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RRB NTPC Exam 2019

100 Important Science Questions

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1.Optical fibre works on which of the following principle of light?
A. Reflection
B. Refraction
C. Diffraction
D. Total internal reflection
Ans. D
Sol. Optical fibre works on **Total internal reflection.** It is the phenomenon which occurs when a propagated wave strikes a medium boundary at an angle larger than a particular critical angle with respect to the normal to the surface.

2.What is the SI unit of Young's modulus of elasticity?
A. Henry
B. Hertz
C. Pascal
D. Dioptre
Ans. C
Sol. **Young's modulus** of elasticity is the ratio of **longitudinal stress** to **longitudinal strain**. Stress has units of **pressure** and strain is a **dimensionless**quantity and so Young's modulus has units of **pressure**. Its SI unit is therefore **Pascal.**

3.The matter that supports the sound is called _____.
A. Medium
B. Temperature
C. Density
D. None of the above
Ans. A
Sol. The speed of sound is not always the same. Remember that sound is a vibration of kinetic energy passed from molecule to molecule. The closer the molecules are to each other and the tighter their bonds, the less time it takes for them to pass the sound to each other and the faster sound can travel. It is easier for sound waves to go through solids than through liquids because the molecules are closer together and more tightly bonded in solids. Similarly, it is harder for sound to pass through gases than through liquids, because gaseous molecules are farther apart. The speed of sound is faster in solid materials and slower in liquids or gases.

4.The fuse in an electric circuit is connected in
A. parallel to live
B. parallel to neutral
C. series with live
D. series with neutral
Ans. C
Sol. • A fuse wire is a safety wire **connected in series with the live wire**, in case of any large current supply or malfunctioning in the electric connections it melts and breaks the electric circuit.
• It is always in series with the load no matter where its located. Many loads have an integral fuse that protects the appliance load.
• Usually there is a fuse (or more common these days, a circuit breaker) in the distribution box. This is intended to protect both the wiring and the appliance load.

5.Electric Motor converts _____ energy to mechanical energy.
A. sound
B. mechanical
C. chemical
D. electrical
Ans. D
Sol. Electric Motor converts electrical energy to mechanical energy. It is based on the principle that when a current-carrying conductor is placed in a magnetic field, it experiences a mechanical force whose direction is given by Fleming's Left-hand rule and whose magnitude is given by Force, **F = B I l** newton
Where B is the magnetic field in weber/m
I is the current in amperes and
l is the length of the coil in meter.

6.Who was the first to use radio waves to detect "the presence of distant metallic objects"?
A. Joseph Niepce
B. Blaise Pascal
C. Linus Pauling
D. Hulsmeyer
Ans. D
Sol.• The German inventor Christian Hulsmeyer was the first to use radio waves to detect "the presence of distant metallic objects".

• 1904, he demonstrated the feasibility of detecting a ship in dense fog, but not its distance from the transmitter.

7.Which of the following elements has the lowest melting point?
A. Zinc
B. Titanium
C. Sulphur
D. Fluorine
Ans. D
Sol. Fluorine has a **low melting point** and boiling point, the **lowest** of the halogens. This is because the instantaneous dipole-induced dipole bonds are weak due to F2 having less electrons than any other halogen molecules. **Fluorine** is the most electronegative element of all.

8.Fe has 26 protons in its nucleus. What are the number of electrons in Fe^{2}+ (II) ion?
A. 24
B. 26
C. 28
D. 13
Ans. A
Sol. • Fe2+ ion contains 24 electrons.
• There are 26 electrons in Fe atom. Fe atom loses 2 electrons and change to Fe2+ ion. So there is 24 electrons in Fe2+ ion.

9.Which of the following is a radioactive element?
A. Cobalt
B. Uranium
C. Argon
D. Chromium
Ans. B
Sol. • Uranium is weakly radioactive because all its isotopes are unstable (with half-lives of the five naturally known isotopes, uranium-233 to uranium-236 and uranium-238, varying between 159200 years and 4.5 billion years).
• This radioactive metal is unique in that one of its isotopes, uranium-235, is the only naturally occurring isotope capable of sustaining a nuclear fission reaction.

10.Tamarindus indica is the scientific name of _____.
A. Neem
B. Pineapple
C. Tamarind
D. Chiku
Ans. C
Sol. Tamarind, whose scientific name is Tamarindus indica is a leguminous tree in the family **Fabaceae** indigenous to tropical Africa. The **tamarind tree**produces pod-like fruit, which contain an edible pulp that is used in cuisines around the world.

11. Air has maximum proportion of which inert gas?
A. Carbon Dioxide
B. Nitrous Oxide
C. Argon
D. Carbon Monoxide
Ans. C
Sol. • Air has a maximum proportion of argon inert gas.
• Air is a mixture of gases in varying amounts. It consists of 78% nitrogen, 21% oxygen, argon and other inert gases to the extent of about 1.0%.
• carbon dioxide varies in amount from 0.1% to 0.3%. The variation is mainly due to combustion photosynthetic processes.

12.Which of the gas is not known as greenhouse gas?
A. Methane
B. Carbon dioxide
C. Nitrous oxide
D. Hydrogen
Ans. D
Sol. Greenhouse gas (GHG) is a gas in an atmosphere that absorbs and emits radiation within the thermal infrared range. This process is the fundamental cause of the greenhouse effect. The primary greenhouse gases in Earth's atmosphere are water vapor, carbon dioxide, methane, nitrous oxide, and ozone.

