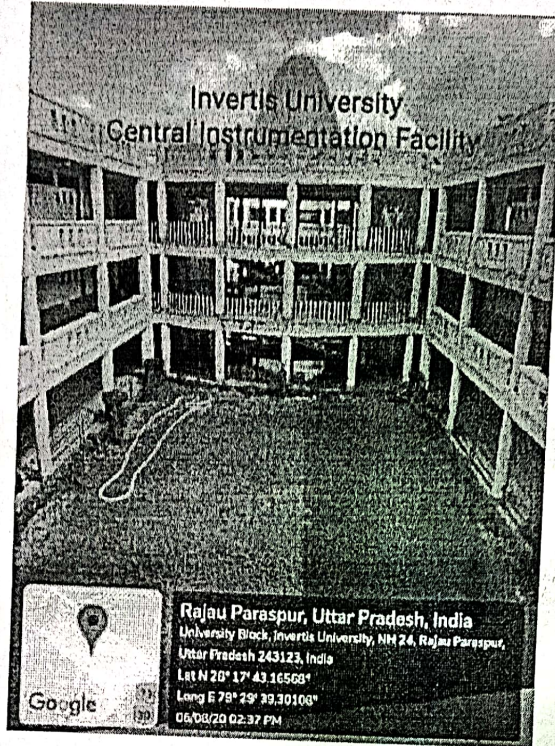


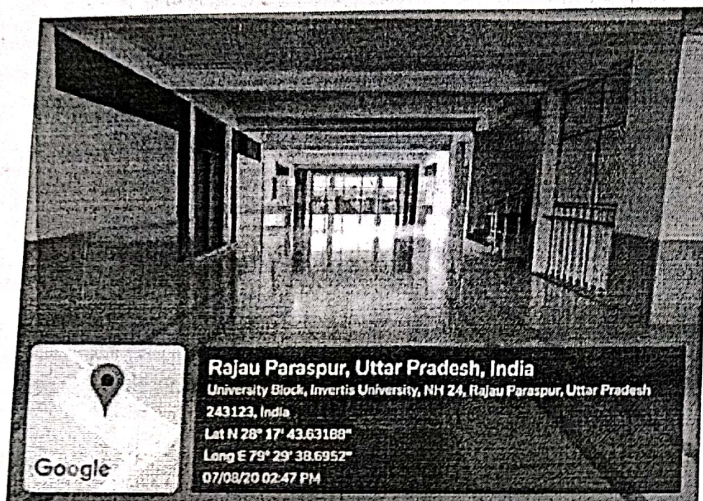
Invertis University, Central Instrumentation Facility



Invertis University has set up the Central Instrumentation Facility with the primary objective of supporting the research activities of its faculty, Ph.D scholars and Postdoctoral researchers. Excellence in teaching needs sophisticated equipments and support facilities. These equipments and facilities help the faculty, research scholars and students to carry out their research in basic and applied sciences. The facilities house a wide range of sophisticated analytical and fabrication equipment, maintain them and ensure a fair utilization among the research community. The facilities are envisaged to nourish collaborative research between Invertis University and other academic and Industrial organizations. Some of the equipment that are installed and operational support multi- disciplinary research areas like material sciences, bio sensors, organic photovoltaic and other emerging frontier fields. To cater the need of researchers in different areas, the Central Instrument Facility (CIF), was established at the Invertis University, Bareilly in the year 2015 with the support from the university fund. The CIF, Invertis University houses sophisticated analytical instruments which are operated and maintained by a dedicated and qualified group of Scientists and Engineers. The division supports in-house operation and maintenance of various sophisticated scientific instruments. The division also provides services to the outside users like industries, universities and research laboratories against minimal charges.

