# GENERAL AWARENESS – GENERAL SCIENCE & LIFE SCIENCE

## Chapter: General Science and Life Science

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| **Subject:** | General Awareness – Science |
| **Total Questions:** | 70 MCQs |
| **Question Type:** | Multiple Choice (Single Correct Answer) |
| **Exam Relevance:** | UPSC, SSC CGL/CHSL, IBPS, RRB NTPC/ALP, State PSC, NDA, CDS, Defence Exams |
| **Topics Covered:** | Cell Biology, Human Body, Diseases, Nutrition, Physics, Chemistry, Environment, Space & Scientists |
| **Based On:** | Static GK + Latest Current Affairs 2023–2026 |



## ★ ■ CELL BIOLOGY & BASIC LIFE SCIENCE ★

**Q1. Who is known as the 'Father of Cell Biology'?**

A) Robert Hooke

B) Antonie van Leeuwenhoek

C) Rudolf Virchow

D) Matthias Schleiden

**✔ Correct Answer: A) Robert Hooke**

■ *Explanation: Robert Hooke is called the Father of Cell Biology. He first discovered and named the 'cell' in 1665 while observing cork tissue under a microscope and published his findings in 'Micrographia'.*

**Q2. Which organelle is known as the 'Powerhouse of the Cell'?**

A) Nucleus

B) Ribosome

C) Mitochondria

D) Golgi Apparatus

**✔ Correct Answer: C) Mitochondria**

■ *Explanation: Mitochondria is called the powerhouse of the cell because it produces ATP (Adenosine Triphosphate) — the energy currency of the cell — through the process of cellular respiration.*

**Q3. The process by which green plants prepare their own food using sunlight is called:**

A) Respiration

B) Photosynthesis

C) Transpiration

D) Fermentation

**✔ Correct Answer: B) Photosynthesis**

■ *Explanation: Photosynthesis is the process by which green plants, algae, and some bacteria use sunlight, water, and CO■ to produce glucose and oxygen. The equation is: 6CO■ + 6H■O + light → C■H■■O■ + 6O■.*

**Q4. DNA stands for:**

A) Di-Nucleic Acid

B) Deoxyribonucleic Acid

C) Di-nitrogen Amino Acid

D) Double Nucleic Amino Acid

**✔ Correct Answer: B) Deoxyribonucleic Acid**

■ *Explanation: DNA (Deoxyribonucleic Acid) is the hereditary material in all known living organisms. It carries genetic instructions for the development, functioning, growth, and reproduction of all living things.*

**Q5. The cell membrane is primarily made up of which type of molecules?**

A) Proteins only

B) Carbohydrates only

C) Phospholipid bilayer with embedded proteins

D) Nucleic acids

**✔ Correct Answer: C) Phospholipid bilayer with embedded proteins**

■ *Explanation: The cell membrane (plasma membrane) is made of a phospholipid bilayer with embedded proteins. This fluid mosaic model was proposed by Singer and Nicolson in 1972. The hydrophilic heads face outward and hydrophobic tails face inward.*

**Q6. Which process allows cells to divide and produce two identical daughter cells?**

A) Meiosis

B) Mitosis

C) Budding

D) Sporulation

**✔ Correct Answer: B) Mitosis**

■ *Explanation: Mitosis is cell division that produces two genetically identical daughter cells, each with the same number of chromosomes as the parent cell. It is used for growth, repair, and asexual reproduction. Meiosis produces gametes with half the chromosomes.*

**Q7. Chromosomes are made up of DNA and which protein?**

A) Actin

B) Myosin

C) Histone

D) Collagen

**✔ Correct Answer: C) Histone**

■ *Explanation: Chromosomes are composed of DNA wrapped around histone proteins. This DNA-histone complex forms nucleosomes, which are further coiled and compacted to form chromosomes. Humans have 46 chromosomes (23 pairs).*

**Q8. The basic structural and functional unit of life is:**

A) Tissue

B) Organ

C) Cell

D) Organ System

**✔ Correct Answer: C) Cell**

■ *Explanation: The cell is the basic structural and functional unit of all living organisms. This is the cell theory, first proposed by Schleiden (1838) for plants and Schwann (1839) for animals. Virchow added that all cells arise from pre-existing cells.*

## ★ ■ HUMAN BODY & PHYSIOLOGY ★

**Q9. Which is the largest organ of the human body?**

A) Liver

B) Brain

C) Skin

D) Lungs

**✔ Correct Answer: C) Skin**

■ *Explanation: The skin (integumentary system) is the largest organ of the human body, covering about 1.5–2 square metres in adults. It protects internal organs, regulates temperature, and contains sensory receptors.*

