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## 50 common laboratory apparatus their uses pdf

**50 common laboratory apparatus their uses pdf chemistry. 50 apparatus and their uses. List 50 laboratory apparatus and their uses. 50 common laboratory apparatus their uses pdf download. 50 laboratory apparatus and their uses. 50 common laboratory apparatus their uses. List of laboratory apparatus and their uses pdf.**

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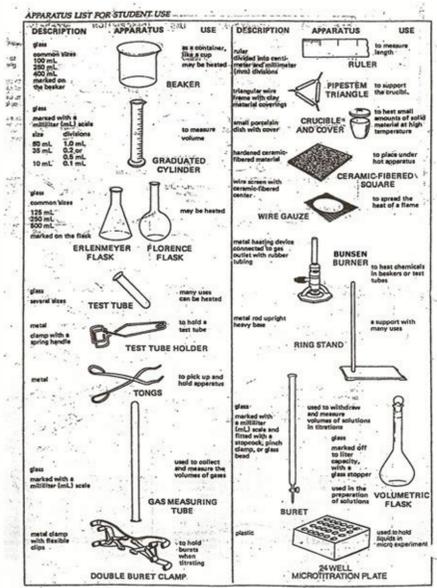


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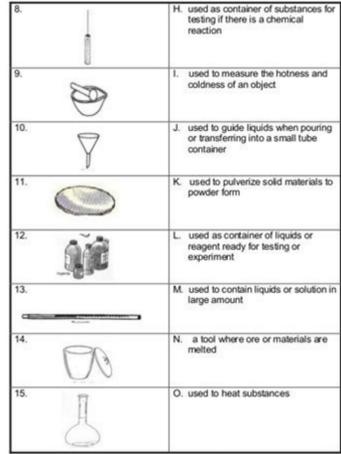


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What you will do  
Activity 1.2 Double-Pan and Triple Beam Balances: Measurement of Mass  
Key to answers on page 27.

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Goggles should fit snugly to prevent entry of harmful substances. Disposable Coveralls and Aprons Purpose: Disposable coveralls and aprons are protective garments that shield the body and clothing from chemical spills, contaminants, or biohazards. Usage: Workers wear these items to prevent exposure to hazardous substances, ensuring both personal safety and contamination control. Disposable Latex Gloves Purpose: Disposable latex gloves are worn to protect the hands from contact with chemicals, biological materials, and contaminants. Usage: These gloves are common in laboratories, healthcare settings, and industries where hand protection is essential. They reduce the risk of skin contact and contamination. Plastic Bags Purpose: Plastic bags are used for containing and disposing of hazardous waste materials, contaminated items, or biohazards. Usage: In laboratories and medical facilities, plastic bags are crucial for safe disposal of waste materials and maintaining cleanliness. Gas Mask Purpose: Gas masks protect the respiratory system by filtering out harmful gases, fumes, and particulates from the air. Usage: Gas masks are used in environments where there is a risk of exposure to toxic or hazardous airborne substances, such as during chemical spills or in industrial settings. Fire Blanket or Extinguisher Purpose: Fire blankets and extinguishers are used to suppress fires in emergency situations. Usage: In the event of a small fire, fire blankets can be used to smother flames. Fire extinguishers are designed to spray fire-suppressing agents to extinguish fires safely. First Aid Kits Purpose: First aid kits contain essential medical supplies and equipment to provide immediate medical assistance in case of injuries or accidents. Usage: First aid kits are located in workplaces, laboratories, and public areas to address injuries, burns, cuts, and other medical emergencies. Plumbed Eyewash Units Purpose: Plumbed eyewash units provide a continuous flow of water to rinse and flush the eyes in case of chemical exposure. Usage: Eyewash stations are installed in laboratories and workplaces where hazardous chemicals are handled, ensuring prompt eye irrigation in case of accidents. Flammable Safe Purpose: A flammable safe is designed to store flammable liquids and materials safely, preventing ignition or explosions. Usage: These safes are essential for fire safety in laboratories, where flammable substances are often used or stored. Chemical Spill Kits Purpose: Chemical spill kits contain materials and equipment for responding to chemical spills, containing and neutralizing the spill, and protecting personnel. Usage: In laboratory environments, chemical spill kits are crucial to mitigate the effects of accidental chemical spills, preventing harm and environmental damage. Plastic Dust Pan and Scoop Purpose: Plastic dust pans and scoops are used to collect and safely dispose of solid chemical spills, dust, or debris. Usage: They are essential tools for cleaning up laboratory or industrial workspaces, ensuring the safe removal of potentially hazardous materials. Microscope Purpose: Microscopes are used to magnify and visualize objects or specimens that are too small to be seen with the naked eye. They are essential tools in fields such as biology, microbiology, and materials science. Components: A typical microscope consists of an eyepiece, objective lenses with varying magnification powers, a stage for holding the sample, and a light source for illumination. Usage: Researchers place a sample on the stage, adjust the focus using the fine and coarse adjustment knobs, and select the appropriate objective lens for the desired magnification. Bunsen Burner Purpose: Bunsen burners are used for heating, sterilizing, and