**L-5 ACIDS, BASES AND SALTS**

**DEFINE**

**Acids- It can donate a proton and accept electron. It changes blue litmus to red litmus and sour in taste.**

**Bases -It can donate electron and accept proton. It changes red litmus to blue litmus and bitter in taste.**

**Mineral acids- They are prepared by minerals.**

**example nitric acid, hydrochloric acid, sulphuric acid**

**Organic acids They are prepared by organic matter that is plant and animals.**

**example vinegar has acetic acid.**

**Indicator -It is the substance which shows different colours in an acidic and basic medium .example litmus paper, phenolphthalein, methyl orange.**

**Neutralization reaction- The reaction between acid and a base. Neutral salts -Salt form by reaction after strong acid with strong base . example sodium chloride, potassium chloride ammonium nitrate, sodium sulphate .**

**Acidic salts- Salt formed by reaction of strong acid and weak base example aluminium chloride ammonium nitrate, zinc sulphate, copper chloride.**

**Basic salt- Salt formed by reaction of weak acid and a strong base example sodium acetate .**

**Alkalies-Bases which are soluble in water example ammonium hydroxide , aluminium hydroxide, copper hydroxide**

**MAIN POINTS**

**Properties of acids.**

**Acid drive from acidus which means sour. Acid divided into 2 categories first mineral acids and organic acids .**

**Sulphuric acid is king of chemicals it is used in manufacturing of materials.**

**Hydrochloric acid, nitric acid sulphuric acid and phosphoric acid are strong acids. citric acid, acetic acid, carbonic acid and formic acid are weak acid.**

**If acid highly concentrated then it contains very little amount of water.**

**Properties of base**

**They are bitter in taste. They are soapy in touch. They react with acids to form water and salt**

**Indicator litmus paper blue changes to red when it is acid. Red litmus paper changes to blue when it is base**

**Phenolphthalein—In acid—colourless In base -------pink**

**Properties of salts**

**They are formed by the reaction of acids and base**

**Most of the salts readily soluble in water.**

**Salt do not conduct electricity in their solid state but conduct in solution**

**Salts are classified as acidic,basic,neutral salts**

L-6 TIME AND MOTION

Define   
Motion - When an object change its position with respect to time then object is said to be in motion.

Linear motion - When the object moving along a straight path is called linear motion.   
Speed – The rate of change of given motion. Its unit is kilometer per hour, meter per second.   
  
Speed is equal to distance by time.

Average speed is the total time taken to cover total distance. Average speed is equal to total distance covered by total time taken.   
Speedometer - It is a device used to measure instantaneous speed in kilometre per hour.   
Odometer - It is the instrument used to measure distance.   
Uniform motion - When an object cover equal distance in equal interval of time is called uniform motion .example- motion of clock.   
Non uniform motion - When an object cover unequal distance in un equal interval of time.   
Periodic motion - Motion which repeats itself in fixed interval of time. Example sunrise, sunset   
Time - Gap between two events.   
Oscillation - To and fro motion of an object .example -swing   
Time period - The time taken for 1 complete oscillation.

Graph - They are pictorial representation to convey the information.   
Sundial - A device used for measuring time, by measuring the length of shadow during the daytime.   
Reference point - The initial point from which a body starts moving .   
Digital clock digital clock – A clock in which time is displayed in digit by electronic circuit.   
MAIN POINTS

Simple pendulum

It is made up of metal ball attached to a string that is fixed rigidly at one end. It is given by Galileo.

Time period- Depends on length of the string it do not depend on mass of the bob.

The pendulum of a given length always take the same time to complete 1 oscillation   
Time period of the pendulum is independent of mass of the bob   
The time period Of pendulum increase with increase in length and decrease with decrease in length of the pendulum.   
Clocks are made up of quartz.

4 sundial exist in India that is in Jaipur, Varanasi, Ujjain and Delhi.

Time between the two successive tones is called solar day and is ancient unit of time . 10 years is equal to 1 decade, 100 years is equal to 1 century. 1000 year is equal to 1 millennium.

The SI unit of time is second.

Characteristics of a moving body .-

. There must be a reference point

. The position of a given body continuously change with time and with respect to reference.

Characteristics of uniform motion.

The moving body cover the distance in equal interval of time.   
The graph between the distance covered and the time taken is a straight line .

L-10 SOIL

: Define   
Soil-It is the upper layer of the earth crust naturally occurring loose covering of broken particles and human capable of supporting life.

Humus - Dead and decay of plants and animals .   
Weathering - Disintegration of rock from parent material into small pieces.   
Soil horizon - Layers in the soil   
Plasticity - It is the property that enables to change shape on the application of force and retain its shape when force is withdrawn. Cohesion - Tendency of the particles to stick to one another .   
Soil density - Weight per unit volume of soil particle.   
Infiltration - It is the rate at which the water enters the soil.   
Percolation - It is the rate at which water moves through the soil.   
Soil air - Spaces between the soil particles.   
Soil pollution -It is defined as and a undesirable toxic substance which is present in the soil and harm the growth of plants and animals.