**Q10. How many bones does the adult human body have?**

A) 206

B) 208

C) 210

D) 212

**✔ Correct Answer: A) 206**

■ *Explanation: The adult human body has 206 bones. A newborn has about 270–300 bones that gradually fuse as the child grows. The smallest bone is the stapes in the ear; the largest is the femur (thigh bone).*

**Q11. Which blood group is called the 'Universal Donor'?**

A) A

B) B

C) AB

D) O

**✔ Correct Answer: D) O**

■ *Explanation: Blood group O (O negative — O-) is called the Universal Donor because it can be donated to patients of any blood group. Blood group AB is called the Universal Recipient.*

**Q12. The normal blood pressure of a healthy adult human being is approximately:**

A) 80/60 mmHg

B) 120/80 mmHg

C) 140/90 mmHg

D) 100/70 mmHg

**✔ Correct Answer: B) 120/80 mmHg**

■ *Explanation: Normal blood pressure is 120/80 mmHg (systolic/diastolic). Readings above 140/90 mmHg indicate hypertension (high BP), while below 90/60 mmHg indicates hypotension (low BP).*

**Q13. Which vitamin is produced by the human skin when exposed to sunlight?**

A) Vitamin A

B) Vitamin B12

C) Vitamin C

D) Vitamin D

**✔ Correct Answer: D) Vitamin D**

■ *Explanation: Vitamin D (calciferol) is synthesised in the skin when exposed to UVB radiation from sunlight. It is essential for calcium absorption, bone health, and immune function. Its deficiency causes rickets in children and osteomalacia in adults.*

**Q14. The process of removal of waste materials from the body is called:**

A) Digestion

B) Excretion

C) Secretion

D) Absorption

**✔ Correct Answer: B) Excretion**

■ *Explanation: Excretion is the biological process by which metabolic waste products (urea, CO■, water, salts) are eliminated from the body. The main excretory organs are kidneys (urine), lungs (CO■), skin (sweat), and liver (bile).*

**Q15. Which part of the brain controls balance and coordination of movement?**

A) Cerebrum

B) Cerebellum

C) Medulla Oblongata

D) Hypothalamus

**✔ Correct Answer: B) Cerebellum**

■ *Explanation: The cerebellum (located at the back of the brain) coordinates voluntary movements, balance, and fine motor skills. The cerebrum controls higher functions; the medulla oblongata controls involuntary functions (breathing, heartbeat).*

**Q16. The human heart has how many chambers?**

A) 2

B) 3

C) 4

D) 5

**✔ Correct Answer: C) 4**

■ *Explanation: The human heart has 4 chambers: Right Atrium, Right Ventricle, Left Atrium, and Left Ventricle. The right side pumps deoxygenated blood to the lungs; the left side pumps oxygenated blood to the body.*

**Q17. Which gland in the human body is known as the 'Master Gland' of the endocrine system?**

A) Thyroid Gland

B) Adrenal Gland

C) Pituitary Gland

D) Pineal Gland

**✔ Correct Answer: C) Pituitary Gland**

■ *Explanation: The Pituitary Gland (located at the base of the brain) is called the Master Gland because it secretes hormones that control other endocrine glands (thyroid, adrenals, gonads). It is divided into anterior (adenohypophysis) and posterior (neurohypophysis) lobes.*

**Q18. Insulin, which regulates blood glucose levels, is produced by which organ?**

A) Liver

B) Kidney

C) Pancreas

D) Stomach

**✔ Correct Answer: C) Pancreas**

■ *Explanation: Insulin is produced by the beta cells of the Islets of Langerhans in the pancreas. Deficiency or improper use of insulin causes Diabetes Mellitus. Glucagon (also produced by the pancreas, by alpha cells) raises blood sugar.*

**Q19. Deficiency of Vitamin C causes which disease?**

A) Rickets

B) Scurvy

C) Night Blindness

D) Beriberi

**✔ Correct Answer: B) Scurvy**

■ *Explanation: Scurvy is caused by deficiency of Vitamin C (ascorbic acid). Symptoms include bleeding gums, fatigue, and skin spots. Vitamin C is essential for collagen synthesis. Rich sources include citrus fruits, amla, guava.*

**Q20. Night blindness is caused by deficiency of which vitamin?**

A) Vitamin B1

B) Vitamin C

C) Vitamin A

D) Vitamin K

**✔ Correct Answer: C) Vitamin A**

■ *Explanation: Night blindness (nyctalopia) is caused by deficiency of Vitamin A (retinol). Vitamin A is essential for the production of rhodopsin (visual purple) in the eyes. Rich sources: carrots, sweet potato, green leafy vegetables, liver.*

**Q21. Beriberi disease is caused by the deficiency of which vitamin?**

A) Vitamin B1 (Thiamine)