flame-related experiments in the laboratory. They provide a consistent open flame. Components: A Bunsen burner has a gas inlet, an adjustable air vent, and a flame nozzle. Usage: The flame intensity and type (oxidizing or reducing) can be adjusted by controlling the air mixture. Bunsen burners are commonly used in chemistry for tasks like heating substances and sterilizing equipment. Beaker Purpose: Beakers are used for holding, mixing, and heating liquids. They come in various sizes and are a staple in laboratories for general-purpose tasks. Features: Beakers typically have volume markings, a spout for pouring, and a flat bottom. Usage: Beakers are versatile containers, but they are not designed for precise measurements. They are often used for mixing solutions, conducting simple reactions, or as a vessel for holding liquids during experiments. Erlenmeyer Flask Purpose: Erlenmeyer flasks are conical-shaped containers with narrow necks. They are used for mixing, heating, and storing liquids, particularly when you need to prevent splashes and evaporation. Features: Erlenmeyer flasks have volume markings and can be fitted with stoppers or caps. Usage: They are commonly used for titration, as reaction vessels for chemical reactions, or as containers for cultures in microbiology. Test Tubes Purpose: Test tubes are small, cylindrical containers used for holding, heating, or mixing small quantities of liquids or solids. Features: They come in various sizes, and some have screw caps or stoppers. Usage: Test tubes are versatile and widely used in chemical and biological experiments, such as holding reagents, conducting small-scale reactions, or culturing microorganisms. Graduated Cylinder Purpose: Graduated cylinders are used to accurately measure the volume of liquids. They have volume markings for precise measurements. Features: They have a narrow, graduated scale and a spout for pouring. Usage: Graduated cylinders are essential for preparing solutions with precise volumes and measuring liquids accurately. Pipette Purpose: Pipettes are used for precise measurement and transfer of small volumes of liquid. They come in various types, including micropipettes for ultra-precise measurements. Features: Pipettes have a calibrated scale for volume selection, and some are disposable while others are reusable and require calibration. Usage: Pipettes are commonly used in biology, chemistry, and analytical chemistry for tasks like transferring samples, making dilutions, and preparing standards. Buret Purpose: Burets are used for precise titrations in analytical chemistry. They allow for controlled dispensing of a titrant into a solution. Features: Burets are long, graduated tubes with a stopcock at the bottom for controlling the flow of liquid. Usage: Burets are essential in titration experiments where the volume of titrant needed to reach a specific endpoint is critical. Florence Flask Purpose: Florence flasks are used for boiling and heating liquids. They have a round bottom that allows for even heating. Features:

They typically have a long neck and are often used with a rubber stopper or glass tubing for attaching other equipment.**Usage:** Florence flasks are commonly used in distillation setups and refluxing reactions.**Volumetric Flask****Purpose:** Volumetric flasks are used for preparing solutions with precise volumes. They come in various sizes and are designed to hold a specific volume when filled to the calibration mark.**Features:** Volumetric flasks have a long neck with a single calibration mark on the neck.**Usage:** They are crucial for preparing accurate and known concentrations of solutions, such as standards used in chemical analysis.**Funnel****Purpose:** Funnels are used for transferring liquids or fine-grained substances from one container to another. They help avoid spills and maintain accuracy.**Features:** Funnels have a wide, tapered opening at the top and a narrow spout at the bottom.**Usage:** Funnels are essential for tasks like filtering solutions, adding reagents to containers, and filling smaller vessels without spillage.**Crucible****Purpose:** Crucibles are heat-resistant containers used for heating substances to high temperatures. They are typically made of porcelain or ceramic materials.**Features:** They have a small, cylindrical shape and come with lids.**Usage:** Crucibles are commonly used for processes such as heating samples to dryness, ashing organic materials, and performing high-temperature reactions.**Tongs****Purpose:** Tongs are used for safely handling hot glassware and objects in the laboratory.