Science

(A) Various Important Branches of Science

Name of science	Related to
Acoustics	Sound and sound waves
Aeronautics	Activities of flying
Agronomy	Production of crops and soil management
Anatomy	Dissectional learning of animal and human body
Anthropology	Origin, cultural and physical development of man
Archaeology	Study of material remains of past as proofs
Astronautics	Space vehicles and travelling in space
Astronomy	Planets (the heavenly bodies)
Biology	Science of living organisms
Botany	Plants
Cardiology	Heart and related diseases
Ceramics	Manufacturing of clay objects
Cetology	Aquatic mammals, especially the whales
Cosmology	Universe
Cryogenics	Studying effects of low temperature
Cytology	Structure and function of cells
Dactylogy	Study of fingerprints
Dermatology	Skin
Dietetics	Diet and nutrition
Ecology	Organisms and environment relationship
Entomology	Insects
Endocrinology	Endocrine glands
Etymology	Origin and history of words
Genetics	Heredity and its laws
Geology	Earth's (chemical and physical) structure
Gerontology	Ageing process, problems and diseases
Gynaecology	Female diseases of reproductive system
Haematology	Blood and related disorders
Histology	Tissues
Immunology	Body's immune system
Morphology	External structure of living organisms
Mycology	Fungi and fungal diseases
Nephrology	Kidney
Obstetrics	Pregnancy, child birth and their follow up
Ornithology	Birds
Orthopaedics	Human skeletal system
Osteology	Study of bones

Name of science	Related to
Paediatrics	Child diseases
Palaeontology	Fossils and ancient life-forms
Pathology	Mechanisms and manifestation of diseases
Pharmacology	Drugs and their effects on the body
Physiology	Life processes of various organs of living beings
Psychiatry	Mental disorders
Semiology	Sign language and signs
Seismology	Earthquakes
Theology	Religions
Toxicology	Toxic substances and poisons
Zoology	Animal life
Zymology	Fermentation process

(B) Important Units of Measurement

Name of the unit	Used to measure
Ampere	Electric current
Angstrom	Wavelength of light
Bar	Atmospheric pressure
Calorie	Quantity of heat
Candela	Luminous intensity
Celsius	Temperature
Coulomb	Electric charge
Decibel	Sound level
Dyne	Force
Erg	Work
Fahrenheit	Temperature (commonly used by doctors to measure body temperature)
Fathom	Depth of water
Faraday	Electric charge (used in electrolysis) = 96,500 coulomb
Gauss	Magnetic induction/Magnetic flux density
Henry	Inductance
Hertz	Frequency
Horsepower	Power
Joule	Work or Energy
Kelvin	Temperature (SI unit)
Light year	Distance, (Distance light travels in one year at a speed of 2,97,600 km)
Newton	Force (SI unit)
Ohm	Electrical resistance
Pascal	Pressure
Poise	Viscosity
Volt	Electrical potential
Watt	Power

(C) Medical Discoveries

Discovery	Discovered by
Penicillin	Alexander Fleming
Aspirin	Felix Hoffmann
Blood circulation	William Harvey
Blood group	K. Landsteiner
Cholera	Robert Koch
Electro cardiogram (ECG)	Williem Einthoven
Heart transplant surgery	Christian Barnard
Malaria germs	A. Laveran
Ultrasound	Ian Donald

(D) Important Scientific Inventions

Invention	Inventor
Aeroplane	Wright Brothers
Bicycle	K. Macmillan
Centigrade scale	A. Celsius
Computer	Charles Babbage
Diesel engine	Rudolf Diesel
Dynamite	Alfred Nobel
Dynamo	Michael Faraday
Electric lamp	Thomas Alva Edison
Fountain pen	L.E. Waterman
Gramophone	Thomas Alva Edison
Jet engine	Sir Frank Whittle
Microphone	David Hughes
Microscope	Z. Jansen
Radium	Marie and Pierre Curie
Safety lamp	Sir Humphery Davy
Safety pin	William Hurst
Sewing machine	B. Thimmonnier
Shorthand (modern)	Sir Isaac Pitman
Steam engine (piston)	Thomas Newcome
Steam engine (condenser)	James Watt
Telegraph code	Samuel F.B. Morse
Telephone	Alexander Graham Bell
Telescope	Hans Lippershey
Television	John Logie Baird
Thermometer	Galileo Galilei
X-ray	Wilhelm Roentgen

(E) Scientific Instruments

Name of instrument	Function
Ammeter	Used for measuring strength of electric current
Barometer	Used for measuring atmospheric pressure
Calorimeter	Used for measuring quantities of heat
Cardiograph (ECG)	Used for measuring movements of the heart; recorded on a cardiograph
Dynamo	Converts mechanical energy into electrical energy
Electroencephalograph (EEG)	Records and interprets the electrical waves of the brain
Electrometer	Used for measuring very small, potential difference in electric currents
Endoscope	Examines internal organs of the body and can be used for minor surgical procedures
Fathometer	Used for measuring depth of the ocean
Galvanometer	Used for measuring the electric current
Hydrometer	Used for measuring the relative density of liquids
Hygrometer	Used for measuring the level of humidity in the atmosphere
Kymograph	Graphically records physiological movements (e.g. blood pressure/heartbeat)
Lactometer	Used for measuring the relative density of milk to determine the purity (fat content)
Manometer	Used for measuring the pressure of gases
Micrometer	Measures distances/angles
Microscope	Used for obtaining a magnified view of small objects
Periscope	Used for viewing objects above sea level (used in submarines)
Polygraph	Used for recording changes simultaneously in physiological processes such as heart beat, blood pressure and respiration; also used as a lie detector
Pyrometer	Used for measuring very high temperature
Salinometer	Used for determining the salinity of solutions
Sextant	Used by navigators to find the latitude of a place by measuring the elevation above the horizon of the sun or another star; also measures the height of distant objects
Sphygmomanometer	Used for measuring blood pressure
Stethoscope	Used by doctors to hear and analyze heart and lung sounds
Tacheometer	Used for measuring distances and elevations and bearings during survey
Telescope	Used for viewing distant objects in space
Transponder	Used to receive a signal and transmit a reply immediately
Viscometer	Used for measuring the viscosity of liquid
Voltmeter	Used to measure electric potential difference between two points
Wattmeter	Used for measuring the power of an electric circuit