B) Vitamin B2 (Riboflavin)

C) Vitamin B12

D) Vitamin D

**✔ Correct Answer: A) Vitamin B1 (Thiamine)**

■ *Explanation: Beriberi is caused by deficiency of Vitamin B1 (Thiamine). It affects the nervous and cardiovascular systems. Wet beriberi affects the heart; dry beriberi affects the nervous system. Common in populations eating polished (white) rice.*

**Q22. Which of the following vitamins is a fat-soluble vitamin?**

A) Vitamin B complex

B) Vitamin C

C) Vitamin A

D) None of the above

**✔ Correct Answer: C) Vitamin A**

■ *Explanation: Fat-soluble vitamins are A, D, E, and K (remembered as ADEK). They are stored in the body's fatty tissues and liver. Water-soluble vitamins are B-complex and C, which are not stored and must be regularly consumed.*

## ★ ■ DISEASES, PATHOGENS & MEDICINES ★

**Q23. Which mineral is most important for the formation of bones and teeth?**

A) Iron

B) Potassium

C) Calcium

D) Sodium

**✔ Correct Answer: C) Calcium**

■ *Explanation: Calcium is the most abundant mineral in the human body and is essential for bone and teeth formation, muscle contraction, nerve transmission, and blood clotting. About 99% of body calcium is stored in bones and teeth.*

**Q24. Malaria is caused by which pathogen and transmitted by which vector?**

A) Bacteria – Housefly

B) Virus – Aedes mosquito

C) Protozoa (Plasmodium) – Female Anopheles mosquito

D) Fungi – Culex mosquito

**✔ Correct Answer: C) Protozoa (Plasmodium) – Female Anopheles mosquito**

■ *Explanation: Malaria is caused by the protozoan parasite Plasmodium (P. falciparum is the most dangerous species), transmitted through the bite of the female Anopheles mosquito. Symptoms include cyclical fever, chills, and anaemia.*

**Q25. Dengue fever is caused by which pathogen and transmitted by which mosquito?**

A) Virus – Aedes aegypti mosquito

B) Bacteria – Anopheles mosquito

C) Protozoa – Culex mosquito

D) Virus – Anopheles mosquito

**✔ Correct Answer: A) Virus – Aedes aegypti mosquito**

■ *Explanation: Dengue is caused by the Dengue Virus (DENV — a flavivirus) and is transmitted by the Aedes aegypti mosquito. It causes high fever, severe headache, joint pain (hence called 'breakbone fever'), and in severe cases, dengue haemorrhagic fever.*

**Q26. COVID-19 is caused by which virus?**

A) Influenza A Virus

B) SARS-CoV-2 (Coronavirus)

C) Rhinovirus

D) Adenovirus

**✔ Correct Answer: B) SARS-CoV-2 (Coronavirus)**

■ *Explanation: COVID-19 (Coronavirus Disease 2019) is caused by SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2). It was first identified in Wuhan, China in December 2019, leading to a global pandemic declared by WHO in March 2020.*

**Q27. Tuberculosis (TB) is caused by which bacterium?**

A) Staphylococcus aureus

B) Mycobacterium tuberculosis

C) Salmonella typhi

D) Vibrio cholerae

**✔ Correct Answer: B) Mycobacterium tuberculosis**

■ *Explanation: Tuberculosis is caused by the bacterium Mycobacterium tuberculosis. It primarily affects the lungs (pulmonary TB) but can also affect other organs. The BCG vaccine provides protection against severe forms of TB.*

**Q28. The BCG vaccine is used to prevent which disease?**

A) Polio

B) Cholera

C) Tuberculosis

D) Typhoid

**✔ Correct Answer: C) Tuberculosis**

■ *Explanation: BCG (Bacillus Calmette-Guérin) vaccine is used to prevent Tuberculosis (TB). It is one of the oldest vaccines still in widespread use and provides protection particularly against severe forms of TB in children.*

**Q29. AIDS is caused by HIV. HIV stands for:**

A) Human Immunity Virus

B) Human Immunodeficiency Virus

C) High Immune Viral Disease

D) Human Internal Viral Disease

**✔ Correct Answer: B) Human Immunodeficiency Virus**

■ *Explanation: AIDS (Acquired Immunodeficiency Syndrome) is caused by HIV (Human Immunodeficiency Virus), which destroys CD4+ T-cells (helper T lymphocytes), weakening the immune system. It is transmitted through blood, sexual contact, and mother to child.*

