, Security alarm etc.

... louder than others?

Ans: Loudness is related to the amplitude of sound the larger the amplitude the louder the sound.

Q:5 What is relationship between frequency and pitch?

Ans: Pitch of the sound depends on the frequency of sound waves. The higher the frequency the higher the pitch is.

Q:6 How does sound travels?

Ans: Sound travels in form of the waves.

Q:1 Compare transfer waves and longitudinal waves.

Ans: Transfer waves:-

A wave in which particles of the medium move up and down perpendicularly to the direction of the wave is called transfer wave.



The highest point of wave is called crest and the lower point of wave is called trough.

Longitudinal waves:-

A wave in which particles of medium move back and forth to the direction of wave is called longitudinal wave. A part where particles of medium are compressed are called compressions. The part of wave where particles of medium spread out are called refraction.

Q:2 What type of waves are sound waves? And how do they transfer sound energy?

Ans: Sound waves are longitudinal waves. When a drummer beats a drum the surface of drum vibrates and creates disturbance in the air beside it. When drum head moves to the left it compresses the air particles and creates compression. When drumhead moves to the right air particles spread out and creates refraction in such way this energy is transferred to our ears and we hear sound.

Q:3 Describe loudness and pitch of the sound.

Loudness:-

Loudness is related to the amplitude of sound the larger the amplitude the louder the sound
Loudness helps us to distinguish a soft sound from loud sound of the same frequency.

Pitch:-

Pitch is the shrillness or graveness of sound shrill sound is called high pitch sound less shrill sound is called a low pitch sound. Pitch of sound depends on frequency of sound waves. The higher the frequency the higher the pitch is.

Q:4 Write note on following:-

- (i) Audible frequency range:-
Our ears can't hear sounds of all frequencies which a person can hear is known as audible frequency range. A healthy human ear can hear sounds of frequencies from about 20 HZ to 20,000 HZ different animals have different range.
- (ii) Speed of sound :-
Different waves travel at different speeds. The distance a wave covers in unit time is called its speed. Speed is measured in meter per second. Sound travels at different speeds in different mediums.
Example:- Speed of sound in air is $330\text{m}^{-1}\text{sec}$ (gas) In water $1500\text{m}^{-1}\text{sec}$ (liquid)
In steel $6,000\text{m}^{-1}\text{sec}$ (solid)

Unit No: 11 Circuits and Electric Current.

Short Questions:-

Q:1 What is an electric current?

Ans: The flow of charges through a conductor is called electric current.

Q:2 What causes the current to flow in a electrical circuit?

Ans: Movement of electrons from -ve pole to +ve pole causes current to flow in a electrical circuit.

Q:3 What are the functions of an ELCB?

Ans: An earth leakage circuit breaker (ELCB) is a safety device used in electrical installation to prevent a shock.

Q: 4 Compare fuse and circuit breaker. Which one is easier to use?

Fuse:-

Fuse is a piece of thin wire connected in the path of live wire. Fuses protect houses against short circuits and over loading.

Circuit Breaker:-

It is small electromagnetic switch that works like a fuse but it does not blow out. It just breaks the circuit by tripping. It is easier to use.

Q:1 What is the main difference between a series circuit and parallel circuit ?

Ans: There are more than one path for the current to flow in parallel circuit while there is only one path for current to flow in a series circuit.

Q:2 How does increasing the potential difference affect the current?

Ans: Potential difference causes the charges to flow through conductor. Greater the potential difference more will be the flow of current.

Q:3 Describe the series and parallel circuit in detail.

Ans: Parallel circuit:-

If the components are connected it is parallel circuit. In parallel circuit there are more than one path for the current to flow current flowing through all branches may be same or different.

Series circuit:-

If the components are connected one after another in a single loop than it is a series circuit. In series circuit there is only one path for the current to flow current which flows through each component of circuit is the same.

Q:4 Explain heating and chemical effects of the current.

Ans: Heating effect:-

Current flowing through wire make it hot light is also produced when a wire becomes very hot. We use many appliances that convert electric current into heat.

Chemical effect:-

An electric current chemically affect the materials in or solution form for example electrolysis and electroplating.

Q:5 Write note on.

Ans: Resistance:-

Resistance is the hindrance to flow current. The unit of resistance is ohm. Resistance of wire depends on length of the wire and thickness of the wire.

Electrical Power:-

Electrical power is the rate at which a device converts electrical energy into another form of energy. Its unit is watt (w).

MCBs (Minimum circuit breakers)

An MCB is a small electromagnet switch that works like a fuse but it does not blow out. It just breaks the circuit by tripping when a current more than its rating passes through it.

Unit No: 12 Investing the space.

Short Questions:-

Q:1 Are blue stars young or old ? How can young tell?

Ans: Blue stars are hottest and most massive stars and burn themselves quickly so all blue stars are young.

Q: 2 Name one observation that supports the Big Bang Theory.

Ans: Existence of cosmic back ground radiations supports the Big Bang Theory.

Q:3 List in order the four stages in the life cycle of a low mass star.

- Ans: (i) Birth of star
(ii) Death of star
(iii) Red giant stage
(iv) Dwarf stage

Q:4 How do constellation differ from galaxies?

Ans: A galaxy is a large group of stars nebulas gases dust and planet. A constellation is a group of star with a definite pattern or arrangement.

Q:5 How do scientists think the universe began?

Ans: According to scientists the starting point of the universe was Big Bang Theory.

Q:6 What type of stars ends its life cycle as a black hole?

Ans: Neutron stars end its life cycle as a black hole.

Q:7 For how many years will the sun be a red giant?

Ans: Sun will be a red giant for only about 500 million years.

Q:8 On which factors does the brightness of a star depend?

Ans: Brightness of stars depends on two factors.

- (i) Distance of the star from the Earth.
- (ii) Amount of energy the star emits.

Q: 9 what is a light year?

Ans: A light year is a measure of distance that light covers in one year with a speed of 300,000 Kilometers per second.

Q: 10 What galaxy our sun belongs to?

Ans Our sun belongs to the Milky Way galaxy.

Q:1 Explain the Big Bang Theory of the origin of the universe.

Ans: Scientist have been presenting different theories of creation of universe one of these theories is "The Big Bang Theory" According to this theory the universe was a big fireball Extra