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Central instrumentation facilities consist of instruments in the areas of:

Name	Make/Supplier
PCR (THERMAL CYCLER)	Applied Biosystems 2720
FLUORESCENCE MICROSCOPE	METER OPTICAL AC 220 V
LIGHT MICROSCOPE	Coslab Model VN - 7
HOT AIR OVEN	COSLAB
MICROPROCESSOR BASED pH METER MODEL 1010	ESICO
DIGITAL pH METER	EI
GEL ROCKER SHAKER	MEDOX
BOD INCUBATOR	TANCO
DEEP FREEZER (-20°C)	Bulestar
SAMSUNG FREEZER 254L	SAMSUNG
MAGNETIC STIRRER HOT PLATE	COSLAB
HEATING MANTLE	TANCO
Western blotting	Jaipur scientific instrument
ELISA READER	ALERE, USA
Power Pack	Jaipur scientific instrument
HORIZONTAL GEL ELECTROPHORESIS	edvotek
CENTRIFUGE	Remi
WEIGHING BALANCE	jaipur scientific instrument
Haemoglobinometer	Jaipur scientific instrument
Haemocytometer -	Jaipur scientific instrument
BOD INCUBATOR	Tanco

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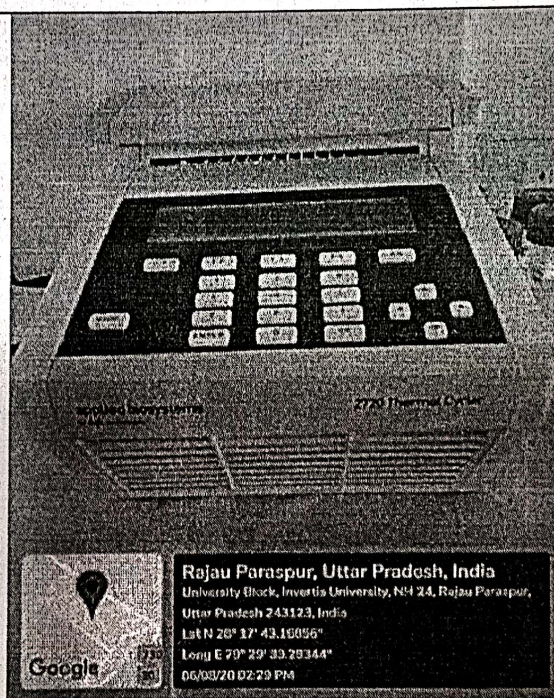
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Heating mantle-1	Tanco
Centrifuge	Remi
U.V transilluminator	Medox
Laminar Air Flow	Tanco
Vortex Mixture	Remi
Autoclave	Tanco
Water bath	Tanco
Burette stand	Jaipur scientific Instrument
Micropipette variable (100- 1000µl), (10- 100µl) (2- 20µl)	Himedia
Water distillation Unit	Jaipur scientific Instrument

About Instruments :

**PCR (Thermal Cycler)
Applied Biosystems 2720**

The thermal cycler is a laboratory apparatus most commonly used to amplify segments of DNA via the polymerase chain reaction. Thermal cyclers may also be used in laboratories to facilitate other temperature-sensitive reactions, including restriction enzyme digestion or rapid diagnostics.

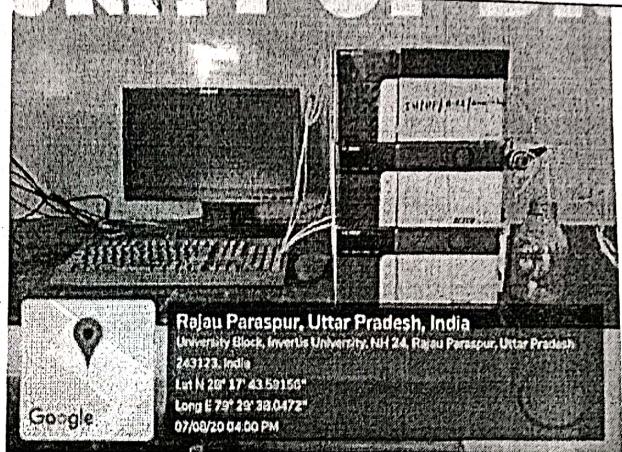


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HPLC (High Pressure Liquid Chromatography)