**Q30. Which antibiotic was the world's first antibiotic discovered by Alexander Fleming in 1928?**

A) Streptomycin

B) Tetracycline

C) Penicillin

D) Ampicillin

**✔ Correct Answer: C) Penicillin**

■ *Explanation: Alexander Fleming discovered Penicillin in 1928 from the mould Penicillium notatum. It was the world's first antibiotic. Fleming, Florey, and Chain shared the Nobel Prize in Physiology or Medicine in 1945 for this discovery.*

## ★ ■ PLANTS, ECOLOGY & GENETICS ★

**Q31. Which gas is released during photosynthesis?**

A) Carbon Dioxide

B) Nitrogen

C) Oxygen

D) Hydrogen

**✔ Correct Answer: C) Oxygen**

■ *Explanation: During photosynthesis, plants absorb CO■ and water, and using solar energy, produce glucose and release Oxygen (O■) as a by-product. This oxygen sustains aerobic life on Earth.*

**Q32. The study of plants is called:**

A) Zoology

B) Botany

C) Ecology

D) Mycology

**✔ Correct Answer: B) Botany**

■ *Explanation: Botany (Phytology) is the branch of biology that deals with the study of plants. The Father of Botany is Theophrastus (ancient Greek scholar). Zoology is the study of animals; Mycology is the study of fungi.*

**Q33. Transpiration in plants is the process of water loss through:**

A) Roots

B) Stem

C) Stomata (tiny pores in leaves)

D) Flowers

**✔ Correct Answer: C) Stomata (tiny pores in leaves)**

■ *Explanation: Transpiration is the process by which water is lost from plants primarily through stomata — tiny pores mostly on the underside of leaves. About 90% of water absorbed by roots is released via transpiration, which also helps cool the plant.*

**Q34. Which part of the plant is responsible for absorption of water and minerals from the soil?**

A) Leaves

B) Stem

C) Flower

D) Root hair cells

**✔ Correct Answer: D) Root hair cells**

■ *Explanation: Root hair cells are tiny extensions of epidermal cells of the root that vastly increase the surface area for absorption of water and dissolved minerals (through osmosis and active transport) from the soil.*

**Q35. The phenomenon of movement of water from a region of higher concentration to lower concentration through a semi-permeable membrane is called:**

A) Diffusion

B) Active Transport

C) Osmosis

D) Endocytosis

✔ **Correct Answer: C) Osmosis**

■ *Explanation: Osmosis is the movement of water molecules through a semi-permeable membrane from a region of higher water concentration (hypotonic) to lower water concentration (hypertonic). It is a type of passive transport essential in all living cells.*

**Q36. The food chain begins with which organisms?**

A) Herbivores

B) Carnivores

C) Producers (Green Plants)

D) Decomposers

✔ **Correct Answer: C) Producers (Green Plants)**

■ *Explanation: Every food chain begins with Producers — green plants (autotrophs) that manufacture their own food through photosynthesis. Producers are eaten by primary consumers (herbivores), who are eaten by secondary consumers (carnivores), and so on.*

## ★ ■■ PHYSICS – MECHANICS, MOTION & WAVES ★

**Q37. The study of heredity and variation in living organisms is called:**

A) Ecology

B) Genetics

C) Physiology

D) Biochemistry

✔ **Correct Answer: B) Genetics**

■ *Explanation: Genetics is the branch of biology that studies heredity (the passing of traits from parents to offspring) and genetic variation. Gregor Mendel is called the 'Father of Genetics' for his experiments on pea plants.*

**Q38. Newton's First Law of Motion is also known as:**

A) Law of Acceleration

B) Law of Action and Reaction

C) Law of Inertia

D) Law of Gravitation

**✔ Correct Answer: C) Law of Inertia**

■ *Explanation: Newton's First Law of Motion (Law of Inertia) states that an object at rest stays at rest and an object in motion continues in motion with the same speed and direction unless acted upon by an unbalanced external force.*

**Q39. The SI unit of force is:**

A) Joule

B) Watt

C) Pascal

D) Newton

**✔ Correct Answer: D) Newton**

■ *Explanation: The SI unit of force is the Newton (N), named after Sir Isaac Newton. 1 Newton = 1 kg·m/s² (the force that gives a 1 kg mass an acceleration of 1 m/s²). The SI unit of energy is Joule; of power is Watt; of pressure is Pascal.*

**Q40. The speed of light in vacuum is approximately:**

A) 3 × 10■ m/s

B) 3 × 10■ m/s

C) 3 × 10¹■ m/s

D) 3 × 10■ m/s

**✔ Correct Answer: B) 3 × 10■ m/s**

■ *Explanation: The speed of light in vacuum is approximately 3 × 10■ m/s (299,792,458 m/s exactly), denoted by 'c'. Nothing in the universe can travel faster than the speed of light, as established by Einstein's Theory of Special Relativity.*