Soil erosion - Removal of top soil by agents such as wind and water.   
Soil profile - Vertical section of soil to show different layers of soil.

MAIN POINTS

Formation of soil.   
Soil is formed by weathering. It can be physical, chemical, biological weathering.   
Physical weathering consist of temperature, water, wind, plants and animals.   
Chemical weathering has organic acids and solvents.   
Soil profile -   
O - horizon top layer of soil has humus

A - horizon - dark colours -layer mixed with humus   
B- horizon -it contains of sub soil which has iron, aluminium oxide, calcium carbonate   
C- horizon- broken bedrock   
R -horizon unweathered the rock layer .   
Properties of soils

Soil texture- sandy.-- particle size bigger and aerated

: Clay soil high proportion of fine and smooth particles .   
 Loamy soil is the mixture of sand ;silt and clay .   
Soil colour- If it contains iron then it is red in colour .   
Soil structure- Tendency to stick particles together.   
Plasticity and cohesion   
Density   
Infiltration and percolation rate

Composition of soil   
Inorganic substance, organic substance soil water soil air, living organisms

Soil as a resource   
It serves as mining construction, shelter , mineral water and prevent floods and droughts.   
It percolate water.   
It is the habitat of many organisms

Soil and crops

Climatic factors like temperature, light, wind, rainfall and humidity. Cotton is grown in sandy loam soil .

Clayey and loamy soil are used for growing wheat bran and paddy

Causes of soil erosion   
De forestation, industries, overgrazing, improper farming

Prevention of soil erosion afforestation, avoiding overgrazing, overuse of land, terrace farming.

L-11 ELECTRIC CHARGES AT REST

DEFINE:

Electricity - flow of charges   
Charge d objects- when current passes through an object it acquired charge   
Conductor – Those materials which allowed electricity to pass through them example metal   
Insulator - Those materials which do not allow electricity to pass through them are called insulator example plastic   
Conduction - When is given charge object get charged by rubbing it in direct physical contact of another charged object is called conduction .   
Earthing - A charged object in contact with the earth causes it to lose its charge this process is called earthing.   
Electrical induction - The phenomena of separation of charges of an uncharged object due to presence of charged object in its neighborhood.   
Electroscope – A device which detect charge on our body.   
Lightning - A flash of light form during thunderstorm due to discharge of electrically charge clouds.   
Thunderstorm - The storm accompanied by rain and lightning with the sound.   
Force of repulsion -The force exerted by a charged object on another charge object is a force of repulsion when the two charged up objects are similar in nature.   
Force of attraction - The force exerted by a charged object on another charged object is the force of attraction when to charged up object are different in nature .

MAIN POINTS   
Like charges repel each other and unlike charges attract each other.   
Charges are always produce in pairs.

Advantages of lightning   
It converts nitrogen into its oxide which help plants to grow   
Formation of ozone from oxygen .   
It helps the earth to maintain a balance in the total electric charges are contained in it.

Safety precautions during lightning

(outside )  
Go to safe place   
Stay away from trees   
Avoid sheds and open area   
A house or building is a safer place   
(Inside)   
Avoid contact with water   
Do not use electric equipment   
Do not use corded phones   
  
Lightning conductor - idea suggested by Benjamin franklin. It is a device that is design to minimize the loss of life and property   
It absorb the charges and earth it.   
The charge produce on a glass rod on rubbing against silk is a positive charge and that produce on an ebonite rod on rub against flannel is negative charge .

Methods of charging   
Charging by rubbing or fiction   
Charging by contact on conduction   
Charging by induction

When the charge build up in clouds goes beyond a certain limit the air break down and loses its normal insulating nature there is then sudden flow of very large amount of charges through some parts of the air this phenomena is known as electric discharge.e

L-12 LIGHT

**DEFINE**

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|  | |  | | --- | | ***Reflection-* The phenomena due to which a ray of light bounces off a smooth polished surface in same medium.**  **Regular reflection - *Reflection* of light from shiny and smooth polished surface**  **Diffused reflection- *Reflection* of light from non shiny ,non polished or irregular surface.**  **Plane mirror –It is a smooth polished surface from which reflection take place .** | |