**Features:** They have long, pincer-like arms with insulated handles.**Usage:** Tongs are essential for gripping and moving hot crucibles, beakers, flasks, and other equipment without direct contact.**Evaporating Dish****Purpose:** Evaporating dishes are shallow, flat-bottomed containers used for evaporating solvents from solutions.**Features:** They are typically made of porcelain or borosilicate glass and are resistant to high temperatures.**Usage:** Evaporating dishes are used to concentrate solutions by gently heating them to drive off the solvent, leaving behind the solute.**Desiccator****Purpose:** Desiccators are sealed containers used to store substances in a dry environment, protecting them from moisture.**Features:** They have an airtight seal and often contain a drying agent like silica gel or calcium chloride.**Usage:** Desiccators are used for storing moisture-sensitive materials, such as hygroscopic chemicals or humidity-sensitive samples.**Centrifuge****Purpose:** Centrifuges are used for separating components of a liquid or mixture based on density by spinning them at high speeds.**Features:** They have a rotor that holds sample tubes and can generate centrifugal forces.**Usage:** Centrifuges are used in various fields, including biology, chemistry, and clinical laboratories, for tasks like separating cells, proteins, and particles from liquids.**Hot Plate****Purpose:** A hot plate is an electric heating device used to heat glassware or other containers, usually with a flat, heated surface.**Usage:** Hot plates are commonly used for tasks such as boiling water, heating solutions, or conducting reactions that require controlled and consistent temperature.**Magnetic Stirrer****Purpose:** Magnetic stirrers use a rotating magnetic field to create a vortex in a liquid, which stirs or mixes the contents of a container without the need for a physical stirring rod.**Usage:** They are used for even and continuous mixing of solutions, particularly in chemistry and biology experiments.**pH Meter****Purpose:** A pH meter measures the acidity or alkalinity (pH) of a solution. It provides a numerical pH value based on the concentration of hydrogen ions in the solution.**Usage:** pH meters are vital in various fields, including chemistry, biology, and environmental science, for accurately determining pH levels in solutions.**Spectrophotometer****Purpose:** A spectrophotometer measures the absorption or transmission of light by a substance across a range of wavelengths. It is used for quantitative analysis of substances in a solution.**Usage:** Spectrophotometers are essential for applications like quantifying the concentration of a solute, identifying compounds, and studying chemical reactions.**Autoclave****Purpose:** Autoclaves are pressurized and high-temperature chambers used to sterilize equipment, media, and samples in a laboratory.**Usage:** Autoclaves are crucial for maintaining sterile conditions in microbiology, biotechnology, and medical laboratories.**Incubator****Purpose:** Incubators provide a controlled environment with regulated temperature and humidity for the growth of microorganisms or the incubation of biological samples.**Usage:** They are essential for cell culture, microbial culturing, and other biological research applications.**Refrigerator/Freezer****Purpose:** Laboratory refrigerators and freezers are used to store temperature-sensitive reagents, samples, and biological materials at controlled temperatures.**Usage:** They are crucial for preserving the integrity and stability of materials, such as enzymes, vaccines, and DNA.**Microcentrifuge****Purpose:** A microcentrifuge is a high-speed centrifuge designed to spin small volumes of liquid at very high speeds, separating components based on density.**Usage:** They are used for tasks such as pelleting cells or particles, separating DNA, and isolating proteins.**Gel Electrophoresis Apparatus****Purpose:** Gel electrophoresis apparatus is used to separate and analyze DNA, RNA, or proteins based on their size and charge.**Usage:** It is a fundamental tool in molecular biology for tasks like DNA fingerprinting, DNA fragment separation, and protein analysis.**PCR Machine (Polymerase Chain Reaction)****Purpose:** A PCR machine amplifies specific DNA sequences through repeated cycles of heating and cooling.**Usage:** PCR machines are vital in molecular biology for DNA amplification, genetic testing, and DNA sequencing.**Spectrofluorometer****Purpose:** A spectrofluorometer measures the fluorescence emission spectra of substances when excited by light of a specific wavelength.