(F) Important Vaccines

Vaccine	Discovered by
Smallpox	Edward Jenner
Cholera, Rabies Vaccine	Louis Pasteur
TB vaccine	Leon Calmette and Camille Guerin
Polio vaccine	Jonas E. Salk

(G) Important Information About the Human Body

Blood: It is a red, viscous fluid which circulates in the human body. It is basically a connective tissue which is contained in the blood vessels. A healthy man possesses on an **average, 5 litres of blood in the body.**

Composition: It is made up of two chief constituents:

(a) **Plasma (fluid),** constitutes the **major part** while (b) **Blood cells (solid),** which constitutes the **minor** part.

The blood cell corpuscles are of two types: **(1) RBC (2) WBC**. The RBC is **red blood corpuscles** which contains **a pigment called hemoglobin which is responsible for the red colour of the blood. Iron is the element which is present in the hemoglobin.** The **WBC are white blood corpuscles** which are primarily responsible for **combating with the infection of the body or they** fight with the foreign harmful organisms of the body.

Blood groups: They are of four types, viz.

(i) **A-type**

(ii) **B-type**

(iii) **AB-type**

(iv) **O-type**

AB - type is called **universal recipient** as it can receive all the four types (mentioned above) of blood and **O-type** is called as **universal donor** as it can be given to any of the four types of blood groups (mentioned above).

Bones:

(i) There are **206 bones** in the **skeletal system of an adult.**

(ii) The **largest bone** is **femur** present in **the thigh.**

(iii) The **shortest bone** is the **stirrup** which is **present in the middle ear.**

Other important facts about the various organs of the human body:

1. The **largest organ** of the human body is **skin**.
2. Heart is responsible for regulating the circulation of blood in the body. The heart beat of adult males **is 72 beats per minute.**
3. **Liver is the largest gland** of the human body. It is concerned with the digestion of the food intake.
4. Two kidneys are responsible for the filtering of nitrogenous waste of the body and throw it all in the form of urine.
5. **Pituitary gland** is called **the master gland as it** influences the growth and metabolism by controlling the other ductless glands, viz. thymus, thyroid, adrenal, prostrate, pancreas and gonads.

(H) Vitamins, Their Sources and Diseases Caused Due to Their Deficiencies

Name of the vitamin	Main source	Disease caused due to their deficiencies
Vitamin A	Milk, carrot, egg, animal fat, etc.	**Night blindness**
Vitamin B_1 (Thiamine)	Cereals, pulses, carrots	**Beriberi**
Vitamin B_2 (Riboflavin)	Liver, kidney, milk	Chilosis, dermatitis
Vitamin B_6 (Pyridoxine	Yeast, cereals, liver	Anaemia
Niacin (Nicotinic acid)	Peas, tomato, eggs	Polyneuritis
Folic Acid	Green leafy vegetables, meat, egg	Anaemia
Pantothenic Acid	Kidney, meat, yeast	Dermatitis
Vit. B_{12} (Cyanocobalamin)	Milk, liver, meat	Pernicious anaemia
Vitamin C (Ascorbic acid)	Lemons, milk, oranges, fresh fruits and vegetables	**Scurvy,** sore mouth and gums bleeding
Vitamin D (Calciferol)	Dairy products, sun rays, eggs, oily fish, milk	Many diseases of the bones, rickets in children, **osteomalacia**
Vitamin E (Tocopherol)	Milk, soyabeens, egg yolk	**Interferes with reproduction and causes abortion and menstrual irregularities**
Vitamin K (Menadione)	Fish, peas and green vegetables	Causes the **delayed clotting of blood**

(I) Other Diseases of the Human Body

Name of the disease	Caused by	Affected part of the human body
Anaemia	Deficiency of haemoglobin	
AIDS (acquired immuno deficiency syndrome)	Virus	Weakness in the immune system of the body
Asthma	Allergens	Lungs
Diabetes	Less production of insulin hormone which causes an increase in the sugar level of the blood	Pancreas and blood
Diphtheria	Bacteria	Throat
Glaucoma	High pressure in the eyes	Eyes
Goitre	Deficiency of iodine	Throat
Hepatitis	Virus (mainly)	Jaundice
Malaria	Plasmodium	
Polio	Virus	Legs
Rheumatism	Streptococcus bacteria in children	Joints
Tonsillitis	Bacterial and viral infection	Glands in throat
Tuberculosis	Bacteria	Lungs

(J) Major Enzymes in the human digestive system

Body part	Enzyme	Action
1. Mouth	Salivary amylase (Ptyalin, acidic medium)	Converts starch into disaccahrides
2. Stomach	Pepsin and Renin (Acidic medium)	They act on proteins
3. Intestine	Lipase, Trypsin, Carbohydrases (Medium is now basic)	Lipase converts fats into fatty acid and glycerol. Trypsin converts proteins into amino acids and carbohydrases converts monosaccharides into glucose.