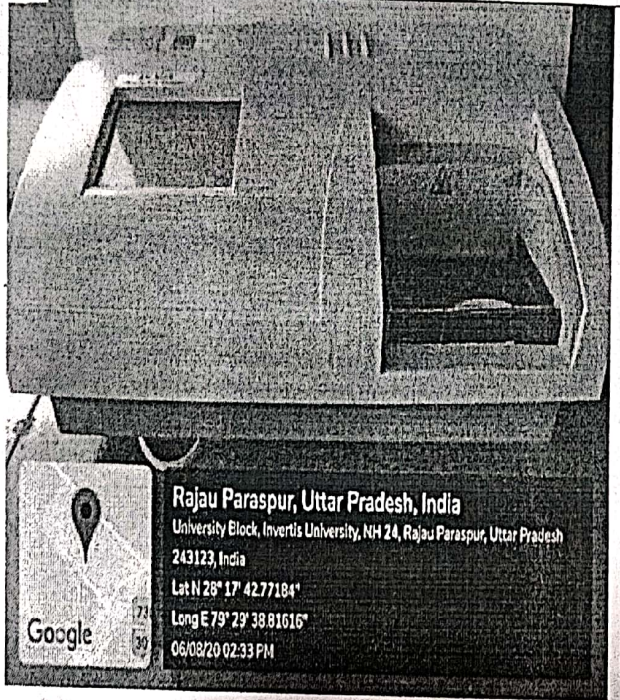
High-performance liquid chromatography (HPLC; formerly referred to as high-pressure liquid chromatography) is a technique in analytical chemistry used to separate, identify, and quantify each component in a mixture. It relies on pumps to pass a pressurized liquid solvent containing the sample mixture through a column filled with a solid adsorbent material. Each component in the sample interacts slightly differently with the adsorbent material, causing different flow rates for the different components and leading to the separation of the components as they flow out of the column.



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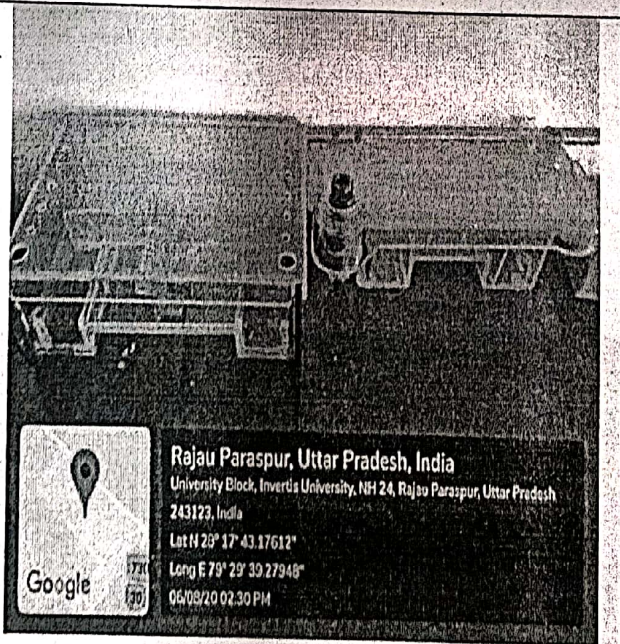
ELISA Reader, ALERE, USA

A microplate reader is a laboratory instrument that is used to measure chemical, biological or physical reactions, properties and analytes within the well of a microplate. A microplate consists of small wells in which separated reactions take place. These reactions convert the presence of an analyte or the progression of biochemical processes into optical signals. The microplate reader detects these signals and thus quantifies the parameter of interest.



Horizontal-Gel Electrophoresis Unit

Also called submarine units, are systems designed to run agarose or polyacrylamide gels submerged in running buffer. Samples are introduced to an electric field and will migrate to the anode or cathode depending on their intrinsic charge.