**Components:** It typically includes a light source, monochromator, sample holder, and photodetector.**Usage:** Spectrofluorometers are used to study the fluorescence properties of compounds, such as fluorescent dyes, proteins, and biomolecules, in chemical and biological research. They are crucial for characterizing fluorescent materials and quantifying their concentrations.**Distillation Apparatus****Purpose:** Distillation apparatus is used to separate components of a liquid mixture based on their different boiling points.**Components:** It comprises a boiling flask, distillation head, condenser, receiver flask, and a heat source.**Usage:** Distillation is a common technique for purifying or separating liquids in chemistry, including the production of distilled water or the isolation of pure chemicals.**Condenser****Purpose:** A condenser cools and condenses vaporized substances back into a liquid state, typically in distillation setups.**Components:** It includes a coiled or straight glass tube through which cooling water circulates.**Usage:** Condensers are essential components in distillation and reflux processes, allowing the collection of purified liquids.**Spatula****Purpose:** A spatula is a small, flat utensil used for transferring solid chemicals or powders.**Materials:** Spatulas are typically made of stainless steel, plastic, or glass.**Usage:** Spatulas are commonly used to weigh or transfer small quantities of solids in chemistry and analytical work. They come in various shapes and sizes to suit different applications.**Pipette Bulb****Purpose:** A pipette bulb is a rubber bulb that attaches to a pipette for creating suction and facilitating liquid transfer.**Usage:** Pipette bulbs are used to draw liquid into pipettes accurately. They provide a manual means of controlling the volume of liquid aspirated and discharged.**Buchner Funnel****Purpose:** A Buchner funnel is used in vacuum filtration to separate solids from liquids. It contains a perforated plate and a vacuum source to pull liquid through.**Components:** It includes a funnel with a flat, porous base and a conical flask or vacuum flask below it.**Usage:** Buchner funnels are commonly used for isolating precipitates or collecting solid residues from liquid suspensions.**Vacuum filtration speeds up the process.****Mortar and Pestle****Purpose:** A mortar and pestle are tools used for grinding, crushing, and mixing solid materials into fine powders or pastes.**Materials:** Mortars are typically made of ceramic, glass, or stone, while the pestle is a heavy rod.**Usage:** They are widely used in chemistry and biology for tasks such as sample preparation, grinding chemicals, or creating homogenous mixtures.**Stirring Rod****Purpose:** A stirring rod is a long, thin glass or plastic rod used for manually stirring liquids or suspensions.**Usage:** Stirring rods are commonly used for mixing solutions, ensuring homogeneity in reactions, and transferring small quantities of liquid.**Thermometer****Purpose:** A thermometer measures temperature. Laboratory thermometers are designed for accuracy and precision.**Types:** There are various types of thermometers, including mercury-in-glass, digital, and infrared.**Usage:** Thermometers are used in various applications, from monitoring reaction temperatures to maintaining controlled conditions in incubators and ovens.**Melting Point Apparatus****Purpose:** A melting point apparatus is used to determine the melting point of a solid substance, which is a characteristic property.**Components:** It includes a heating block, sample holder, and a magnifying lens.**Usage:** It is employed in chemistry for identifying and verifying the purity of organic compounds by comparing their melting points to known standards.**Petri Dish****Purpose:** A Petri dish is a shallow, flat, cylindrical container with a lid, used for culturing and observing microorganisms and small specimens.**Materials:** Petri dishes are typically made of glass or clear plastic.**Usage:** Petri dishes are widely used in microbiology for bacterial and fungal cultures and in various biological experiments, including bacterial plate counts and tissue culture.**Separatory Funnel****Purpose:** A separatory funnel is used to separate immiscible liquids or liquids with different densities.**Components:** It has a conical shape with a stopcock at the bottom for controlled liquid drainage.**Usage:** Separatory funnels are commonly used in chemistry for processes like liquid-liquid extraction, purification, and phase separations.