13.Which of the following are longest cells of human body?
A. Pancreatic cells
B. Epethelial cells
C. Nerve cells
D. Epidermal cells

Ans. C
Sol. **Nerve cells** are longest cells of human body.A neuron, also known as a neurone and **nerve cell**, is an electrically excitable **cell** that receives, processes, and transmits information through electrical and chemical signals. These signals between neurons occur via specialized connections called synapses.

14.Which organ is affected by Pneumonia disease?
A. Skin and intestine
B. Urinary tract
C. Liver
D. Lungs
Ans. D
Sol. • Pneumonia is an infection in **one or both lungs**.
• It can be caused by bacteria, viruses, or fungi. Bacterial pneumonia is the most common type in adults.
• Pneumonia causes inflammation in the air sacs in your lungs, which are called alveoli. The alveoli fill with fluid or pus, making it difficult to breathe.

15.Bio-fertilizers convert nitrogen to _____ .
A. nitrates
B. ammonia
C. nitrogenase
D. amino acids
Ans. B
Sol. Bio-fertilizers convert nitrogen to ammonia.
• Nitrogen fixation is a process by which nitrogen in the Earth's atmosphere is converted into ammonia (NH3) or other molecules available to living organisms.
• Atmospheric nitrogen or molecular di nitrogen (N2) is relatively inert: it does not easily react with other chemicals to form new compounds.
• Nitrogen fixation is carried out naturally in the soil by nitrogen-fixing bacteria such as Azotobacter.

16.Which one of the following is a carbohydrate?
A. Insulin
B. Glycine
C. Glucose
D. Urea
Ans. C
Sol. • Glucse is a carbohydrate.
• Urea (NH2)2CO is a chemical that comes from the breakdown of proteins and is excreted by the body as a waste product from your kidneys.
• Insulin is a hormone.

17.Which of the following transports water from the roots of the plant to its leaves?
A. Xylem
B. Phloem
C. Both xylem and phloem
D. Cortex
Ans. A
Sol. **Xylem/Sapwood**
• The xylem, or sapwood, comprises the youngest layers of wood. Its network of thick - walled cells brings water and nutrients up from the roots through tubes to the leaves and other parts of the tree.
• Xylem cells in the central portion of the tree become inactive and die as tree grows. These led to the formation of tree's heartwood.
Phloem/Inner Bark
• The phloem or inner bark, which is found between the cambium and the outer bark, acts as a food supply line by carrying sap (sugar and nutrients dissolved in water) from the leaves to the rest of the tree.

18.The function of haemoglobin in the body is
A. Transport of Oxygen
B. Destruction of bacteria
C. Prevention of anemia
D. Utilisation of iron
Ans. A
Sol. The function of haemoglobin in the body is transport of Oxygen. *Hemoglobin in the blood*carries oxygen from the respiratory organs (lungs or gills) to the rest of the *body* (i.e. the tissues). There it releases the oxygen to permit aerobic respiration to provide energy to power the *functions* of the organism in the process called metabolism.

19.Kidney stones are composed of _____.
A. Calcium Oxalate
B. Sodium Chloride
C. Magnesium Nitrate
D. Calcium Bicarbonate
Ans. A
Sol. **Kidney stones** are composed of **Calcium oxalate**.
• Calcium oxalate is a calcium salt of oxalic acid with the chemical formula **CaC_2O_4**.
• Calcium oxalate is a **poisonous** substance that can produce sores and numbing on **ingestion** and may even be fatal.
• Many plants accumulate calcium oxalate as it has been reported in more than 1000 different genera of plants.

20.The word CNG in the transport network system stands for
A. Chlorine Natural Gas
B. Commercial Natural Gas
C. Compressed Natural Gas
D. Condensed Natural Gas
Ans. C
Sol. CNG stands for **compressed natural gas**. Natural gas is predominantly methane and is used by many people for cooking and heating in their homes. Like petrol and diesel it is a fossil

21.Which blood group is universal donor?
A. O^+
B. O^-
C. AB^-
D. AB^+
Ans. B
Sol. It's the blood group named **O-** which is known as universal donor. It is so because it has neither A nor B as surface antigens on the red blood cells, also the fact such blood group also lack D protein, as a result there is likely immune response against it, making it a universal donor.

22.What is the numerical value of the Avogadro constant?
A. 4.8×10^{10}
B. 9.1×10^{-31}
C. 6.023×10^{-23}
D. 6.023×10^{23}
Ans. D
Sol. The number **6.023×10^{23}** is called **Avogadro's number**. The Avogadro constant is the number of constituent particles, usually **atoms** or **molecules**, that are contained in **one mole** of a substance. It is a **dimensionless** quantity. Avogadro's number may be designated using the symbol **L** or **N_A**.

23.Who is known as the father of periodic table?
A. Dmitri Mendeleev
B. Antoine Lavoisier
C. John Newlands
D. Henry Moseley
Ans. A
Sol. **Dmitri Mendeleev** is known as the **father** of **periodic table**. He was a **Russian** chemist and inventor. He formulated the **periodic law**, created a far sighted version of the periodic table of elements, and used it to correct the properties of some already discovered elements and also to predict the properties of **eight** elements yet to be discovered.

24.Which of the following pair is INCORRECT?
I. Parsec - Distance
II. Barrel - Liquid
III. Light year - Time
A. Only III
B. Only I and III
C. Only II
D. All are correct
Ans. A
Sol. Light year is the measure of distance and not that of time. It actually means the distance which the light can cover in a year. Based on the definition, one light year equals to $95*10^{11}$ Kilometers.