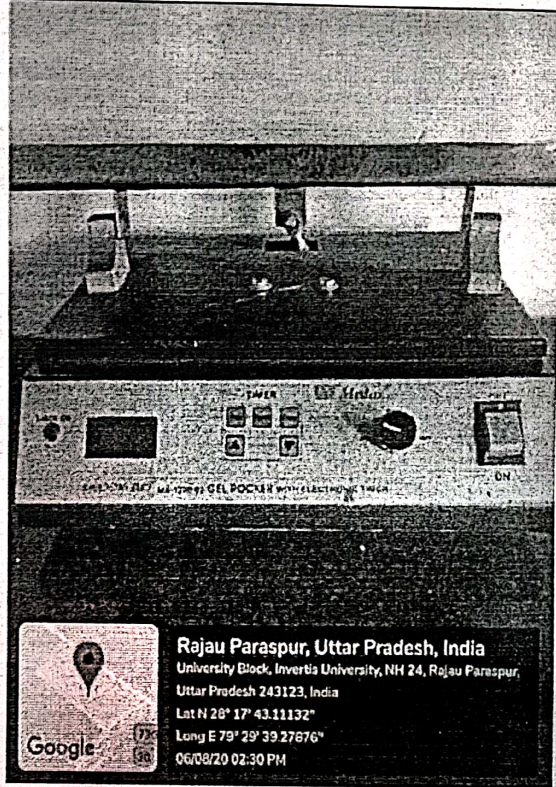


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Gel Rocker Shaker

These gel rocker shakers are efficiently used in various laboratories and testing labs for biological mixing applications which creates waves in various liquids. A rocker or shaker is likely to be found on the bench top of most laboratories whether small, large, academic, clinical or commercial. These important tools are used for a variety of applications including cell culture, DNA extraction, low foaming agitation, mixing reagents, and staining gels and blots.

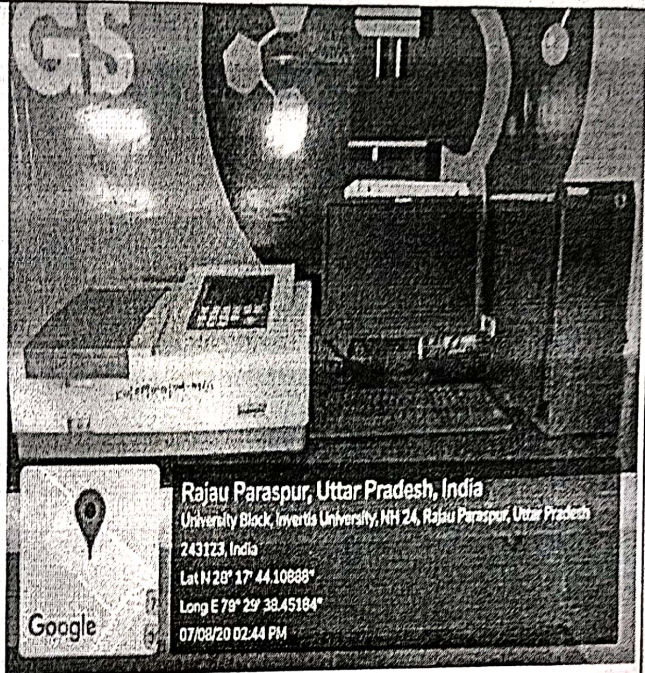


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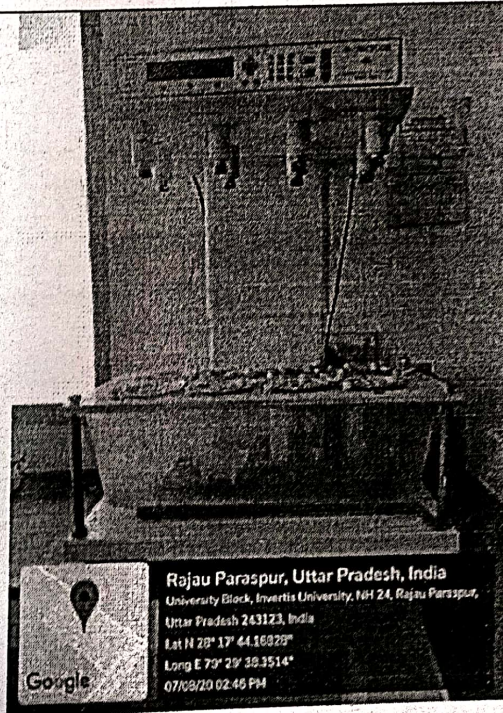
UV-Visible Spectrophotometer

Ultraviolet-Visible spectrophotometer refers to absorption spectroscopy or reflectance spectroscopy in part of the ultraviolet and the full, adjacent visible spectral regions. This means it uses light in the visible and adjacent ranges. The absorption or reflectance in the visible range directly affects the perceived color of the chemicals involved.



