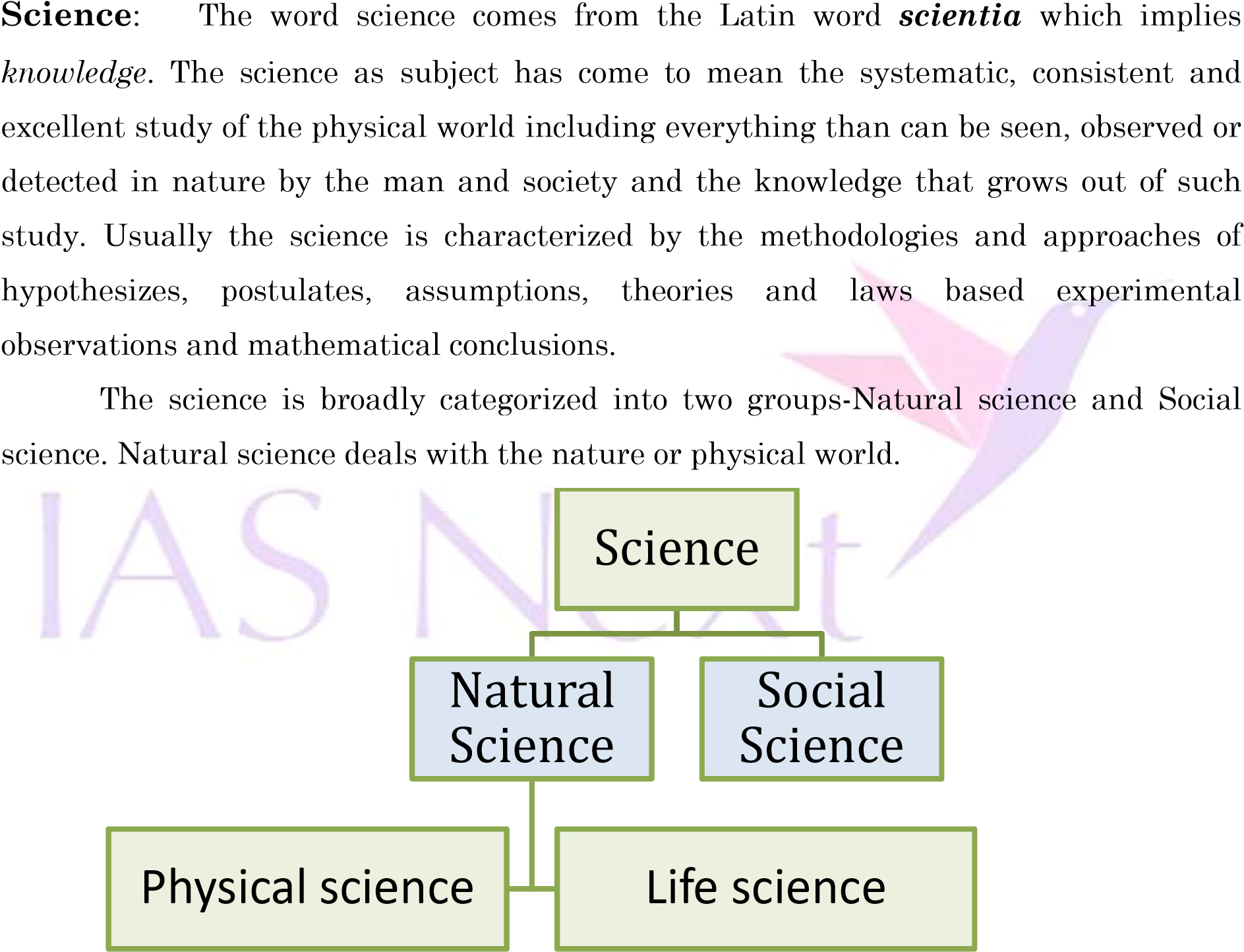
General Science Capsule



Natural science is broadly divided into:

1. Physical science (studies concerned with non-living matter)
2. Life science or Biological science (studies concerned with living matter)

General Science:

* The temperature at which all substances have zero thermal energy -
  + 273 degree celcious.

Any substance which when added to a reaction, alters the rate of the reaction but remains chemically unchanged at the end of the process is called- Catalyst The study of the inter-relations of animals and plants with their environment is

called - Ecology

* Study of insects is called – - Enntomology
* A unit used to express the focal power of optical lenses- - Dioptre
* The velocity that a body with less mass must achieve in order to escape from the gravitational attraction of a more massive body is called -Escape Velocity
* Laughing gas is chemically known as- -Nitrous Oxide
* The blood vessels carrying blood from the heart to various parts of the body is called-
  + Artery
* The distance travelled by light in one year is called- Light year
* An organism which derives its nourishment from another living organism is called –
  + Parasite
* Newton’s which law states that the rate of change of momentum of a body is directly proportional to the force applied and takes place in the direction in which the force

act- - Newton’s second law of motion

* Which is the world’s first man-made satellite- Sputnik-I. (4 Oct 1957)
* Which planet is the brightest of all the planets- Venus.
* Small pieces of solid matter which are found scattered in the inter-planetary space of the solar system are known as – Meteoroids
* The largest gland in the body which is dark red in colour is – Liver
* Inadequate secretion of Insulin hormone causes which disease- Diabetes
* Common cold, Influenza, Chickenpox and Measles are caused due to the attack of

Virus or Bacteria- - Virus

* In which atmospheric layer are the communication satellite located –lonosphere
* The scientific principle behind ‘Fibre Optics” is- Total internal reflection of light.
* Ginger is a stem and not a root. True of False-True (because it has nodes and internodes)
* When we wind a watch which energy is stored- Potential Energy
* On which phenomena the process of Dialysis used on patient with affected kidneys is