25.What is the name of the first Super Computer of the world?
A. CDC 6600
B. USENET
C. COM ODOR VIC/20
D. PARAM-8000
Ans. A

Sol. • The name of the first supercomputer of the world is CDC6600. These were the first mainframe computers and belonged to CDC 6000 series which was manufactured by control Data Corporation in the 1960s.
• Supercomputer PARAM 8000 (made by the Centre for Development of **Advanced** Computing (C-DAC)) was launched on July 1, 1991 is considered India's first supercomputer.

26.On which principle does the hydraulic lift works?
A. Newton's law
B. Pascal's law
C. Archimedes's law
D. Joule's law
Ans. B
Sol. It's the Pascal's law on which the hydraulic lift work. Moreover this law states that in fluid mechanics a pressure change occurring in a confined incompressible fluid is transmitted throughout the fluid such that the same change occurs everywhere.

27.Who is known as the 'Father of Email'?
A. Larry Page
B. Alan Turing
C. Raymond Tomlinson
D. Elon Musk
Ans. C
Sol. Raymond Tomlinson is considered as the 'Father of Email'. He was a pioneering American computer programmer who implemented the first email program on the **ARPANET** system, the precursor to the Internet, in **1971.** He is internationally known and credited as the **inventor** of **email.**

28.Write the full form of THAAD?
A. Terminal Hot Altitude Area Defence
B. Terminal High Altitude Area Defence
C. Terminal High Activity Area Defence
D. Terminal Hot Activity Area Defence
Ans. B
Sol. • **Terminal High Altitude Area Defence** is the full form of THAAD. It is an American anti-ballistic missile defence system.
• During the Gulf war in 1991 when Iraq's Scud missile attacks, THAAD was developed after this experience.
• It was manufactured by Lockheed Martin, deigned in 1987 and produced in 2008. The weight of missile is 900kg, length is 6.17m and speed is mach 8.24 (2.8 km/s).

29.What is the common name of $CaOCl_2$?
A. Baking Powder
B. Baking Soda
C. Bleaching Powder
D. Washing Soda
Ans. C
Sol. • **Calcium Hydrochlorite $Ca(OCl)_2$** which is commonly known as 'Bleaching Powder' is used as a bleaching agent for water treatment.
• This compound is relatively stable and has higher available chlorine than Sodium Hypochlorite.
• It is white solid which is not highly soluble in water and is more preferably used in soft to medium-hard water.

30.What does 'B' stand for in BIOS program which is stored in ROM?
A. Basic
B. Boot
C. Base
D. Business
Ans. A
Sol. **BIOS** stands for '**Basic Input Output System'**. This program is stored in **ROM**. When a user turn on a PC, the **BIOS** first conducts a basic hardware check, called a Power-On Self Test (**POST**), to determine whether all of the attachments are present and working. Then it loads the operating system into computer's random access memory (**RAM)**.

31.By which method, glucose is converted in to alcohol?
A. Fermentation
B. Oxidation
C. Distillation
D. Hydrolysis
Ans. A
Sol. • **Fermentation** is the process in which **yeast** breaks down **glucose** sugar into **alcohol** and **carbon dioxide**.

• CO_2 gas bubbles out of the fermenting solution into the air leaving a mixture of **ethanol** and **water**.
• It's important that **no air** is present or the yeast will produce **ethanoic acid.**

32.Process of gaining electrons is known as _____.
A. oxidation
B. reduction
C. radiation
D. both oxidation and reduction
Ans. B
Sol. Redox is a chemical reaction in which the oxidation states of atoms changes. It involves the transfer of electrons between elements.
• Oxidation is the chemical reaction in which there is a loss of electrons or an increase in oxidation state by a molecule, atom, or ion.
• Reduction is a chemical reaction where there is the gain of electrons or a decrease in oxidation state by a molecule, atom, or ion.

33.What happens in an oxidation reaction?
A. Protons are lost.
B. Electrons are lost
C. Neutrons are lost.
D. Electrons are gained.
Ans. B
Sol. Oxidation is a chemical reaction which involves exchange of electrons between two reactants. The reactant which loses the electron is oxidized. An example of oxidation is when iron combines with oxygen to form iron oxide or rust. The iron is said to have been oxidized into rust.

34.What is Polygraph?
A. Lie dectector
B. Sine wave Graph
C. Graph of ECG
D. A set of graphs
Ans. A
Sol. • A polygraph, popularly referred to as a lie detector, measures and records several physiological indices such as blood pressure, pulse, respiration, and skin conductivity while the subject is asked and answers a series of questions.
• The belief underpinning the use of the polygraph is that deceptive answers will produce physiological responses that can be differentiated from those associated with non-deceptive answers.
• The polygraph was invented in 1921 by John Augustus Larson, a medical student at the University of California, Berkeley and a police officer of the Berkeley Police Department in Berkeley, California.

35.Which among the following is not an input device?
A. Plotter
B. Magnetic Ink Character Recognition (MICR)
C. Optical Mark Recognition (OMR)
D. Barcode Reader
Ans. A
Sol. Plotter is not an input device rather it is an output device. Like a printer it is a computer hardware device that is used for printing vector graphics. Instead of toner, plotters use a pen, pencil, marker, or another writing tool to draw multiple, continuous lines onto paper rather than a series of dots like a traditional printer.

36.Who discovered electron?
A. E. Goldstein
B. J. J. Thomson
C. Ernest Rutherford
D. J. Chadwick
Ans. B
Sol. Electron was discovered by J.J. Thomson. He was an English physicist and a Nobel laureate who is credited with the discovery of first Sub atomic article. He did this discovery with the help of cathode rays.