**Q41. Which instrument is used to measure atmospheric pressure?**

A) Thermometer

B) Hygrometer

C) Barometer

D) Anemometer

**✔ Correct Answer: C) Barometer**

■ *Explanation: A Barometer is used to measure atmospheric (air) pressure. Invented by Evangelista Torricelli in 1643. Thermometer measures temperature; Hygrometer measures humidity; Anemometer measures wind speed.*

**Q42. The phenomenon of bending of light when it passes from one medium to another is called:**

A) Reflection

B) Diffraction

C) Refraction

D) Dispersion

**✔ Correct Answer: C) Refraction**

■ *Explanation: Refraction is the bending of light (or other waves) when it passes from one medium to another with a different density (optical density). This causes a straw in a glass of water to appear bent, and is the principle behind lenses and prisms.*

**Q43. Which law states that the pressure of a gas is inversely proportional to its volume at constant temperature?**

A) Charles's Law

B) Avogadro's Law

C) Gay-Lussac's Law

D) Boyle's Law

**✔ Correct Answer: D) Boyle's Law**

■ *Explanation: Boyle's Law states that at constant temperature, the pressure (P) of a given gas is inversely proportional to its volume (V): P × V = constant. It was formulated by Robert Boyle in 1662.*

**Q44. Sound travels fastest through which medium?**

A) Vacuum

B) Air

C) Water

D) Solids

**✔ Correct Answer: D) Solids**

■ *Explanation: Sound travels fastest through Solids (approximately 5,000 m/s in steel), slower through liquids (about 1,500 m/s in water), and slowest through gases (about 343 m/s in air at 20°C). Sound cannot travel through a vacuum.*



## ★ ■ CHEMISTRY – ELEMENTS & REACTIONS ★

**Q45. The unit of electrical resistance is:**

A) Ampere

B) Volt

C) Ohm

D) Watt

**✔ Correct Answer: C) Ohm**

■ *Explanation: The SI unit of electrical resistance is the Ohm (Ω), named after Georg Simon Ohm. Ohm's Law states V = IR (Voltage = Current × Resistance). Ampere is the unit of electric current; Volt of voltage; Watt of electric power.*

**Q46. The chemical formula of water is H■O. What does the number '2' in H■O indicate?**

A) 2 oxygen atoms

B) 2 hydrogen atoms

C) 2 molecules of water

D) Molecular weight 2

**✔ Correct Answer: B) 2 hydrogen atoms**

■ *Explanation: In H■O, the subscript '2' indicates that there are 2 atoms of hydrogen bonded to 1 atom of oxygen in one water molecule. Water has a bent molecular geometry with a bond angle of approximately 104.5°.*

**Q47. The pH scale ranges from 0 to 14. A neutral solution has a pH of:**

A) 0

B) 7

C) 14

D) 5

**✔ Correct Answer: B) 7**

■ *Explanation: The pH scale measures the acidity or alkalinity of a solution. pH 7 is neutral (pure water). pH < 7 is acidic; pH > 7 is alkaline (basic). The pH scale was introduced by Søren Sørensen in 1909.*

**Q48. Which gas is responsible for the greenhouse effect and global warming?**

A) Oxygen (O■)

B) Nitrogen (N■)

C) Carbon Dioxide (CO■)

D) Hydrogen (H■)

**✔ Correct Answer: C) Carbon Dioxide (CO■)**

■ *Explanation: Carbon Dioxide (CO■) is the primary greenhouse gas responsible for global warming. Other greenhouse gases include methane (CH■), nitrous oxide (N■O), and water vapour. These gases trap heat from the sun in the atmosphere.*

**Q49. The periodic table of elements was developed by which scientist?**

A) Antoine Lavoisier

B) John Dalton

C) Dmitri Mendeleev

D) Marie Curie

**✔ Correct Answer: C) Dmitri Mendeleev**

■ *Explanation: Dmitri Mendeleev (Russian chemist) published the first widely recognised Periodic Table in 1869, arranging elements by atomic weight and predicting undiscovered elements. The modern periodic table arranges elements by atomic number.*

**Q50. The lightest element in the periodic table is:**

A) Helium

B) Lithium

C) Hydrogen

D) Carbon

**✔ Correct Answer: C) Hydrogen**

■ *Explanation: Hydrogen (H) is the lightest and most abundant element in the universe, with atomic number 1 and atomic mass approximately 1 u. Helium (atomic number 2) is the second lightest and is used in balloons.*

**Q51. The process by which a solid directly converts to a gas without passing through a liquid state is called:**

A) Evaporation

B) Condensation

C) Sublimation

D) Crystallisation

**✔ Correct Answer: C) Sublimation**

■ *Explanation: Sublimation is the direct conversion of a solid to gas without passing through the liquid phase. Examples: dry ice (solid CO■) → CO■ gas; camphor, iodine, and naphthalene also sublime. The reverse (gas to solid) is called deposition.*