Based- Osmosis

When a piece of ice floating in a beaker of water melts, the level of water will rise or

fall- Remains the same

Energy stored in a dry cell is – Chemical energy

* When a cricketer lowers his hand while catching the ball, it saves him from injury due to – Conservation of momentum
* Full form of AIDS is – Acquired Immune Deficiency Syndrome
* Chemical technology dealing with the conversion of base metals into gold is –

Alchemy

* Substances produced by micro-organism that kill or prevent growth of other microorganism is called- Antibiotics
* Substances which react with acids to form salts is called – Base
* The ancient oriental art of growing trees in dwarf form is called – Bonsai
* What is the unit of heat – Calorie
* The ability of a body to resist tension or compression and to recover its original shape and size when the stress is removed is called – Elasticity
* The negatively charged particles which revolve around the nucleus of the atom in certain orbits is called- Electron
* The branch of biology dealing with study of Heredity is - Genetics
* Kwashiorkor is caused due to the deficiency of – Protein
* Optical illusion often witnessed in deserts when the objects on the surface of the earth at –
* The branch of science which deals with study of nature and properties of light is called – Optics
* The scale used to measure the magnitudes of earthquakes is called – Richter scale
* The heat required to raise the temperature of 1 kg of a substance through one degree celcius is called- Specific heat
* The speed greater than the speed of sound is called – Supersonic speed
* Volatile substance that incapacitates for a time by powerfully irritating the eyes, provoking tears is called- Tear gas
* Who is the inventor or Dynamite- Alfred B. Nobel
* Who discovered life in plants- Jagdish Chandra Bose
* The unit used to measure loudness of sound is – Decibel The smallest part of an element that can take part in a chemical reaction is called-

Atom

Substances used for destroying or stopping growth of micro-organisms in living

tissue is Called – Antiseptic

* Water that does not form lather with soap easily is called- Hard water
* The lines drawn on maps joining the places having same barometric pressure is called- Isobars
* Lymph differs from blood in not having – Red Blood Corpuscles
* Universal receivers can receive blood from- Groups O, A, B and AB
* Study of Grass is called – Agrostology
* Study of Tumor is called – Oncology
* Which physical property will be unaffected with increase in quantity- Density
* Oil spreads over the surface of water because –

Oil has less surface tension than water

* In high mountaneous regions bleeding through nose occurs because-The pressure of the blood in the capillaries is higher than the outside air pressure.
* Why does a man weigh more at the poles than at the equator- Gravitational pull is more at the poles.
* A gas will behave as an ideal gas at- At very low pressure and high temperature
* Oology is the branch of science dealing with the study of –Birds egg
* Why does a drop of liquid assume a spherical shape- Because a sphere has the least surface tension
* When cream is separated from milk the density or milk increases or decreases-

Increases

* Diamond is harder then Graphit due to difference of Crystalline structure.
* Which combination of colours is the most convenient during day and night time-

Red and Green

* An instrument that measures and records the relative humidity of air is-Helium  An instrument that measures and records the relative humidity of air is –

Hygrometer

* The different colours of different starts are due to the variation of –Temperature
* Which is left when an hydrogen atom loses its electron – A proton

The fundamental scientific principle in the operation of a battery is –

Oxidation reduction

Which metal is used to galvanise iron- Zinc

* The instrument used to measure the force and velocity of the wind is –Anemometer
* Edward Jenner is associated with- Small Pox
* The scientist who explained about blood circulation for the first time was – William

Harvey

* Nitroglycerine is used as An explosive
* Solar Energy is due to the process of –Fusion reactions
* In a dry cell battery which are used as electrolytes-ammonium Chloride and Zinc

Chloride

* Permanent Research Station of India, Dakhin Gangotri is located at – Antarctica
* Which types of waves are used in a night vision apparatus – Infrared waves
* In order to stay over the same spot on the earth, a geostationary satellite has to be directly Above-The Equator
* Water is used to cool the engines of cars, buses, trucks, etc, it is because water has High specific heat
* Due to contract of eyeball, a long-sighted eyecan only see farther objects which is corrected by using –Convex lens
* Rainwater collected after 30 to 40 minutes of raining is not suitable for drinking because it is –Acidic
* The retining of petroleum is done by the process of Fractional distillation Physical quantities which are completely described by a magnitude (size) alone are known as –Scalar quantities
* Study of abundance and reactions of chemical elements and molecules in the universe, and their interaction with radiation is called- Astrochemistry
* Birbal Sahni Institute of Palaeobotany is located at Lucknow, Uttar Pradesh
* Organelles which is known as the power house of the cells – Mitochondria
* Photosynthesis takes place maximum in red colour and minimum in Violet colour
* Other name of Red Blood Cells is –Leukocytes
* Other name of Red Blood Cells is-Erythrocytes
* Which antiseptic compound is present in dettol –Chlorxylenol

What is a compound that is a white solid which absorbs water vapour from the air- Calcium chloride

To which product of equivalent weight and valency of an element is equal- Atomic weight

* Which element forms the highest number of compounds in the periodic table-

Silicon

* How does addition of ethylene dibromide help to petrol-Elimination of lead oxide
* What do we call the process of separation of pure water from impurities –

Distillation

* What is the name of gas which is present in both the natural gas and the biogas-

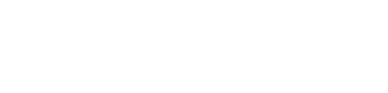
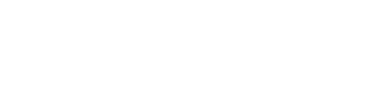
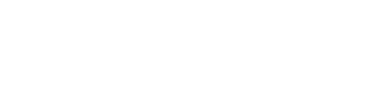
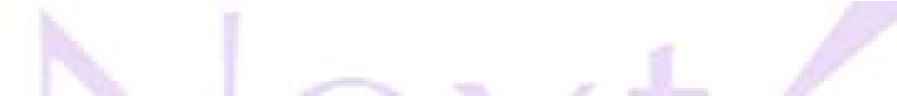
Methane