37.In MICR, what does 'I' stands for?
A. Interactive
B. Information
C. Ink
D. Instruction
Ans. C
Sol. In MICR, I stands for Ink. Also the full expansion of the term would be Magnetic ink character recognition mode, and is a character recognition technology used by banking industry to ease the processing and clearance of cheques and other documents.

38.Minamata disease is a nervous disorder caused by eating fish, polluted with _____.
A. Iron
B. Mercury
C. Lead
D. Nickel
Ans. B
Sol. • Minamata disease is a nervous disorder caused by eating fish, polluted with Mercury.
• The disease has Symptoms like numbness in the hands and feet, general muscle weakness, loss of peripheral vision and damage to hearing and speech. It can be treated with surgical intervention.

39.What is the scientific name of Giant panda?
A. Ailuropodamelanoleuca
B. Balaenoptera musculus
C. Danaus plexippus
D. Haliaeetusleucocephalus
Ans. A
Sol. **SOME COMMONLY USED ZOOLOGICAL NAMES:**
Blue whale-Balaenoptera musculus
Giant panda- Ailuropodamelanoleuca
Mouse-Mus musculus
Monarch butterfly-Danaus plexippus
Lion-Pantheraleo

40.Which of the following is an ore of iron?
A. Dolomite
B. Epsom Salt
C. Siderite
D. Galena
Ans. C
Sol. Siderite is an ore of iron. It contains around 50% iron carbonate, followed by zinc and magnesium. It is lustrous and hard found in hydrothermal veins and sedimentary rocks at shallow depths.

41.Pulses are a rich source of which of the following?
A. Carbohydrates
B. Proteins
C. Minerals
D. Vitamin
Ans. B
Sol. • Pulses are a rich source of proteins.
• They are the edible seeds of plants in the legume family.
• Pulses are annual crops mainly grown in dry region. Ex Grams, Peas, Beans etc.

42.In a projectile motion, the horizontal range achieved is same whether the body is projected at theta and _____.
A. 180 degree minus theta 180
B. 60 degree minus theta 60
C. 120 degree minus theta
D. 90 degree minus theta
Ans. D
Sol. Projectile motion is a type of motion in which an object is moves along a curved path under the action of gravity. A projectile launched on level ground with an initial speed V_0 at an angle θ above the horizontal will have the
• Same range as a projectile launched with an initial speed Vo at 90 ° − θ.
• Maximum range when θ = 45 °.

43.Electroscope was invented by
A. William Gilbert
B. Alfred Nobel
C. Joseph Nicephore Niepce
D. Ted Nelson
Ans. A
Sol. • An electroscope is a scientific instrument used to detect the presence and magnitude of electric charge on a body.
• It was invented by **William Gilbert.**

44.The glowing surface of the Sun is called ___.
A. Photosphere
B. Chromosphere
C. Corono
D. Troposphere
Ans. A
Sol. The atmosphere of the sun is composed of several layers, mainly the photosphere, the chromosphere and the corona. The lowest layer of the sun's atmosphere is the photosphere. This layer is where the sun's energy is released as light. It is the visible "surface" of the Sun Hence refer as the glowing surface of Sun.

45.Achras sapota is the scientific name of
A. Custard Apple
B. Gulmohar

C. Tamarind
D. Chiku
Ans. D
Sol. Chiku has its scientific name as Achras sapota. It is a native of Central America and were introduced in Philippines by the Spanish people. From there it went on to spread to Indian subcontinent. The fruit has an exceptionally sweet, malty flavor. Flesh ranges from a pale yellow to an earthy brown color with a grainy texture and has glossy seeds within it.

46.Farad is unit of _____.
A. Capacitance
B. Reactance
C. Electric charge
D. Electric conductance
Ans. A
Sol. Farad is SI unit of Capacitance. 1 farad = 1 coulomb/volt. One farad is defined as the capacitance of a capacitor which requires a charge of one coulomb to establish a potential difference of one volt between its plates.

47.Formula for distance is
A. speed x time
B. Time / speed
C. speed x acceleration
D. Velocity / speed
Ans. A
Sol. • Distance is a scalar quantity and it can never be negative as it does not consider magnitude unlike displacement.
• It is calculated as a product of speed of an object and time taken by an object to reach a particular point.
• It is expressed as Km/Hr.

48.Octopus belongs to the phylum
A. Mollusca
B. Cnidaria
C. Echinodermata
D. Chordata
Ans. A
Sol. Octopus belongs to the phylum Mollusca. Octopus are soft bodied , eight armed invertebrates found in coral reefs, pelagic waters or sea beds . They have an excellent sense of touch. The species belonging to phylum mollusca have a calcareous shell and are bilaterally symmetrical.example snail, oyster, octopus , squid.

49.Whatis the full form of PVC?
A. Phosphonil vinyl Carbonate
B. Polyvinyl S Carbonate
C. Polyvinyl Carbonate
D. Polyvinyl Chloride
Ans. D
Sol. PVC is abbreviated as polyvinyl chloride. It is a thermoplastic which is made by polymerization of the monomer vinyl chloride CH2=CHCl. PVC turns soft when heated and hard when cooled. Due to its qualities like light weight, low reactivity and high strength and recyclability it's used in making pipes, electric cable insulation.