**Q52. Which is the most abundant gas in the Earth's atmosphere?**

A) Oxygen (O■) – 21%

B) Carbon Dioxide – 0.04%

C) Nitrogen (N■) – 78%

D) Argon – 0.9%

**✔ Correct Answer: C) Nitrogen (N■) – 78%**

■ *Explanation: Nitrogen (N■) is the most abundant gas in Earth's atmosphere, making up about 78%. Oxygen accounts for about 21%, Argon about 0.9%, and CO■ about 0.04% (400 ppm). The remaining consists of other trace gases.*

## ★ ■ ENVIRONMENTAL SCIENCE ★

**Q53. Rusting of iron is a chemical change involving which process?**

A) Reduction

B) Sublimation

C) Oxidation (in presence of water)

D) Decomposition

**✔ Correct Answer: C) Oxidation (in presence of water)**

■ *Explanation: Rusting of iron is an oxidation reaction: iron + oxygen + water → iron oxide (Fe■O■·nH■O — hydrated iron oxide, which is rust). It requires both oxygen and moisture. The chemical equation is 4Fe + 3O■ + 6H■O → 4Fe(OH)■.*

**Q54. The ozone layer, which protects Earth from harmful UV radiation, is located in which atmospheric layer?**

A) Troposphere

B) Stratosphere

C) Mesosphere

D) Thermosphere

**✔ Correct Answer: B) Stratosphere**

■ *Explanation: The ozone layer (ozone concentration 15–35 km above Earth) is located in the Stratosphere. It absorbs 93–99% of the Sun's harmful UV radiation. CFCs (chlorofluorocarbons) are the primary cause of ozone layer depletion.*

**Q55. Acid rain is caused by which gases reacting with water in the atmosphere?**

A) CO■ and O■

B) SO■ (sulphur dioxide) and NO■ (nitrogen oxides)

C) CH■ and CO■

D) N■ and O■

**✔ Correct Answer: B) SO■ (sulphur dioxide) and NO■ (nitrogen oxides)**

■ *Explanation: Acid rain forms when SO■ and NO■ (released from burning fossil fuels and industrial processes) react with water vapour in the atmosphere to form sulphuric acid (H■SO■) and nitric acid (HNO■), which fall as acid rain with pH < 5.6.*

**Q56. The Chipko Movement (1973) was primarily associated with the conservation of:**

A) Rivers and water bodies

B) Forests and trees

C) Wildlife and animals

D) Soil and farmland

**✔ Correct Answer: B) Forests and trees**

■ *Explanation: The Chipko Movement (1973) started in Chamoli district of Uttarakhand (then UP). Villagers, especially women led by Gaura Devi, hugged (chipko = to hug/stick) trees to prevent their felling by contractors. It became a symbol of environmental activism.*

## ★ ■ SCIENCE & TECHNOLOGY CURRENT AFFAIRS ★

**Q57. World Environment Day is observed on which date every year?**

A) 5 June

B) 22 April

C) 16 September

D) 21 March

**✔ Correct Answer: A) 5 June**

■ *Explanation: World Environment Day is observed on 5 June every year, established by the UN in 1972. Earth Day is on 22 April; World Ozone Day is on 16 September; International Day of Forests is on 21 March.*

**Q58. India's PSLV-C60 SpaDeX mission demonstrated what technology in space for the first time in January 2025?**

A) Solar sail propulsion

B) Space docking technology

C) In-orbit refuelling

D) Laser communication

**✔ Correct Answer: B) Space docking technology**

■ *Explanation: SpaDeX (Space Docking Experiment) — launched on PSLV-C60 — was India's first space docking technology demonstration mission in January 2025, making India the 4th country (after USA, Russia, China) to demonstrate this capability.*

**Q59. Gene therapy is a medical technique that treats disease by:**

A) Using drugs to destroy cancer cells

B) Replacing or correcting defective genes in a patient's cells

C) Transplanting organs from donors

D) Using sound waves to destroy tumours

**✔ Correct Answer: B) Replacing or correcting defective genes in a patient's cells**

■ *Explanation: Gene therapy involves replacing, silencing, or introducing genetic material into a patient's cells to treat or prevent disease. It holds promise for genetic disorders like sickle cell anaemia, haemophilia, and certain cancers.*

**Q60. CRISPR-Cas9 is a technology used for:**

A) Cancer chemotherapy

B) Genome editing (cutting and modifying DNA)