* Of which alloy the commonly used safety fuse – wire is made –alloy of tin and lead
* What is alcohol obtained in the samponification process –Glycerol
* Which is used to dilute oxygen in the gas cylinders used by divers –Helium
* What do cathode rays case when obstructed by metal emission of X-rays  With which liquid is anomalous expansion associated – Water.
* What is a tick paste of cement, sand and water called –Mortar
* Ethanol containing 5% water By which name is it known –Rectified spirit
* Of which Container radioactive materials should be kept-Pb

COMMON NAMES OF CHEMICAL COMPOUNDS

|  |  |  |
| --- | --- | --- |
| Common Name | Chemical compounds | Chemical Formula |
| Banking powder | Sodium Bicarbonate | NaHCO3 |
| Blue Vitriol | Copper Sulphate | CuSO4.5H2O |
| Bleaching powder | Calcium Oxychloride | CaOCl2 |
| Chloroform | Trichloro methane | CHcl3 |
| Chalk (Marble) | Calcium carbonate | CaCo3 |
| Caustic potash | Potassium Hydroxide | KOH |
| Caustic soda | Sodium hydroxide | NaOH |
| Dry Ice | Solid Carbondioxide | CO2 |
| Epsom | Magnesium Sulphate | MgSo4 |
| Gypsum | Calcium sulphate | CaSo4 |
| Green vitriol | Ferr  ous sulphate | FeSo4 |
| Heavy water | Deuterium Oxide | D2O |
| Vinegar | Aceti  c Acid | CH3COOH |
| Washing soda | Sodi  um carbonate | Na2CO3 |
| Slaked lime | Calcium Hydroxide | Ca(OH)2 |

Potash Alum Potassium Aluminium KALSO4



Sulphate

|  |  |  |
| --- | --- | --- |
| Quick lime | Calcium Oxide | CaO |
| Plaster of paris | Calcium Sulphate | CaSO  4  2  H  2  O |
| Mohr’ s Salt | Ammonium  Sulphate | Ferrous FeSO4(NH4)2SO4.6H2O |
| White Vitriol | Zinc Sulphate | ZnSO4.7H2O |
| Marsh Gas | Methane | CH  4 |
| Magnesia | Magnesium Oxide | MgO |
| Laughing Gas | Nitrous Oxide | N2O |
| Vermelium | Mercuric Sulphide | HgS |
| Sugar | Sucrose | C7H5N3O6 |
| Sand | Silicon Oxide | SiO2 |

Vitamins and minerals

Balance Dite:- It means a diet which contains right amount and type of foods and drink to provide essential nutrients and energy required for proper development of the body cells, tissue and organs. Balance diet should contain right amounts of vitamins and minerals for overall development of the body.

Vitamins:- Vitamins are organic compounds required in small quantities for optimal health. It enhances the metabolism of proteins, carbohydrates and fats. Vitamins ate required for growth in children, formation of hormones, blood cells, tissues and bones. Vitamins cannot be synthesised/produced by the human body, thus our diet must contain vitamins.

TYPES OF VITAMINS:

|  |  |  |  |
| --- | --- | --- | --- |
| Vitamin | Chemical Name | Food Sources | Deficiency Diseases |
| A | Retinol | Milk, eggs, fish, cheese and liver | Night blindness, skin dryness. |
| B1 | Thiamine | Legumes, whole grain, nuts. | Beri-beri |
| B2 | Riboflavin | Egg, milk, cheese, nuts, bread products. | Inflammation of tongue, scores in the corners of the mouth |
| B3 | Niacin or  nicotinic acid | Meat, fish, pea nuts, whole grain. | Skin disease, diarrhea, depression dementia. |
| B5 | Pantothenic acid | Eggs, liver, dairy products. | Fatigue, muscle cramp, pellagra |

B6 Pyridoxine Organ, meats, cereals, Anaemia, kidney stones, corn. nausea, depression.

B12 Cyanocobalamin Meat, fish Pale skin, constipation, fatigue.

1. Ascorbic acid Oranges, tomatoes, Scurvy, anaemia, ability to sweet and white fight infections decreases. potatoes.
2. Calciferol Direct sunlight, fish oils, Rickets, osteomalacia

eggs.

1. Tocopherol Vegetable oils, olives, Neurological problems, tomatoes, almonds, problems of reproductive meat, eggs. system.

K Phylloquinone of Soyabeans, green leafy Failure to clot blood. naphthoquinone vegetable, dairy

products, meat.

Vitamins are further divided into two groups- (1) Fat soluble vitamins and (2) Water soluble vitamins.

Fat soluble vitamins- A, D, E and K

Water soluble vitamins- vitamins- B complex (B1, B2, B3, B5, B6, B12) C and folic acid.

Minerals: Minerals are also essential for proper development of the body. Minerals helps in building strong teeth and bones, skin, hair, proper function of nerves, muscle contraction, maintain heart functions etc.

TYPES OF MINERALS:

Minerals Food Sources Properties Deficiency Diseases

|  |  |  |  |
| --- | --- | --- | --- |
| Calcium | Milk, cheese  other products, green vegetable | and diary nuts, leafy, | Build and maintain Weak teeth and bones, bones and teeth, control poor development of heart beat and blood body. pressure. |

Iron Meat, liver, eggs, yolk, nuts, cereals.

Iodine Iodine- enriched

salt milk cheese

Phosphorus Meat, fish, poultry, cereals.

Sodium Salt

Zinc Meat, liver, fish, milk cheese and other diary products

It is required for transportation of oxygen in the blood. Maintain haemoglobin level in the blood.

Iodine is the main building block of thyroid hormone, T3 and T4. It is essential for proper development of the body.