50.Mangroves are plants that have
A. Modified Roots
B. Modified Stems
C. Respiratory Roots
D. Respiratory Stems
Ans. C
Sol. Mangroves are plants that have respiratory roots. They are salt tolerant trees that grow in coastal brackish water in tropical and sub tropical regions of the world. They intake oxygen through pneumatophores which are the respiratory roots of mangroves further they have buttresses and stilt roots to cope up with salt immersion and wave action.

51.Rate of change of momentum is _____.
A. Area
B. Pressure
C. Force
D. Velocity
Ans. C
Sol. Force is defined as rate of change of momentum. Force is a push and pull motion and any interaction which when unopposed, will change the motion of an object. It causes an object with mass to change its velocity. S.I. unit of force is newton.

52.Which physical quantity is measured in 'siemens'?

A. Electric potential
B. Electrical conductance
C. Magnetic flux
D. Refractive index
Ans. B
Sol. Electrical conductance is measured in Siemens. It is the measure of a material's ability to allow the transport of an electric charge and is the ratio of the current density to the electric field strength. Its S.I. unit is siements per metre.

53.Which chemical compound is used in making of dyes?
A. Potassium Bromide
B. Potassium Chloride
C. Potassium Carbonate
D. Potassium Sulfate
Ans. C
Sol. **Potassium Carbonate** (**K_2CO_3**) is used in making **glass, dyes,** and some **soaps. Potassium Bromide** is used in **photography**. **Potassium chlride and Potassium sulfate** are used in making **fertilizer.**

54.The phenomenon which causes mirage is
A. Total internal reflection
B. Diffraction
C. Polarisation
D. Interference
Ans. A
Sol. The phenomenon which causes mirage is Total internal reflection. A Mirage is an optical phenomemon or an optical illusion caused due to refraction of light. Mirage happens in desert areas where people see water near the horizon and try to get it, but as they go closer, water goes further. This is because actually there is no water.

55.Which device is used to measure the depth of ocean?
A. Lexometer
B. Nanometer
C. Fathometer
D. Hydrometer
Ans. C
Sol. Fathometer is used to measure the depth of ocean. This instrument is based on the echo-sounding, and the water depths are obtained by determining the time required for the sound waves to travel from a point near the surface of the water to the bottom and back.

56.Plank's constant has the dimensions of
A. linear momentum
B. angular momentum
C. force
D. energy
Ans. B
Sol. The Planck constant has dimensions of physical action; i.e., energy multiplied by time, or momentum multiplied by distance, or angular momentum. In SI units, the Planck constant is expressed in joule-seconds (J·s) or (N·m·s) or ($kg \cdot m^2 \cdot s^{-1}$).

57.Hydraulic brakes in automobiles work on
A. Pascal's principle
B. Archimedes' principle
C. Bernouili's principle
D. Poiseuille's principle
Ans. A
Sol. Hydraulic break system used to stop moving vehicles and work on the basis of Pascal's principle. It states when there is an increase in pressure at any point in a confined fluid, there is an equal increase at every other point in the container. Pascal's Principle in the Auto braking system, Hydraulic Brake. When brake pedal in pressed, the force is transmitted to the brake shoes through a liquid (link)

58.The basic process taking place in nuclear reactors is
A. Fusion
B. Fission
C. Radioactivity
D. None of the above
Ans. B
Sol. When a large fissile atomic nucleus such as uranium-235 or plutonium-239 absorbs a neutron, it may undergo nuclear fission. The heavy nucleus splits into two or more lighter nuclei, (the fission products), releasing kinetic energy, gamma radiation, and free neutrons. Nuclear plants, like plants that burn coal, oil and natural gas, produce electricity by boiling water into steam. This steam then turns turbines to produce

electricity. The difference is that nuclear plants do not burn anything. Instead, they use uranium fuel, consisting of solid ceramic pellets, to produce electricity through a process called fission.

59.In Moseley's periodic table elements are arranged according to-
A. Increasing atomic number
B. Increasing atomic weight
C. Increasing reactivity
D. Types of element
Ans. A
Sol. Mosely's periodic table - According to their increasing atomic number
Mendeleev's periodic table - According to their increasing weight

60.Match the following:
Process - Changes
a. Evaporation - 1. Liquid into gas
b. Sublimation - 2. Liquid into solid
c. Freezing - 3. Solid into gas
d. Melting - 4. Solid into liquid
A. a-1, b-2, c-4, d-3
B. a-1, b-3, c-2, d-4
C. a-2, b-1, c-4, d-3
D. a-2, b-1, c-3, d-4
Ans. B
Sol. • **Evaporation** is a type of vaporization of a liquid that occurs from the surface of a liquid into a gaseous phase that is not saturated with the evaporating substance.
• **Sublimation** is the transition of a substance directly from the solid to the gas phase without passing through the intermediate liquid phase.
• **Freezing**, or solidification, is a phase transition in which a liquid turns into a solid when its temperature is lowered below its freezing point.
• **Melting** is a physical process that results in the phase transition of a substance from a solid to a liquid.

61.Who invented the contact lens?
A. Enrico Fermi
B. Adolf Gaston Eugen Fick
C. Sandford Fleming
D. Benoit Fourneyron
Ans. B
Sol. Adolf Gaston Eugen Fick invented the contact lens. He was a German ophthalmologist. In 1888, he constructed and fitted what was to be considered the first successful model of a contact lens: an afocal scleral contact shell made from heavy brown glass, which he tested first on rabbits, then on himself, and lastly on a small group of volunteers.