**Gas Burette****Purpose:** A gas burette is a graduated glass tube used to measure the volume of gases in chemical experiments.**Usage:** It is employed in experiments where precise gas volume measurements are necessary, such as in gas collection or stoichiometry experiments.**Hemocytometer****Purpose:** A hemocytometer is a special counting chamber used for manually counting blood cells and other small particles under a microscope.**Components:** It consists of a thick glass slide with a grid etched on it and a coverslip.**Usage:** Hemocytometers are essential in clinical laboratories and research for accurate cell counting in applications like blood cell analysis and cell culture.**Vortex Mixer****Purpose:** A vortex mixer is a high-speed mixer that creates a vortex in a liquid sample to mix its contents.**Components:** It has a motorized base with a rubber cup or platform for holding sample tubes.**Usage:** Vortex mixers are used to quickly and thoroughly mix liquids, suspensions, and small samples in test tubes or microcentrifuge tubes.**Ultrasonic Cleaner****Purpose:** An ultrasonic cleaner uses high-frequency sound waves to remove contaminants from objects immersed in a liquid.**Components:** It consists of a tank filled with cleaning solution, ultrasonic transducers, and a timer.**Usage:** Ultrasonic cleaners are commonly used to clean laboratory glassware, small parts, and delicate instruments, ensuring thorough cleaning without manual scrubbing.**TLC Plate (Thin-Layer Chromatography Plate)****Purpose:** TLC is a chromatography technique used to separate and analyze mixtures. A TLC plate is a flat, thin sheet coated with a stationary phase for this purpose.**Components:** The plate is typically made of glass or plastic with a thin layer of absorbent material (such as silica gel) as the stationary phase.**Usage:** Researchers spot or apply a sample mixture at the base of the plate, which is then placed in a solvent chamber. As the solvent rises through capillary action, it carries the components of the mixture, allowing for separation based on their interactions with the stationary phase.**Rotary Evaporator****Purpose:** A rotary evaporator is used for the gentle and efficient removal of solvents from liquid mixtures, typically in chemical synthesis or sample preparation.**Components:** It consists of a rotating flask, a water bath or heating bath, a vacuum system, and a condenser.**Usage:** The sample is placed in the rotating flask and heated under vacuum. The reduced pressure lowers the boiling point of the solvent, facilitating its removal. The condenser then collects the vapor, which condenses back into a liquid.**Viscometer****Purpose:** A viscometer measures the viscosity of a fluid, which is a measure of its resistance to flow.**Types:** There are various types of viscometers, including capillary viscometers, rotational viscometers, and falling ball viscometers.**Usage:** Viscometers are used in industries like pharmaceuticals, food, and oil to determine fluid properties and quality control. They are also employed in research to study the flow behavior of fluids.**Hydrometer****Purpose:** A hydrometer is an instrument used to measure the specific gravity (density) of a liquid.**Components:** It typically consists of a graduated glass tube with a weighted bulb at the bottom.**Usage:** Hydrometers are commonly used in various applications, such as in breweries to measure the alcohol content of beer, in laboratories for density measurements, and in the petroleum industry for testing fuel quality.**Microtome****Purpose:** A microtome is a precision instrument used to cut thin slices (sections) of biological or material samples for microscopy or analysis.**Types:** There are different types of microtomes, including rotary microtomes, cryostats, and ultramicrotomes.**Usage:** Microtomes are vital in histology, biology, and material science for preparing samples for examination under microscopes or other analytical instruments.**Autotitrator (Automatic Titrator)****Purpose:** An autotitrator is an automated titration instrument used for precise and efficient chemical analysis, especially in determining the concentration of analytes in a solution.**Components:** It consists of a burette, a titration vessel, a pH electrode, and automated control systems.**Usage:** Autotitrators perform titrations accurately and with reduced human error. They are widely used in analytical chemistry, quality control, and environmental monitoring.**Gas Syringe****Purpose:** A gas syringe is a device used to measure and transfer known volumes of gases in laboratory experiments.