|  |  |  |
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|  | |  | | --- | | **Real image-An image formed by the actual convergence of rays of light which are reflected by a mirror.**  **Virtual image- An image in which the rays reflected by a mirror, diverge but to the eye they appear to converge at some point.**  **Spherical mirror is the special type of mirror .The polished and smooth curves surface act as mirror .**  **Concave mirror -A reflecting surface which curves inward.**  **Convex mirror -A reflecting surface which curve outward.**  **Centre of curvature - it is the centre of sphere of which given mirror**  **Radius of curvature - the radius of the sphere of which the given mirror.**  **The pole -It is the midpoint Of the section of sphere**  **Principal axis - The line joining the pole and centre of curvature. Focal length - The distance between the pole and focus.**  **Angle of incidence - The angle between the incident ray and normal at the point of incidence.**  **Angle of reflection - The angle between the normal and the reflected ray at the point of incidence.**  **Lateral inversion it is the left right reversal.**  **MAIN POINTS**  **A plane mirror always form virtual image which is as far behind the mirror as the object is in front of it.**  **Images is erect and of the same size of the object.**  **Laws of reflection of light**  **First law- The incident ray, the normal at the point of incidence and reflected ray are all lie in same plane.**  **Second law- The angle of incident is equal to the angle of reflection.**  **Concave mirror - It always form real and inverted image which maybe magnifying or diminished except when the object is held close to the mirror. In such a case it always forms virtual, erect and magnified image.**  **Convex mirror - It always form of virtual image, erect and diminished.**  **Uses of mirror Concave mirror**  **it is used as reflector in the headlight of auto mobiles. It is used by dentist. They are used as shaving mirrors.**  **Convex mirror**  **They are used as rear view mirror in auto mobiles. They are also also used as reflector in street light lamp.**  **Plane mirror**  **They looking glasses, jewelers shop ,kaleidoscope, solar cooker ,periscope, telescope**  **L-14 FABRIC FROM FIBRE**  **DEFINE**  **Fleece- Bodycoat of fine, soft hair.**  **Shearing- Removal of fleece by clipper.**  **Scouring - Removal of dirt and greece by washing them.**  **Sorting - Separating hair on the basis of its texture from the fleece.**  **Dyeing - Colouring the wool.**  **Spinning - Twisted the fibre or thread together to make yarn.**  **Sericulture – Rearing of silk worm for obtaining silk.**  **Varity of wool - angora, pashmina, shahtoosh.**  **MAIN POINTS**  **Process of making wool –**  **shearing, scouring sorting, dyeing spinning.**  **Process of obtaining silk - rearing of silkmoth, reeling ,dyeing, spinning and weaving**  **Types of silk- tassar ,moonga .**  **Lifecycle of silk worm-**  **SILK MOTH----- SILK MOTH AND EGGS-------SILKWORM----------COCOON-------------MOTH COMING OF COCOON China is largest producer of silk . India rank second in silk production.  L-16 WATER**  **DEFINE**  **Water table - Water is trapped in the space between the underground rock and the upper layer is called water table .**  **Groundwater -The water below the water table.**  **Rainwater harvesting - The water is collected in underground tanks which allow to use for further purposes.**  **Sewage-The wastewater.**  **Sewerage system-The network of pipes to carry sewage.**  **MAIN POINTS**  **¾ of the earth surface is covered by water. 97 % is salty water which is present in oceans and seas only 0.7 % is groundwater and 0.3 % is fresh water**  **Sources of freshwater are groundwater , well ,tube well, hand pump, boring**  **Scarcity of water**  **Deforestation, increase in population, number of vehicles, increase in industries.**  **Prevention of rainwater by not overuse s and wastage**  **use techniques like rainwater harvesting, sprinkler and drip irrigation.**  **Ways of waste water management –**  **reduce quantity of wastewater.**  **Do not throw solid in rain.**  **Do not throw cooking oil in the rain.**  **Do not throw chemicals.**  **If water is stagnant then it will grow the breeding of mosquito and causes diseases.**  **Sources of wastewater the waist water from offices hospital homes industries**  **L-17 ELECTRIC CURRENT AND ITS EFFECTS**  **DEFINE**  **Fuse -A safety device which is used to limit the excessive amount of current .**  **Over loading –When more than 1 device is connected to a single socket.**  **Short circuiting –When neutral and live wire touch each other**  **. Miniature circuit breaker( mcb) -An automatically turn off when the current exceeds its safety limit.**  **Permanent magnets -The magnet which do not loses its magnetism for long time.**  **Temprorary magnets -The magnet which loses its magnetism for .**  **MAIN POINTS**  **Heating effect of electric current - When current passes through a conductor it becomes hot .It is given by Joules.**  **It depends on strength, time and length of wire.**  **Heating coil is made up of nichrome because it has high melting point, high resistivity remain red hot for long time.**  **Meltdown action of fuse depend on current rating.**  **MCB works on magnetic effect of current .**  **Magnetic effect of current is given by Hans Christian Orested he detect the current carrying wire deflect a compass needle when current flows through it.**  **Electromagnet is a soft iron core wrapped with insulated copper wire when current passes through it , it behaves like magnet**  **It depends on wrapping the insulation. Increase in number of turns, increase in current.**  **Uses of electromagnet - electric bell loud speaker, telephone cranes , lift, machine, doctor for eyes , small toy etc** | |