It is required in building strong bones and teeth. It also repair cells. It is a component of DNA and RNA

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Potassium Fish, milk, pulses, It maintins the pH nuts, green balance of the blood. It vegetable, meat. controls the water  balance of the body | | | Low blood pressure weak muscles. | |
| Magnesium Green vegetable, nuts, cereals. | Magnesium build immunity. It is importance for nerve cell function and muscle  contraction | | It affects system. | nervous |
| Ores and alloys    Aluminium (AL) | Bauxite, corundu  kaolin | | m, feldspar, | cryolite, |
| Antiminy (Sb) | | Stibnite | |  |
| Barium (Ba) | | Barite, Witherite | |  |

Maintains water balance, blood pressure and nervous system. It is important for the function for the enzymes in the body. It builds immunity and regulates cholesterol levels.

Anaemia, weak

immunity

Goitre

Poor body growth, weak bones and teeth.

Low blood pressure, muscle cramp

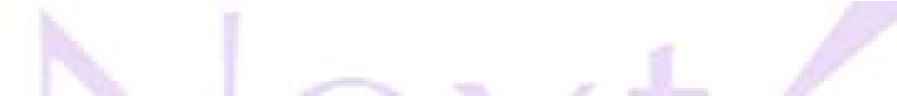
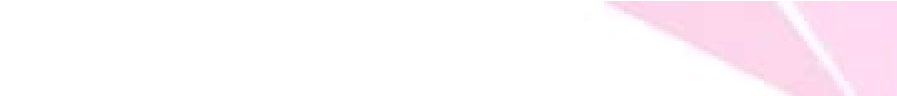
Retarded body growth.

|  |  |  |
| --- | --- | --- |
| Alloy  Components | | |
| Brass Copper and Zinc | | |
| Bronze | Copper and Tin |  |
| Gun Metal | Copper, Zinc and Tin |
| German Silver | Copper, Zinc and Nickel |
| Duralumin | Aluminium, Copper, Manganese | Magnesium and |
| Magnesium | Aluminium and Magnesi | um |
| Nickel Steel | Iron and nickel | kel |
| Stainless Steel | Iron, Chromium and Nic |
| Electrum | Silver and Gold |
| Solder | Tin and Lead |
| Inver | Iron and nickel |

|  |  |
| --- | --- |
| Calcium (Ca) | Chalk, Quicklime, calcite, dolomite, gypsum, Asbestus. |
| Chromium (Cr) | Chromite |
| Copper (Cu) | Malachite, Chalcocite, Chalcopyrite, Cuprite |
| Gold (Au) | Quartz, Calaverite, Silventies |
| Iron (Fe) | Hematite, Magnetite, limonite, copper pyrites |
| Lead (pb) | Galena |
| Magnesium (Mg) | Magnesite, Dolomite, Epsom salt, carnalite |
| Manganese (Mn) | Pyrolusite |
| Mercury (Hg) | Cinnabar |
| Potassium (K) | Carnalite, Sylvite, potash |
| Silver (Ag) | Argentite |
| Sodium (Na) | Rock salt, Trona, Borax |
| Strontium (Sr) | Strontianite, Silestine |
| Tin (Sn) | Cassiterite |
| Zinc (Zn) | Zincite, ferulinite, calamine |
| Uranium (U) | Uraninite |
| Tungsten (W) | Wolframite,  Scheelite. |
| Nickel (Ni) | Pentlandite, milarite |
| Beryllium (Be) | Beryl |



ALLOYS:



Important facts about human body:

Largest and strongest bone in the Femur (thigh bone) body

|  |  |
| --- | --- |
| Smallest bone in the body | Stapes in ear |
| Numbers of cells in the body | 75 trillion |
| Volume of blood in the body | 6 liters (in 75 kg body) |

Numbers of red blood cells (R.B.C) 1. In male 5 to 6 million / cubic mm

2. In female 4 to 5 million / cubic mm

Life spam of red blood cells (R.B.C) 100 to 120 days

Life span of white blood cell (R.B.C) 3-4 days

Normals White blood cell (W.B.C) 5000-10000 / cubic mm count

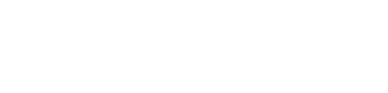
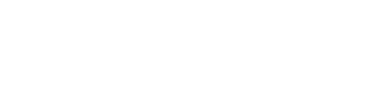
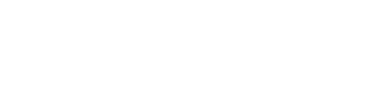
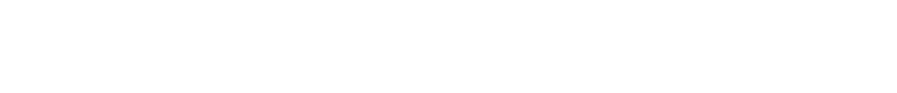
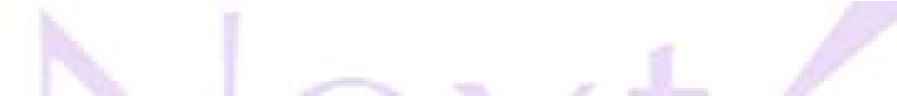
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| --- | --- |
| Time taken by R.B.C to complete One cycle of circulation | 20 seconds |
| Other name of red blood cell (R.B.C) | Erythocytes |
| Largest white blood cells: | Monocytes |
| Smallest white blood cells: | Lymphocytes |
| Who discovered blood group | Karl Landsteiner |
| Blood platelets count: | 150000 – 400000 platelets per micro litre |
| Haemoglobin (Hb) | 1. In male 14-15 gm / 100 c.c of blood |
|  | 2. In female 11-14 gm / 100 c.c of blood |
| Hb content in body | 500-700 gm |
| pH of urine | 6.5-8 |
| pH of blood | 7.36-7.41 |
| Volume of semen | 2  -  5  ml / ejaculation |
| Normal sperm counts | 250  -  400  million / ejacula  tion |
| Menstrual cycle | 28 days |
| Menopause age | 45  -  50  years |
| Blood clotting time | 3-5 minutes |
| Weight of brain | 1300  -  1400  gm in human  adult |
| Normal blood pressure (B.P) | 120 / 80 mm Hg |
| Universal blood donor | 0 |
| Universal blood recipient | AB |
| Average blood weight | 70 kg |
| Normal body temperature | 37  degree Celsius |
| Breathing rate at rest | 12-16 minutes |
| Number of spinal nerves | 31  pairs |
| Largest endocrine gland | Thyroid gland |
| Gestation period | 40 weeks or 9 calendar months |
| Normal heart beat at rest | 72 beats per minute |
| Largest gland | Liver |
| Largest muscle in the body | Gluteus maximus or buttock muscle |
| Smallest muscle in the body | Stapedius |
| Largest artery | Aorta |
| Largest vein | Inferior vena cava |
| Largest and longest nerve | Sciatic nerve |
| Longest cell | Neurons (nerve cells) |
| Minimum distance for proper vision | 25 cm |
| Pulse rate | 72 per minute |
| Thinnest skin | Eyelids |
| Weight of heart | 200-300 gm |