**Components:** It typically consists of a cylindrical glass tube with a plunger or piston.**Usage:** Gas syringes are used in experiments where precise gas volumes are required, such as in gas collection, gas stoichiometry, and determining gas properties like molar mass or density.**Nuclear Magnetic Resonance (NMR) Spectrometer****Purpose:** An NMR spectrometer is used for the analysis of organic compounds' structure and properties. It measures the nuclear magnetic resonance of atomic nuclei.**Components:** It consists of a powerful magnet, radiofrequency (RF) transmitter and receiver, and a sample holder.**Usage:** Researchers place a sample in the magnet, which aligns the nuclei with the magnetic field. RF pulses are applied, and the resulting signals provide information about the chemical environment and connectivity of atoms in the sample.**Scanning Electron Microscope (SEM)****Purpose:** SEM produces high-resolution images of the surface of specimens using focused electron beams.**Components:** It includes an electron source, electromagnetic lenses, a sample chamber, and detectors for secondary electrons and backscattered electrons.**Usage:** The electron beam scans the sample's surface, and signals from interactions with the beam create detailed images, revealing surface topography and composition.**Gas Chromatography-Mass Spectrometry (GC-MS)****Purpose:** GC-MS combines gas chromatography with mass spectrometry to identify and quantify chemical compounds in a mixture.**Components:** It has a gas chromatograph to separate compounds and a mass spectrometer to analyze their masses.**Usage:** The mixture is vaporized and separated in the chromatograph. The separated compounds are then ionized in the mass spectrometer and identified by their mass-to-charge ratios.**High-Performance Liquid Chromatograph (HPLC)****Purpose:** HPLC separates and quantifies compounds in a liquid mixture based on their interactions with a stationary phase.**Components:** It includes a pump, injector, column, detector, and data system.**Usage:** Liquid samples are pumped through a column filled with stationary phase. Different compounds interact differently, leading to separation. The detector records signals that are used for quantification.**UV-Visible Spectrophotometer****Purpose:** This instrument measures the absorption of ultraviolet and visible light by a sample, often for quantitative analysis.**Components:** It has a light source, monochromator, sample holder, and detector.**Usage:** A beam of light passes through the sample, and the detector measures how much light is absorbed. This data can be used to determine the concentration of an absorbing substance.**Flame Photometer****Purpose:** Flame photometers are used to measure the concentration of specific elements in a sample by analyzing the color of the flame produced when the elements are atomized.**Components:** It consists of a flame, nebulizer, burner, and a system for detecting emitted light.**Usage:** A sample is introduced into the flame, and the characteristic colors produced are compared to known standards to determine the element's concentration.**Mass Spectrometer****Purpose:** Mass spectrometers determine the molecular composition of a sample by measuring the mass-to-charge ratio of ions.**Components:** They include an ionization source, mass analyzer, and detector.**Usage:** Samples are ionized, and the resulting ions are separated based on their mass-to-charge ratio. The detector records these ions, providing information about the sample's composition.**Atomic Force Microscope (AFM)****Purpose:** AFMs allow for imaging and manipulating materials at the nanoscale by scanning a sharp tip across the surface.**Components:** AFMs have a cantilever with a sharp tip and a detector for measuring tip-sample interactions.**Usage:** The tip is brought close to the sample's surface, and interactions between the tip and sample are measured, producing high-resolution topographical images.**Differential Scanning Calorimeter (DSC)****Purpose:** DSC measures changes in heat flow associated with phase transitions and chemical reactions in materials.**Components:** It consists of a sample holder, reference cell, and heating element.**Usage:** The sample and a reference are heated or cooled simultaneously, and the heat flow difference between them is recorded. This provides information about thermal properties and transitions.**Gas Density Meter****Purpose:** Gas density meters determine the density of gases under varying conditions of temperature and pressure.