62.Blood pressure is measured by _____.
A. Barometer
B. Sphygmomanometer
C. Hydrometer
D. Thermometer
Ans. B
Sol. Sphygmomanometer is an instrument for measuring blood pressure. It consists an inflatable rubber cuff which is applied to the arm and connected to a column of mercury next to a graduated scale, enabling the determination of systolic and diastolic blood pressure by increasing and gradually releasing the pressure in the cuff.

63.Which type of frictional force is exerted between two surfaces in relative motion?
A. Rolling friction
B. Kinetic friction
C. Static friction
D. Limiting friction
Ans. B
Sol. **Kinetic friction** is a force that acts between moving surfaces. An object that is being moved over a surface will experience a force in the opposite direction as its movement. The magnitude of the force depends on the coefficient of **kinetic friction** between the two kinds of material.

64.The first picture of a pinhole camera obscura is a drawn by?
A. Gemma Frisus' De Radio
B. Giambattista della Porta
C. David Brewster
D. Sir William Crookes
Ans. A
Sol. The first picture of a **pinhole camera** obscura is a drawing by an astronomer **Gemma Frisus' De Radio**. A pinhole camera or dark chamber is a camera with a pinhole aperture and no

lens. Light passes through the hole; an image is formed in the camera. He used the **pinhole** in his darkened room to study the solar eclipse of **1544**. A **pinhole**lensless **camera** is a light-tight box with a very fine round hole in one end and film or photographic paper in the other.

65._____ is the mechanical transfer of energy to a system or from a system by an external force on it.
A. Work
B. Power
C. Intensity
D. Force
Ans. A
Sol. **Work** done by an external force on a system is always a transfer of energy in the form of kinetic energy, but the system may be instantaneously converting it to some other form of energy.

66.A p-type and n-type semiconductor can be obtained by doping pure silicon with _____.
A. Boron and Phosphorus
B. Indium and Sodiuka
C. Sodium and Magnesium
D. Phosphorus and Sodium
Ans. A
Sol. • An n-type and p-type semiconductor can obtained by doping **pure silicon with Phosphorus and Boron.**
• Phophorus has 5 valence electrons, so it will produce n-type semiconductor. Boron has 3 valence electrons, so it will produce p-type semiconductor.
• In p-type semiconductors, holes are the majority carriers and electrons are the minority carriers. P-type semiconductors are created by doping an intrinsic semiconductor with acceptor impurities (or doping an n-type semiconductor).
• A common p-type dopant for silicon is boron.

67.The unit of which physical quantity is not pascal?
A. Moment of inertia
B. Pressure
C. Stress
D. Young's modulus
Ans. A
Sol. pascal as the unit for measuring the internal pressure of a system undergoing expansion or contraction. The pascal is also the unit scientists use to quantify internal stress experienced by a metal body, and it's the unit for Young's modulus, which is a measure of the relationship between stress and strain in a material. In other words, Young's modulus is a measure of the stiffness of the material. Finally, the pascal is the unit for tensile strength of a material, which is the capacity of the material to withstand loads that tend to elongate it.

68.Which physical quantity is measured in 'siemens'?
A. Electric potential
B. Electrical conductance
C. Magnetic flux
D. Refractive index
Ans. B
Sol. Electrical conductance is measured in Siemens. It is the measure of a material's ability to allow the transport of an electric charge and is the ratio of the current density to the electric field strength. Its S.I. unit is siements per metre.

69.The behavior of water around 4˚C Temperature is called as _____ expansion.
A. Linear
B. Cubical
C. Thermal
D. Anomalous
Ans. D
Sol. The anomalous expansion of water is an abnormal property of water where it expands instead of contracting when the temperature goes from 4C to 0C, and it becomes less dense.
• Hydrogen bond is responsible for the anomalous expansion of water below 4C.
• Water is denser than ice while almost all the other substances are denser in solid form than in liquid form.

70.In a projectile motion, the horizontal range achieved is same whether the body is projected at theta and _____.
A. 180 degree minus theta 180
B. 60 degree minus theta 60

C. 120 degree minus theta
D. 90 degree minus theta
Ans. D
Sol. Projectile motion is a type of motion in which an object is moves along a curved path under the action of gravity. A projectile launched on level ground with an initial speed V_0 at an angle θ above the horizontal will have the
• Same range as a projectile launched with an initial speed Vo at 90 ° − θ.
• Maximum range when θ = 45 °.

71.Who invented Helicopter?
A. Copernicus
B. Sikorsky
C. Cockrell
D. Drinker
Ans. B
Sol. Igor Ivanovich Sikorskywas a Russian-American aviation pioneer in both helicopters and fixed-wing aircraft. Since the flight of the world's first practical helicopter in 1939, Sikorsky has remained the industry leader through its commitment to innovation and excellence.

72.Venn diagram was invented by
A. Lucien Vidi
B. John Venn
C. Theophilus Van Kannel
D. Lewis Urry
Ans. B
Sol. Venn diagram were invented by John Venn. A Venn diagram is a diagram that shows all possible logical relations between a finite collections of different sets. Sir John Venn invented the venn diagram so that he could find a better way to explain things and make it easier for people and students to understand the concepts.

73.Cadmium pollution is associated with _____ .
A. Minamata disease
B. Black foot disease
C. Dyslexia
D. Itai-itai
Ans. D
Sol. Itai-itai disease was the name given to the mass cadmium poisoning of Toyama Prefecture, Japan, starting around 1912. The term "itai-itai disease" was coined by locals for the severe pains victims felt in the spine and joints. Cadmium poisoning can also cause softening of the bones and kidney failure.