Common Drugs and Their Usage:

|  |  |
| --- | --- |
| Drugs / medicine | Use |
| Anaesthetics | It is a drug that indues insensitivity to pain |
| Antiflatulent | It is a drug that reduces intestinal gas |
| Antipyretics | It is a drug used to lower body temperature |
| Analgesics | It is a drug that is used to prevent or relieve pain. Eg. Aspirin |
| Antibiotics | It is a drug that inhibits the growth of or destroys micro-organisms E.g. Penicillin |
| Antihistamines | It is a drug used to relieve symptoms of cold and allergies |
| Antispasmodic | It is a drug used to relive spasm of involuntary muscle usually in stomach. |
| Antacid | It is drug used for preventing or correcting acidity, especially in the stomach. |
| Diuretics | It is a drug that promotes the production of  urine. |
| Laxative | It is a drug used to provider relief in  constipation |

Important Scientific Laws and Theories:

1. Archimede’s principle- It states that a body when wholly or partially immersed in a liquid, experience an upward thrust which is equal to the weight of the liquid displaced by it. Thus the body appears to lose a part of its weight. This loss in weight is equal to the weight of the liquid displaced by the body.



1. Aufbau principle- it stages that in an unexcited atom, electrons reside in the lowest anergy orbitals available to them.

1. Avogadro’s Law- It states that equal volumes of all gases under similar conditions of temperature and pressure contain equal number of molecules.

1. Brownian motion- it is a zigzag, irregular motion exhibited by small solid particles when suspended in a liquid or gas due to irregular bombardment by the liquid or gas molecules.

1. Bernoulli’s principle- it states that as the speed of a moving fluid, liquid or gas, increases the pressure within the fluid decreases. The aerodynamic lift on the wing of an aeroplane is also explained in part by this principle.

1. Boyles’s Law- It states that temperature remaining constant volume of a given mass of a gas varies inversely with the pressure of the gas thus, PV=K (constant), Where, P=Pressure and V=Volume.
2. Charles’s Law- It states that pressure remaining constant the volume of a given mass of gas increases or decreases by 1/273 part of its volume at 0 degree Celsius for each degree Celsius rise of fall of its temperature.

1. Coulomb’s Law- It states that force of attraction or repulsion between two charges is proportional to the amount of charge on both charges and inversely proportional to the square of the distance between them.

1. Heisenberg principle (uncertainty principle) – It is impossible t determine with accuracy both the position and the momentum of aa particle such as electron simultaneously.

1. Gay-Lussas’s Law of combining volumes- Gases react together in volumes which bear simple whole number ratios to one another and also to the volumes of the products of gaseous all the volumes being measured under similar conditions of temperature and pressure.

1. Graham’s Law of Diffusion- It states that the rates of diffusion of gases are inversely proportional to the square roots of their densities under similar conditions to temperature and pressure.

1. Kepler’s Law- Each planet revolves round the sun in an elliptical orbit with the sun at one focus. The straight line joining the sun and the planet sweeps out equal areas in equal intervals. The squares of the orbital periods of planets are proportional to the cubes of their mean distance from the sun.

1. Law of Floatation- For the body to float, the following conditions must be fulfilled:
2. The weight of the body should be equal to the weight of the water displaced.
3. The centre of gravity of the body and that of the liquid displaced should be in the sane straight line.

1. Law of conservation of energy- It states that energy can neither be created nor destroyed but it can be transformed from to another. Since energy cannot be created or destroyed, the amount of energy present in the universe is always remain constant.

1. Newton’s first Law of Motion- An object at rest tends to stay at rest, and an object in motion tends to stay in motion, with the same direction and speed in a straight line unless acted upon by some external force.

1. Newton’s second Law of motion- The rate of change of momentum of a body is directly proportional to the force applied and takes place in the direction in which the forces acts.

1. Newton’s Third Law of Motion- To every action there is an equal and opposite reaction.

1. Newton’s Law of Gravitation- All particles of matter mutually attract each other by a force directly proportional to the product of their masses and inversely proportional to the square of the distance between them.
2. Ohm’s Law- It states that the current passing through a conductor between two points is directly proportional to the potential difference across the two points provided the physical state and temperature etc. of the conductor does not change.

1. Pauli exclusion principle- It explains that no two electrons in the same atom or molecule can have the same set of quantum numbers.

1. Raman Effect- It is the change in wavelength that occurs when light is scattered by the atoms or molecules in a transparent medium.