**Components:** They typically involve a sensor that measures the speed of sound in the gas.**Usage:** By measuring the speed of sound, these meters can calculate the density of gases, which is important in various industrial and research applications.**Circular Dichroism Spectrometer (CD)****Purpose:** CD spectrometers analyze the optical activity of chiral molecules to determine their secondary structure.**Components:** They include a light source, sample holder, and detectors for measuring differences in left and right circularly polarized light.**Usage:** CD spectroscopy is widely used in chemistry and biochemistry to study the conformation of biomolecules like proteins and nucleic acids.**Ultracentrifuge****Purpose:** Ultracentrifuges separate particles in suspensions based on size and density using high centrifugal forces.**Components:** They have a rotor, sample tubes, and a powerful motor for high-speed spinning.**Usage:** Ultracentrifugation is essential for tasks like separating macromolecules, organelles, or colloidal particles in biological and biochemical research.**Sonication Bath****Purpose:** Sonication baths use high-frequency sound waves to disrupt and disperse particles in liquids for sample preparation.**Components:** They consist of a bath filled with liquid and a sonication probe or transducer.**Usage:** Sonication is employed for tasks like cell disruption, homogenization, and degassing of solutions.**Raman Spectrometer****Purpose:** Raman spectrometers measure the scattering of monochromatic light by molecules to identify and characterize chemical compounds.**Components:** They include a laser source, spectrometer, and a detector for Raman scattering.**Usage:** Raman spectroscopy is used for chemical analysis, materials characterization, and identifying molecular structures.**Atomic Emission Spectrometer****Purpose:** Atomic emission spectrometers analyze the emission of light by excited atoms to determine elemental composition in samples.**Components:** They include a sample introduction system, excitation source (flame or plasma), and a detector.**Usage:** This instrument is widely used in elemental analysis, such as in environmental monitoring and metal analysis.**Microplate Reader****Purpose:** Microplate readers read absorbance, fluorescence, or luminescence in microplate wells for high-throughput screening and assays.**Components:** They have multiple detectors and can accommodate microplates with multiple sample wells.**Usage:** Microplate readers are essential in molecular biology, biochemistry, and drug discovery for rapid analysis of numerous samples.**Chromatography Data System (CDS)****Purpose:** A Chromatography Data System is software used to control and analyze data from chromatography instruments.**Components:** It includes data acquisition, processing, and reporting capabilities.**Usage:** CDS is crucial for managing and interpreting data generated from chromatography experiments, ensuring accurate and reliable results.**Cryo-Electron Microscope****Purpose:** Cryo-EM uses extremely low temperatures to study the structure of biological macromolecules and large assemblies.**Components:** It includes a specialized electron microscope and a cryogenic sample stage.**Usage:** Cryo-EM is revolutionizing structural biology by enabling the visualization of complex structures at near-atomic resolution.**Potentiostat-Galvanostat****Purpose:** A potentiostat-galvanostat is used to control and measure electrochemical reactions, often in corrosion studies and battery research.**Components:** It has three electrodes (working, reference, and counter electrodes) and a control unit.**Usage:** It's employed in a wide range of electrochemical experiments, including corrosion rate determination and battery testing.**Laser Ablation-Inductively Coupled Plasma-Mass Spectrometer (LA-ICP-MS)****Purpose:** LA-ICP-MS analyzes solid samples by vaporizing them with a laser and measuring the elemental composition with ICP-MS.**Components:** It involves a laser ablation system coupled to an ICP-MS instrument.**Usage:** LA-ICP-MS is used for spatially-resolved elemental analysis in various fields, including geology, environmental science, and materials research.**Laboratory Apparatus:** Equipments: 3famp=1?espv=1 100%(4)100% found this document useful (4 votes)40K views2 pagesclick to expand document informationThis provides the names and the uses of common laboratory apparatus, such as test tube, dropper, measuring cylinder, thermometer, tongs, evaporating dish, reagent bottle, spatula, tripod, wire gauze, stand, clamp.