74.Device used for the detection and measurement of all types of radiation (alpha, beta and gamma)
A. Geiger counter
B. Polarimeter
C. Calorimeter
D. Radiometer
Ans. A
Sol. Geiger counter is used for measuring ionizing radiation such as alpha particles, beta particles, or gamma rays. Geiger-Müller tube uses radiation sensors which gives out an electronic signal when radiation is present which is displayed in "counts per second". And its unit is Sievert.

75.Which law of thermodynamics states that energy can neither be created nor destroyed; energy can only be transferred or changed from one form to another?
A. The zeroth law of thermodynamics
B. The first law of thermodynamics
C. The second law of thermodynamics
D. The third law of thermodynamics
Ans. B
Sol. The first law of thermodynamics states that energy can neither be created nor destroyed; energy can only be transferred or changed from one form to another. It is also called law of conversation energy. For example, turning on a light would seem to produce energy; however, it is electrical energy that is converted.

76.How much energy is required by each coulomb of charge passing through a 10 V battery?
A. 1 Joule
B. 12 Joule
C. 10 Joule
D. 5 Joule
Ans. C
Sol. The energy required by each coulomb of charge is equal to the amount of work which is done in moving it.

Potential difference = $\frac{\text{work done}}{\text{charge}}$

So, work done = potential difference × charge
And it is given that, **charge = 1 coulomb potential difference = 10 V**
So from above expression, **work done = 10 × 1 = 10 Joule.**
Therefore, **10 J** of energy is required by each coulomb of charge passing through a battery of **10V**.

77.The poisonous gas accidentally released in Bhopal Gas Tragedy is
A. Methane
B. Nitrous Oxide
C. Methyl Isocyanate
D. Cyanogen
Ans. C
Sol. The poisonous gas accidentally released in Bhopal Gas Tragedy is Methyl Isocynate. It is one of the most disastrous gas leakage which occurred in Bhopal in December 1984.

78.For what is Radiocarbon dating technique used?
A. To estimate soil contamination
B. To estimate the amount of water in fossils
C. To estimate the age of fossils
D. To estimate the quality of soil
Ans. C
Sol. Radiocarbon dating is a method for determining the age of an object containing organic material by using the properties of radiocarbon C14, a radioactive isotope of carbon. The method was developed by Willard Libby and won Nobel Prize in Chemistry for his work in 1960.

79.Which among the following is not a characteristic of oxidation reaction?
A. It involves addition of hydrogen
B. It involves addition of oxygen
C. It involves loss of electrons
D. It involves addition of electronegative element
Ans. A
Sol. • Oxidation reaction is a chemical reaction in which there is a addition of electronegative element and the number of molecules in an element changes due to loss of electron.
• Loss of electron is due to addition of an oxygen molecule or either due to removal of hydrogen molecule.
• Example: rusting of iron is due to addition of oxygen molecule in iron.

80.Automobile exhaust leads to a poisonous pollutant
A. Carbon Dioxide
B. Sulphur Dioxide
C. Carbon Monoxide
D. Nitrous Oxide
Ans. C
Sol. Main motor vehicle emissions are NOx, Volatile organic compounds, Ozone, Carbon monoxide (CO), Hazardous air pollutants (toxics), Particulate matter (PM10 and PM2.5), Carbon dioxide (CO2) and Water vapor. Out of this Carbon mono oxide is the poisonous gas.

81.If a ball is thrown up, which of the following does not change?
A. Acceleration
B. Speed
C. Potential energy
D. Distance
Ans. A
Sol. • When a ball is thrown up, **acceleration does not change**. Acceleration is the rate of change of velocity.
• The acceleration does not change due to the presence of air resistance and gravitational force which pulls the ball downwards with the same acceleration in which the ball goes up.
• So, the acceleration remains g towards earth.

82.What does the slope of a velocity time graph reperesent ?
A. Acceleration
B. Distance
C. Speed
D. momentum
Ans. A
Sol. • Slope of a velocity time graph represents Acceleration.
• if the acceleration is zero, then the velocity-time graph is a horizontal line

(i.e., the slope is zero). If the acceleration is positive, then the line is an upward sloping line (i.e., the slope is positive). If the acceleration is negative, then the velocity-time graph is a downward sloping line (i.e., the slope is negative)

83.Optical fibre works on which of the following principle of light?
A. Reflection
B. Refraction
C. Diffraction
D. Total internal reflection
Ans. D
Sol. Optical fibre works on **Total internal reflection.** It is the phenomenon which occurs when a propagated wave strikes a medium boundary at an angle larger than a particular critical angle with respect to the normal to the surface.

84.Which instrument is used to measure very high temperatures?
A. Machmeter
B. Photometer
C. Pyknometer
D. Pyrometer
Ans. D
Sol. A **pyrometer** is a device for measuring **very high temperatures** and uses the principle that all substances emit radiant energy when hot, the rate of emission depending on their temperature. There are two main types of pyrometer, namely the **total radiation pyrometer** and the **optical pyrometer**.

85.The discoverer of penicillin was
A. Lord Lister
B. Alexander F1eming
C. Karl Landsteiner
D. Walter Reed
Ans. B
Sol. Penicillin, the first true antibiotic, was discovered by **Alexander Fleming**, Professor of Bacteriology at St. Mary's Hospital in London. Penicillins are a certain collection of antibiotics that eliminate infection causing bacteria. Also known in short as pen or PCN, they originate from a type of fungi called Penicillium fungi. They are used in the treatment or prevention of many different bacterial infections, usually caused by Gram-positive organisms.