1. Tyndall effect- The scattering of light by very small particles suspended in a gas or liquid.

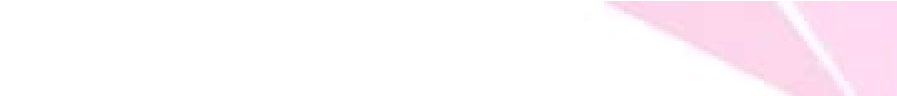
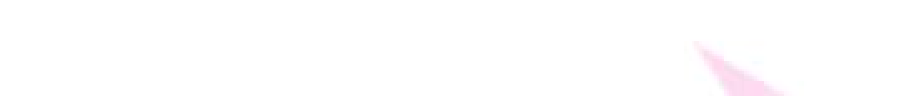
TYPES OF DISEASES

|  |  |  |  |
| --- | --- | --- | --- |
| 1. Chicken Pox- It is caused by Varicella-zoster virus. | | | |
| 2.    Small Pox-  It is cause  d by Variola virus. | | | |
| 3. Common Cold – It is caused by Rhino virus. | |  | |
| 4. AIDS (Acquired Immunono Deficiency Syndrome)  It is caused by human  Immunodeficiency Virus (HIV) | |  |  |
| 5. Meales – It is caused by measles virus. | | y) |
| 6. Mumps – It is caused by Mumps Virus. | |
| 7. Rabies – It is caused by Rabies Virus (Rhabdoviridae Famil | |
| 8. Dengue fever- It is caused by Dengue Virus. | |  |  |
| 9. Viral encephalitis- It is an inflammation of the brain. It is | | caused by Rabies |
|  | Virus, Herpessimplex, Polio Virus, Meals Virus and JC Viru | s. |



List of diseases caused by V

Disease caused by Virus



irus, Bacteria, Protozoa and Worm.

e

s:



Disease caused by Bacteria:

1. Whooping cough – It is caused by a bacterium called borde tella pertussis.

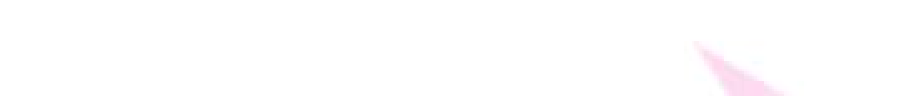
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| 2. Diphtheria – It is caused by coryne bacterium diphtheria | |
| 3. Cholera – It is caused by Vibrio Cholerae. |  |
| 4. Leprosy – It is caused by Mycobacterium leprae . |
| 5. Pneumonia – It is caused by Streptococcus pneumonia. |
| 6. Tetanus – It is caused by clostridium tetani. |
| 7. Typhoid – It is caused by salmonella typhi. |
| 8. Tuberculosis – It is caused by Mycobacterium tuberculosis. |
| 9. Plague – It is caused by Yersinia pestic. | |

DISEASE CAUSED BY PROTOZOANS:-

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1. Malaria | It is spread by anopheles mosquitoes. The plasmodium parasite that causes malaria is neither a Virus nor a bacteria. | | It is single. | a | Called parasite that multiplies in red blood cells of humans. |
| 2. Amoebic dysentery | It is caused  Entamoebahistolytica. | by |  |  |  |
| 3. Sleeping sickness | It is caused  Trypanosomabrucei. | by |  |  |  |
| 4. Kala azar | It is caused  Leishmaniadonovani | by |  |  |  |

|  |  |  |
| --- | --- | --- |
| 1  .    Tape  worn | They are intestinal parasites. It cannot live on its own. It survives within ith intestine of an animal including  hu  man. |  |
| 2. Filariasis | It is caused by thread | Like filarial nematode worms. Most cases of filarial are caused by the parasite known as wuchereriabancrofti. |
| 3. Pinworm | It is caused by small, thin white Enterobiusvermicularis.  ro  undworm |  |

DISEASE CAUSED BY WORMS:



VITAMINS AND MINERAL DEFICIENCY DISEASES:

|  |  |
| --- | --- |
| 1. Anaemia | It is caused due to deficiency of mineral Iron. |
| 2. Ariboflavinosis | It is caused due to deficiency of Vitamin B2 |
| 3. BeriBeri | It is caused due to deficiency of Vitamin B |
| 4. Goitre | It is caused due to deficiency of Iodine. |
| 5. Impaired clotting of the blood | It is caused due to deficiency of Vitamin K |
| 6. Kwashiorkor | It is caused due to deficiency of Protein. |
| 7. Night Blindness | It is caused due to deficiency of Vitamin A |
| 8. Osteoporosis | It is caused due to deficiency of Mineral calcium. |
| 9. Rickets | It is caused due to deficiency of Vitamin D |
| 10. Scurvy | It is caused due to deficiency of Vitamin C |

COMMON HUMAN DISEASES AND AFFECTED BODY PART:

|  |  |  |
| --- | --- | --- |
| Diseases Affacted body part | | |
| AIDS Immune system of the body. | | |
| Arthritis | Joints |  |
| Asthma | Bronchial muscles |
| Bronchitis | Lungs |
| Carditis | Heart |
| Cataract | Eye |
| Cystitis | Bladder |
| Colitis | Intestine |
| Conjunctivitis | Eye |
| Dermatitis | Skin |
| Diabetes | Pancreas and blood |
| Diphtheria | Throat |
| Eczema | Skin |
| Goitre | Thyroid gland |
| Glossitis | Tongue |
| Glaucoma | Eye |
| Gastritis | Stomach |
| Hepatitis | Liver |
| Jaundice | Liver |
| Malaria | Spleen |
| Meningitis | Brain and Spinal cord |
| Myelitis | Spinal cord |
| Neuritis | Nerves |
| Otitis | Ear |
| Osteomyelitis | Bones |
| Paralysis | Teeth |
| Peritonitis | Abdomen |
| Pneumonia | Lungs |
| Rhinitis | Nose |
| Rheumatism | Joints |
| Tuberculosis | Lungs |
| Tonsillitis | Tonsils |
| Trachoma | Eye |

DISEASES IN PLANTS

Fungal Viral and Bacterial Diseases in Plants:

Diseases in plants are caused by different agent and effect its different parts. Most plant diseases are caused by fungi, Bacteria, and viruses. List of some of the fungal viral and bacterial diseases are given below.