Dissolution Tester

In the pharmaceutical industry, drug dissolution testing is routinely used to provide critical information. Thus, the dissolution testing which is conducted in a dissolution apparatus must be able to provide accurate and reproducible results. This test is designed to determine compliance with the dissolution requirements for solid dosage forms administered orally.

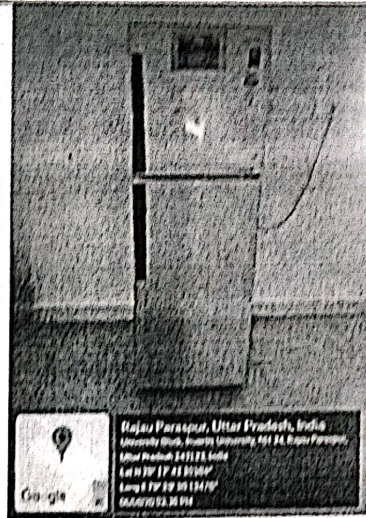


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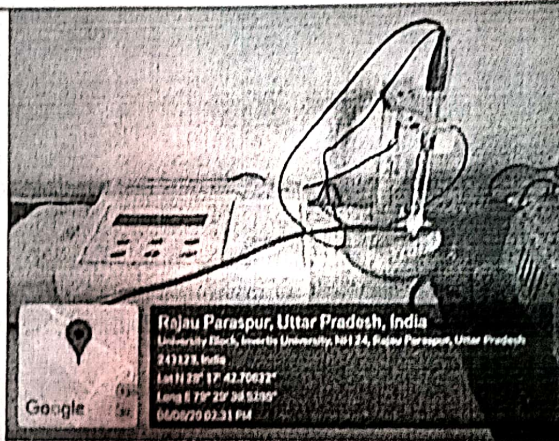
Fridge

Laboratory refrigerators are used to cool samples or specimens for preservation. They include refrigeration units for storing blood plasma and other blood products, as well as vaccines and other medical or pharmaceutical supplies.