86.Crescograph was invented by
A. S.N. Bose
B. P.C. Roy
C. J.C. Bose
D. P.C. Mahalanobis
Ans. C
Sol. Indian Scientist Sir Dr. Jagadish Chandra Bose invented the Crescograph an electrical instrument that could measure the growth of a plant

87.Digestion of carbohydrates begins in _____?
A. Small intestine
B. Mouth
C. Buccal cavity
D. Stomach
Ans. B
Sol. Digestion of carbohydrates, and in particular starches, begins in the mouth with the action of salivary amylase. This enzyme catalyzes, or speeds along, the hydrolysis of the starch molecule.

88.Energy is stored in liver and muscles in the form of
A. Carbohydrate
B. Fat
C. Protein
D. Glycogen
Ans. D
Sol. When the body needs glucose for energy, stored fat in the Glycogen is used.

89.Making of Curd from Milk is because of:
A. Bacteria
B. Virus
C. Protozoa
D. Other
Ans. A
Sol. Bacteria was required in the process of biotechnology from ancient times to curdling. To make curd, after boiling the milk to 30-40 ° C, it is cooled and added a sweet curd. Now due to the presence of lactic acid bacteria in the curd, the bacteria present in it grow rapidly in a few hours, accumulating whole milk.

90.The pH value of the blood in human body is
A. 6.4
B. 4.8
C. 7.4
D. 8.4
E. 6.2
Ans. C
Sol. PH value of human body's blood is 7.4. An adult man has an average of 5-6 liters of blood.

91.In Nuclear reactors graphite is used as_____.
A. Lubricant
B. Fuel
C. Linear of the reactor
D. Moderator
Ans. D
Sol. **Nuclear reactors** are used at nuclear power plants for **electricity** generation .These are generally **graphite moderated** and CO_2cooled.

92.Teflon is the common name of
A. Polytetrafluoro ethylene
B. Polyvinyl chloride
C. Polyvinyl fluoride
D. Dichlorodifluoro methane
Ans. A
Sol. The common name of Polytetrafluoro ethylene is Teflon.

93.Rutherford's alpha-particle scattering experiment was responsible for the discovery of –
A. Atomic Nucleus
B. Electron
C. Proton
D. Neutron
Ans. A
Sol. Atomic nucleus
• On the basis of his experiment, Rutherford put forward the nuclear model of an atom, which had the following features:
i. There is a positively charged centre in an atom called the nucleus. Nearly all the mass of an atom resides in the nucleus.
ii. The electrons revolve around the nucleus in well-defined orbits.
iii. The size of the nucleus is very small as compared to the size of the atom

Source: Science NCERT Class 9 Chapter 4

94.Galvanization is a method of protecting iron from rusting by coating with a thin layer of –
A. Gallium
B. Aluminum
C. Zinc
D. Silver
Ans. C
Sol. Zinc
• Galvanization (or galvanizing as it is most commonly called in that industry) is the process of applying a protective zinc coating to steel or iron, to prevent rusting. The most common method is hot-dip galvanizing, in which parts are submerged in a bath of molten zinc.
Source : Science NCERT Class 9 Chapter 4

95.Decibel unit is used to measure
A. Light intensity
B. Sound intensity
C. Magnitude of Earthquake
D. None of the above
Ans. B
Sol. The ' Decibel ' unit is used to measure the intensity of the sound. By Kandla, the intensity of light is measured. on the reactor scale, the seismic intensity is measured.

96.In SONAR, we use
A. ultrasonic waves
B. Infrasonic waves
C. radio waves
D. audible sound waves
Ans. A
Sol. Sonar (originally an acronym for Sound Navigation And Ranging) is a technique that uses sound propagation (usually underwater, as in submarine navigation) to navigate, communicate with or detect objects on or under the surface of the water, such as other vessels.

97.According to new definition adopted by 'International Astronomial Union' in 2006, which of the following is no a 'planet'?

A. Uranus
B. Neptune
C. Pluto
D. Jupiter
Ans. C
Sol. According to the new definition of the planets given in the conference organized in Prague in August 2006 by the International Astronomical Union (IAU), it has been classified as a dwarf planet in the category of planet because it does not meet the criteria of calling Pluto as Planet. Pluto was invented in 1930 by Claude Tamvo.

98.Which one of the following does not contain silver?
A. Horn silver
B. German silver
C. Ruby silver
D. Lunar caustic
Ans. B
Sol. Except German silver, all alloys given in question contain silver. There are some important alloys and their components are given below:
(i) Horn silver It is also called silver chloride (Ag Cl). Its components are Ag and Cl.
(ii) German silver Cu-50%,Zn-35%,Ni-15%.
(iii) Ruby silver It is also called red silver.
(iv) Lunar caustic It is also called silver nitrate (AgN03).

99.Which of the following in measured by 'Anemometer?
A. Velocity of water-flow
B. Depth of water
C. Speed of the wind
D. Intensity of light
Ans. C
Sol. The power of wind and speed is measured by the anemometer. Anemometer was invented in 1846 by John Thomas Romney Robinson.

100.The image formed by an astronomical telescope is:
A. Virtual and diminished
B. Virtual and magnified
C. Real and diminished
D. Real and magnified
Ans. B
Sol. An astronomical telescope is an optical instrument which is used to see the magnified image of distant heavenly bodies like stars, planets, satellites and galaxies etc. The final image formed by an astronomical telescope is always virtual, inverted and magnified.

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