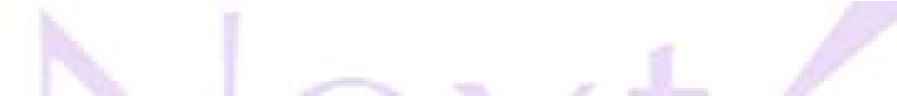
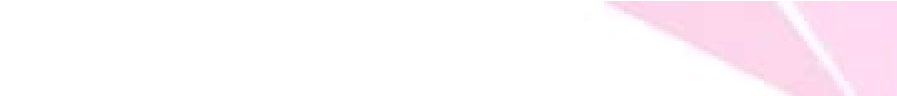
FUNGAL DISEASES IN PLANTS:

|  |
| --- |
| Name of the crop/plant Fungal diseases |
| Sugarcane Red rot |
| Bajra (Pearl Millet) Ergot, green ear, smut |
| Pigeon pea, cotton Wilt |
| Ground Nut Tikka |
| Rice Blast |
| Paddy, Papaya Foot Rot |
| Wheat Rust Powdery Mildew |
| Coffee Rust |
| Potato Late blight |
| Grapes, cabbage, cauliflower, bajra, Downy mildew mustard |
| Radish, Turnip  White Rust |

|  |  |  |
| --- | --- | --- |
| Name of the crop/plants | Viral disease | |
| Potato | Leaf roll, mosaic |  |
| Banana | Bunchy Top |
| Papaya | Leaf Curl |
| Tobacco | Mosaic |
| Carrot | Red leaf | |



VIRAL DISEASES IN PLA



NTS



BACTERIAL DISEASES IN PLANTS

|  |  |  |
| --- | --- | --- |
| Name of the crop/plants | Bacterial disease | |
| Beans, Rice | Blight | |
| Cotton | Black arm |  |
| Tomato | Canker | |
| Potato | Ring rot, brown rot | |

SCIETIFIC NAMES OF COMMON PLANT/ TREES/ VEGETABLE/ CEREALS/ FRUITS ETS:

Common name of plants/ vegetable/ cereals/ fruits etc. scientific name of plants

|  |  |  |
| --- | --- | --- |
| Apple | Pyrusmalus | |
| Bamboo | Bamboosaaridinarifolia | |
| Brinjal | Solanummelongena | |
| Banana | Musa paradisicum |  |
| Black gram | Palsoesmungo | |
| Banyan | Ficusbenghalensis |  |
| Black pepper | Piper nigrum | |
| Clove | Syzygiumaromaticum |  |
| Carrot | Daucascarota |
| Cucumber | Cucumissativas |
| Capsicum | Capsicum fruitscence |
| Chiku | Achrassapota |
| Cotton | Gossypiumherbaceum |
| Green gram | Phaseoliesauicus | |
| Guava | Psidium guava |  |
| Ginger | Zingiberofficinale | |
| Garlic | Allium sativum |  |
| Jack fruit | Artocarpusintegra |  |
| Jowar | Sorghum vulgare |  |
| Kadamb | Anthocephalusindicus |  |
| Lemon | Citrus limonium |  |
| Maize | Zea mays |  |
| Mango | Mangiferaindica |  |
| Neem | Azadhirachtaindica |  |
| Onion | Allium cepa |  |
| Orange | Citrus aurantium |
| Potato | Solanumtubersum |
| Pomegranate | Punicagranatum |
| Peacock flower (Gulmohar) | Delonixregiarafin |
| Purple orchid tree (Kachnar) | Bauhinia purpurea |
| Peepal | Ficusreligiosa linn |  |
| Pineapple | Ananussativus |  |
| Radish | Raphanussativus |  |
| Rice | Oryza sativa |  |
| Silver oak | Grevillearobusta |  |
| Sandalwood | Santalum album |  |
| Spinach | Lactuca sativa |  |
| Turmeric | Curcuma longa |  |
| Tobacco | Nicotinatobaccum |  |
| Tulsi | Ocimum sanctum |  |
| Teak | Tectonagrandis linn |
| Tamarind tree | Tamarindusindica |
| Tomato | Lycopersicanesculentum |  |
| Watermelon | Citrullus vulgaris |  |
| Wheat | Triticum Aestivum | |

Scientific names of common animals:

|  |  |  |
| --- | --- | --- |
| Common name of animal | Scientific name of animal | |
| Cat | Feliscatus | |
| Cobra | Elapidaenaja |  |
| Camel | Cameluscamelidae | |
| Cheetah | Acinonyxjubatus |  |
| Chimpanzee | Pan troglodytes | |
| Crocodile | Crocodilianilotius |  |
| Chameleon | Chamaeleotidate | |
| Dog | Cannisfamiliaris |  |
| Deer | Artiodactyl cervidae | |
| Dolphin | Delphinidaedelphis |  |
| Elephant | Proboscideaelephantidae |  |
| Frog | Anuraranidae |  |
| Fox | Cannisvulpes |
| Giraffe | Giraffacamalopardalis |
| Giant panda | Ailuropodamelanoleuca |  |
| Goat | Capra hircus |  |
| Housefly | Muscadomestica |
| Hippopotamus | Hippopotamus amphibio | us |
| Horse | Eqquscaballus |  |
| Hyena | Hyaenidaecarnivora |  |
| Kangaroo | Macropusmacropodidae |  |
| Lion | Pantheraleo |  |
| Lizard | Saurialacertidae |  |
| Mouse | Rodentiamuridae |  |
| Panther | Pantherapardus |  |
| Pig | Artiodactylasuidae |  |
| Porcupine | Hystricomorphhystricid | ae |
| Rabbit | Leporidaecuniculas |  |
| Rhinoceros | Perrissodanctylrthinocer | otidae |
| Scorpion | Archinidascorpionida |  |
| Sea horse | Hippocampus syngnathi | dae |
| Squirrel | Rodentiasciurus |  |
| Tiger | Pantheratigris | |
| Zebra | Equidaeburcheli | |

BLOOD GROUP AND ITS CLASSIFICATION :