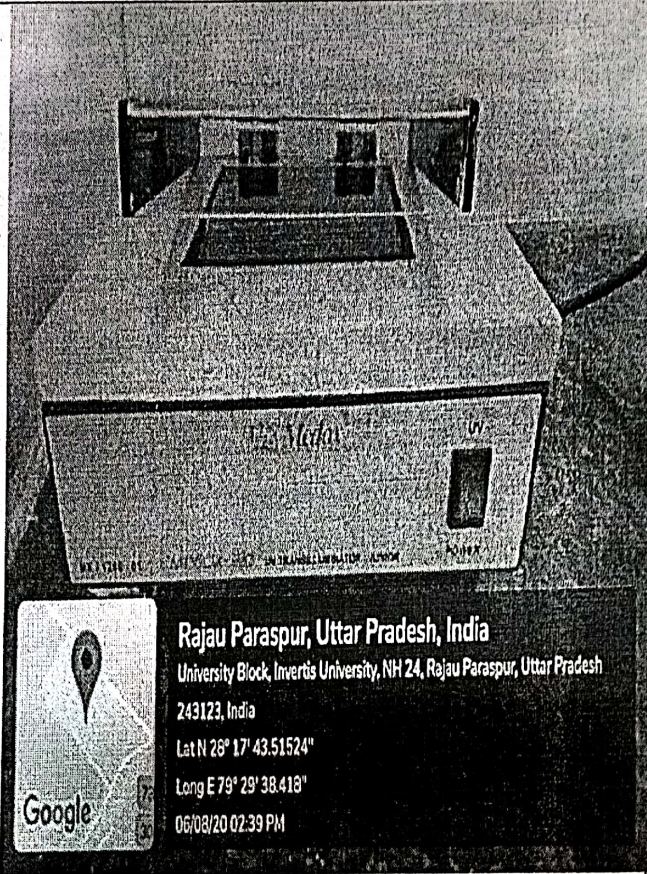
Digital pH Meter

A pH meter is a scientific instrument that measures the hydrogen-ion activity in water-based solutions, indicating its acidity or basicity expressed as pH. The pH meter measures the difference in electrical potential between a pH electrode and a reference electrode, and so the pH meter is sometimes referred to as a "potentiometric pH meter". The difference in electrical potential relates to the acidity or pH of the solution. The pH meter is used in many applications ranging from laboratory experimentation to quality control.



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<p style="text-align: center;">UV Transilluminator</p> <p>When stained with ethidium bromide, the gel is viewed with an ultraviolet (UV) transilluminator. The UV light excites the electrons within the aromatic ring of ethidium bromide, and once they return to the ground state, light is released, making the DNA and ethidium bromide complex fluoresce. Standard transilluminators use wavelengths of 302/312-nm (UV-B), however exposure of DNA to UV radiation for as little as 45 seconds can produce damage to DNA and affect subsequent procedures, for example reducing the efficiency of transformation, <i>invitro</i> transcription, and PCR.</p>	

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Autoclave

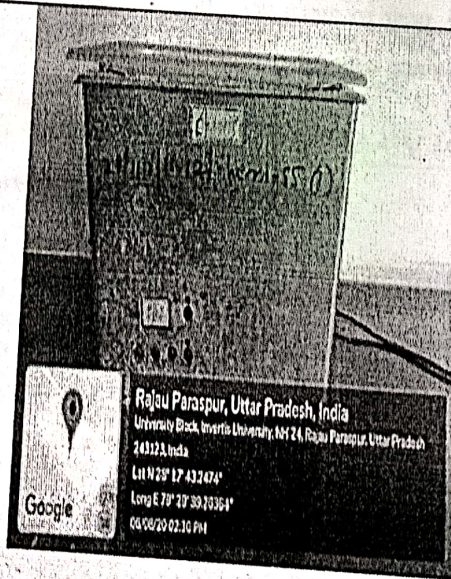
An autoclave is a machine used to carry out industrial and scientific processes requiring elevated temperature and pressure in relation to ambient pressure/temperature. Autoclaves are used in medical applications to perform sterilization and in the chemical industry to cure coatings and vulcanize rubber and for hydrothermal synthesis. Industrial autoclaves are used in industrial applications, especially in the manufacturing of composites. Many autoclaves are used to sterilize equipment and supplies by subjecting them to pressurized saturated steam at 121 °C (250 °F) for around 15–20 minutes depending on the size of the load and the contents

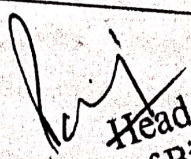


Ultrasonic Waterbath

Sonicator

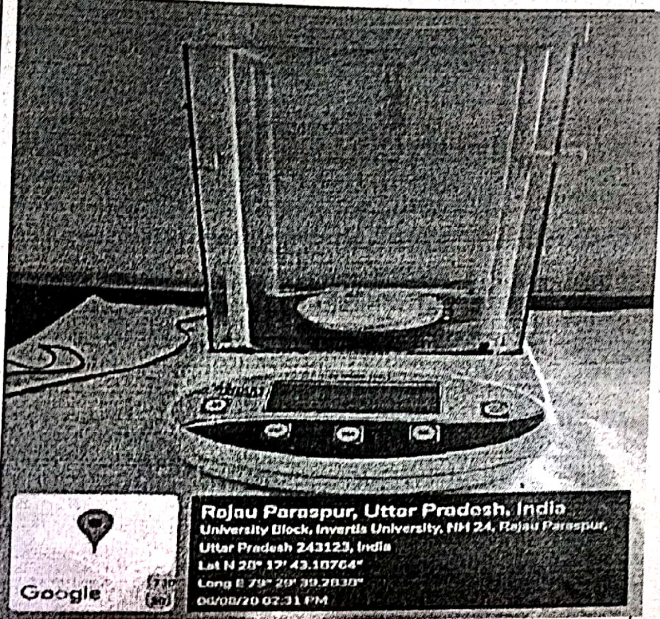
Degassing and defoaming of liquids is an interesting application of ultrasonic devices. In this case the ultrasound removes small suspended gas-bubbles from the liquid and reduces the level of dissolved gas below the natural equilibrium level.