C) Brain-computer interface

D) Vaccine production

**✔ Correct Answer: B) Genome editing (cutting and modifying DNA)**

■ *Explanation: CRISPR-Cas9 (Clustered Regularly Interspaced Short Palindromic Repeats) is a revolutionary gene-editing technology that acts as molecular scissors to cut DNA at specific locations, enabling precise genetic modifications. Jenniver Doudna and Emmanuelle Charpentier won the 2020 Nobel Prize in Chemistry for this.*

**Q61. What does MRI stand for in medical science?**

A) Magnetic Resonance Imaging

B) Molecular Radiation Imaging

C) Multiple Radiofrequency Imaging

D) Magnetic Radiation Investigation

**✔ Correct Answer: A) Magnetic Resonance Imaging**

■ *Explanation: MRI (Magnetic Resonance Imaging) uses powerful magnets and radio waves to create detailed images of the body's organs and tissues without using ionising radiation (unlike X-rays or CT scans). It is particularly useful for brain, spinal cord, and joint imaging.*

**Q62. The Nobel Prize in Physiology or Medicine 2023 was awarded to Katalin Karikó and Drew Weissman for discoveries related to:**

A) CRISPR gene editing

B) mRNA modifications enabling COVID-19 vaccines

C) Discovery of penicillin

D) Malaria treatment

**✔ Correct Answer: B) mRNA modifications enabling COVID-19 vaccines**

■ *Explanation: Katalin Karikó and Drew Weissman won the Nobel Prize in Physiology or Medicine 2023 for their discoveries concerning nucleoside base modifications that enabled the development of effective mRNA vaccines against COVID-19.*

## ★ ■ SPACE SCIENCE ★

**Q63. The first human gene therapy approved in India (for sickle cell anaemia) involved which organisation's contribution?**

A) DRDO

B) ICMR (Indian Council of Medical Research)

C) CSIR

D) Department of Biotechnology (DBT)

**✔ Correct Answer: D) Department of Biotechnology (DBT)**

■ *Explanation: The Department of Biotechnology (DBT), under the Ministry of Science & Technology, has been a key driver of India's gene therapy and biomedical research programme, including for sickle cell anaemia — a priority disease under PM Modi's 2047 eradication mission.*

**Q64. India's Chandrayaan-3 successfully landed on the Moon's south pole in which month and year?**

A) July 2023

B) August 2023

C) September 2023

D) October 2023

**✔ Correct Answer: B) August 2023**

■ *Explanation: Chandrayaan-3's Vikram lander made a successful soft landing near the Moon's south polar region on 23 August 2023, making India the first country to land near the lunar south pole and the 4th country to achieve a successful Moon landing.*

**Q65. The Indian Space Research Organisation (ISRO) launched its first solar observation mission called:**

A) Surya-1

B) Aditya-L1

C) Helios India

D) Solar Mission PSLV-X1

**✔ Correct Answer: B) Aditya-L1**

■ *Explanation: Aditya-L1 is India's first dedicated solar observation mission, launched by ISRO on 2 September 2023. It was placed in a halo orbit around the Sun-Earth Lagrange Point 1 (L1), about 1.5 million km from Earth, for studying the Sun.*

**Q66. The International Space Station (ISS) orbits Earth at an altitude of approximately:**

A) 100 km

B) 200 km

C) 400 km

D) 1000 km

**✔ Correct Answer: C) 400 km**

■ *Explanation: The International Space Station (ISS) orbits Earth at an average altitude of about 400 km (350–420 km) in low Earth orbit. It travels at approximately 7.7 km/s, completing one orbit of Earth every 90 minutes.*



## ★ ■ INVENTIONS, SCIENTISTS & DISCOVERIES ★

**Q67. ISRO's Gaganyaan mission aims to send how many Indian astronauts (vyomanauts) to space?**

A) 1

B) 2

C) 3

D) 4

**✔ Correct Answer: C) 3**

■ *Explanation: ISRO's Gaganyaan mission (India's first human spaceflight programme) aims to send 3 Indian astronauts (vyomanauts) to a 400 km low Earth orbit for a 3-day mission before returning safely to Earth. The mission has been postponed multiple times.*

**Q68. Who discovered the theory of Relativity and the famous equation E = mc²?**

A) Isaac Newton

B) Niels Bohr

C) Albert Einstein

D) Max Planck

**✔ Correct Answer: C) Albert Einstein**

■ *Explanation: Albert Einstein formulated the Special Theory of Relativity (1905) and the General Theory of Relativity (1915). His mass-energy equivalence formula E = mc² (energy = mass × speed of light squared) is the most famous equation in physics.*