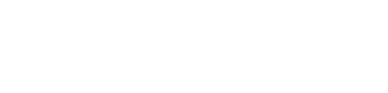
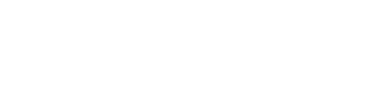
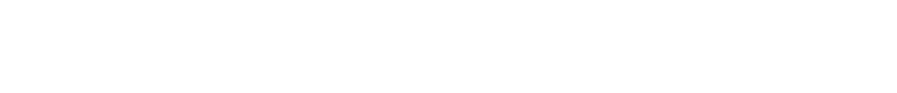
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Blood group | Carries antigen | Carries antibody | Can donate blood | Can receive blood from |
| A | A | B | A,AB | A,O |
| B | B | A | B, AB | B,O |
| AB | A,B | None | Only AB | Universal accepter |
| O | None | A,B | Universal Donor | Only O |

SI unit of measurement:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Quantity SI unit Symbol | | | | |
| Acceleration | Meter/Second Square | | m/s2 |  |
| Area | Square meter | | m2 |  |
| Angular velocity | Radian/ Second | | w |  |
| Atmospheric pressure | Pascal | | Pa |  |
| Capacitance | Farad | | F |  |
| Depth of sea | Fathom | | ftm |  |
| Density | Kilogram/cubic meter | | Kg/m3 |  |
| Electric current | Ampere | | A |  |
| Electromotive force | Volt    V | | |  |
| Electrical conductivity | Ohm/metre | | --- |  |
| Electric energy | Kilowatt hour | | kWh |  |
| Electric power | Watt | | W |  |
| Electric charge | Coulomb | | C |  |
| Electric potential | Volt | | V |  |
| Energy | Joule | | J |  |
| Force | Newton | | N (kg m/s | 2) |
| Frequency | Hertz | | Hz |  |
| Heat | Joule | | J |  |
| Impulse | Newton second | | Ns |  |
| Illuminance | Lux | | Lx |  |
| Inductance | Henry | | H |  |
| Length | Meter | | m |  |
| Luminous flux | Lumen | | lm |  |
| Luminous intensity | Candela | | Cd |  |
| Mass | Kilogram | | kg |  |
| Momentum | Kilogram meter/second | | kg m / s |  |
| Magnetic flux | Weber | | Wb |  |
| Magnetic flux density | Tesla | | T |  |
| Power | Watt | | W |  |
| Power of lens | Dioptre | | d |  |
| Plane angle | Radian | | rad |  |
| Radioactivity | Becquerel | | Bq |  |
| Resistance | Ohm | | Ω |  |
| Specific heat Joule per kilogram kelvin J/(kg.K) | | | | |
| Solid angle | | Steradian | sr | |
| Surface tension | | Newton/ square meter | N/m2 | |
| Speed/ velocity | | Meter/second | m/s | |
| Temperature | | Kelvin | K | |
| Time | | Second | s | |
| Viscosity | | Pascal second | Pa.s | |
| Volume | | Cubic meter | M3 | |
| Weight | | Newton | N | |
| Work | | Joule | J | |

SOME EQUIPMENT USED TO TRANSFORM ENERGY

|  |  |  |
| --- | --- | --- |
| S. no. | Equipment | Energy transformed |
| 1. | Dynamo | Mechanical energy into electrical energy |
| 2. | Candle | Chemical energy into light  and heat energy |
| 3. | Microphone | Sound energy into electrica  l energy |
| 4. | Loud speaker | Electrical energy into sound energy |
| 5. | Solar cell | Solar energy into  electrical  energy |
| 6. | Tube light | Electrical en  ergy into light  energy |
| 7. | Electric bulb | Electrical energy into light and heat energy |
| 8. | Battery | Chemical energy into electrical energy |
| 9. | Electric motor | Electrical energy into mechanical energy |
| 10. | Sitar | Mechanical energy into sou  nd energy |



SOME FRUITS AND THEIR EDIBLE PARTS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fruits | Edible part | | Fruits | Edible part | |
| Apple | Fleshy thalamus | | Wheat | Starchy endosperm | |
| Pear | Fleshy thalamus | | Cashew nut | Peduncle cotyledons | and |
| Mango | Mesocarp |  | Lichi | Aril |  |
| Guava | Entire fruit |  | Gram | Cotyledons embryo | and |
| Grapes | Pericarp placenta | and | Groundnut | Cotyledons embryo | and |
| Papaya | Mesocarp |  | Mulberry | Entire fruit |  |
| Coconut | Endosperm |  | Jackfruit | Bract, parianth and seed | |
| Tomato | Pericarp placenta | and | Pineapple | Bract, parianth | |
| Banana | Mesocarp | and | Orange | Juicy hair | |
|  | endocarp | |  |  | |

MEDICINAL DISCOVERIES:

|  |  |  |
| --- | --- | --- |
| Inventions / discoveries | Inventor / discoveries | |
| Vitamin | F.G Hopkins, Cosimir Funk | |
| Vitamin-A | Mc. Collum | |
| Vitamin-B | Mc. Collum |  |
| Vitamin-C | Holst | |
| Vitamin-D | Mc. Collum |  |
| Streptomycin | Selman Waksmann | |
| Heart Transplantation | Christian Bernard |  |
| Malaria parasite and treatment | Ronald Ross | |
| First test tube baby | Edwards and stepto |  |
| Antigen | Karl Landsteiner | |
| RNA | James Watson and ArtherArg | |
| DNA | James Watson and Cric  k | |
| Insulin | Banting | |
| Vaccine of Chicken pox | Edward Jenner | |
| T.B bacteria | Robert Koch | |
| Diabetes | Banting | |
| Penicillin | Alexander Flemming | |
| Polio vaccine | Johan E.Salk | |
| BCG | Guerin Calmatte | |
| Bacteria | Luvenhauk  –    Leeuwenh  ock | |
| Blood transfer | Karl Landsteiner | |