**Q69. Who is known as the 'Father of the Indian Space Programme'?**

A) A.P.J. Abdul Kalam

B) Satish Dhawan

C) Vikram Sarabhai

D) K. Kasturirangan

**✔ Correct Answer: C) Vikram Sarabhai**

■ *Explanation: Dr. Vikram Sarabhai is called the Father of the Indian Space Programme. He founded ISRO in 1969 and established the Physical Research Laboratory (PRL) in Ahmedabad. A.P.J. Abdul Kalam is called the 'Missile Man of India'.*

**Q70. C.V. Raman was awarded the Nobel Prize in Physics in 1930 for discovering the 'Raman Effect'. What is the Raman Effect?**

A) Bending of light in magnetic fields

B) Scattering of light when passing through a substance, changing wavelength

C) Total internal reflection of light

D) Diffraction of light through a prism

✔ **Correct Answer: B) Scattering of light when passing through a substance, changing wavelength**

■ *Explanation: The Raman Effect (discovered by Sir C.V. Raman in 1928) is the inelastic scattering of photons by molecules, causing a change in the photon's energy and wavelength. It is used in Raman Spectroscopy to identify chemical substances. C.V. Raman was the first Asian to win a Nobel Prize in science.*

**Q71. Which Indian scientist contributed greatly to mathematics and is known for developing Ramanujan's mathematical theorems?**

A) Homi J. Bhabha

B) Vikram Sarabhai

C) Srinivasa Ramanujan

D) Jagadish Chandra Bose

✔ **Correct Answer: C) Srinivasa Ramanujan**

■ *Explanation: Srinivasa Ramanujan (1887–1920) was a self-taught mathematical genius who made extraordinary contributions to number theory, infinite series, and continued fractions. He collaborated with G.H. Hardy at Cambridge. His taxi-cab number 1729 is famous.*

**Q72. The Human Genome Project (HGP) was completed in which year?**

A) 1998

B) 2000

C) 2003

D) 2006

✔ **Correct Answer: C) 2003**

■ *Explanation: The Human Genome Project (HGP), an international scientific collaboration, was completed in April 2003. It successfully mapped the entire human genome — all approximately 3 billion base pairs of DNA — identifying approximately 20,000–25,000 human genes.*

**Q73. Which phenomenon explains why the sky appears blue?**

A) Refraction of sunlight by clouds

B) Reflection of ocean water colour

C) Scattering of sunlight by gas molecules (Rayleigh Scattering)

D) Absorption of light by ozone

**✔ Correct Answer: C) Scattering of sunlight by gas molecules (Rayleigh Scattering)**

■ *Explanation: The sky appears blue due to Rayleigh Scattering — sunlight (white light) is scattered by atmospheric gas molecules. Blue light has a shorter wavelength and is scattered much more than red/orange light, so when we look at the sky, we see scattered blue light.*

**Q74. India's National Science Day is celebrated on 28 February every year to commemorate which discovery?**

A) Discovery of Radium by Marie Curie

B) Discovery of the Raman Effect by C.V. Raman

C) Launch of first Indian satellite Aryabhata

D) Discovery of penicillin

**✔ Correct Answer: B) Discovery of the Raman Effect by C.V. Raman**

■ *Explanation: National Science Day is celebrated on 28 February every year to mark the discovery of the Raman Effect by Dr. C.V. Raman on 28 February 1928. The theme of National Science Day 2025 was 'Science for Social Empowerment'.*

**Q75. Bioremediation is the use of which organisms to clean up environmental pollution?**

A) Plants only

B) Synthetic chemicals

C) Microorganisms (bacteria, fungi, algae)

D) Radioactive materials

**✔ Correct Answer: C) Microorganisms (bacteria, fungi, algae)**

■ *Explanation: Bioremediation is the use of living microorganisms (bacteria, fungi, algae) and plants (phytoremediation) to degrade or detoxify hazardous pollutants in soil and water. It is a cost-effective and environmentally friendly approach to pollution cleanup.*

**Q76. The average duration of a human pregnancy (gestation period) is approximately:**

A) 270 days (9 months)

B) 280 days (40 weeks)

C) 300 days (10 months)

D) 250 days (8 months)

**✔ Correct Answer: B) 280 days (40 weeks)**

■ *Explanation: The average human gestation period is approximately 280 days (40 weeks / 9 months and 7 days), calculated from the first day of the last menstrual period. Full-term pregnancy is 37–42 weeks.*

**Q77. The branch of science that deals with the study of viruses is called:**

A) Mycology

B) Bacteriology

C) Virology

D) Parasitology

**✔ Correct Answer: C) Virology**

■ *Explanation: Virology is the branch of science/medicine that deals with the study of viruses — their structure, classification, evolution, and diseases they cause. Mycology studies fungi; Bacteriology studies bacteria; Parasitology studies parasites.*