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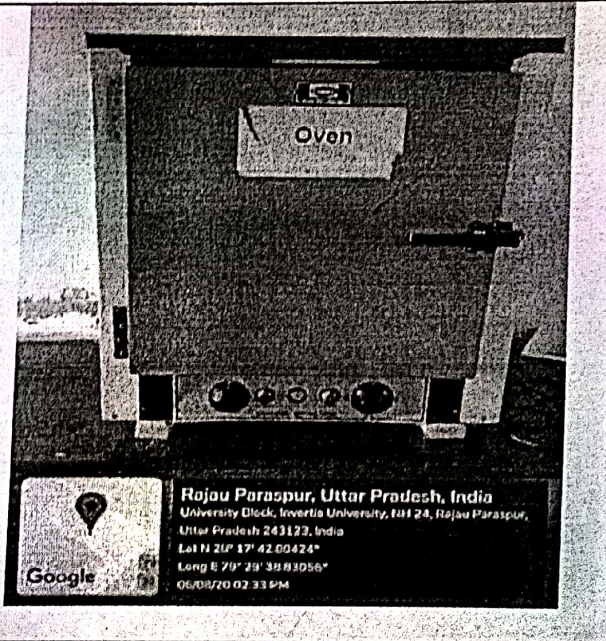
Weighing Machine

Weighting Scales are used to measure the weight of an item. The LAB scale is a high-precision analytical balance with a measuring range of up to 0.1 mg to 220 g.



Hot Air Oven

Hot air ovens are electrical devices which use dry heat to sterilize. They were originally developed by Pasteur. Generally, they use a thermostat to control the temperature. Their double walled insulation keeps the heat in and conserves energy, the inner layer being a poor conductor and outer layer being metallic.

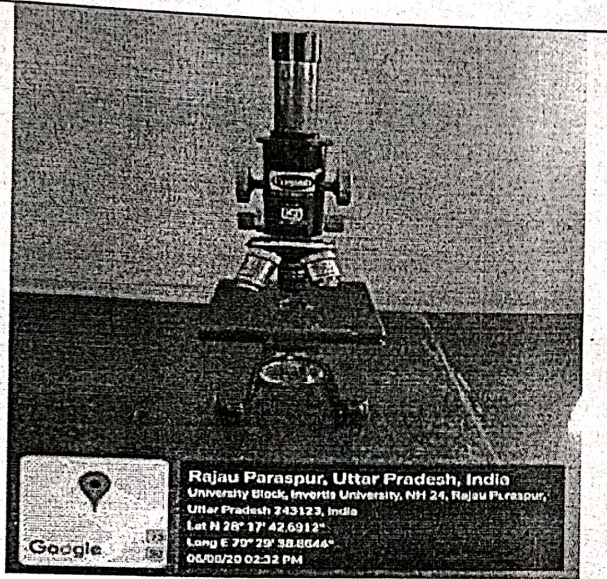


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Light Microscope

The optical microscope, also referred to as a light microscope, is a type of microscope that commonly uses visible light and a system of lenses to generate magnified images of small objects. Optical microscopes are the oldest design of microscope and were possibly invented in their present compound form in the 17th century. Basic optical microscopes can be very simple, although many complex designs aim to improve resolution and sample contrast. The object is placed on a stage and may be directly viewed through one or two eyepieces on the microscope.



Fluorescent Microscope

A fluorescence microscope is an optical microscope that uses fluorescence instead of, or in addition to, scattering, reflection, and attenuation or absorption, to study the properties of organic or inorganic substances. It generates an image, whether it is a more simple set up like an epifluorescence microscope or a more complicated design such as a confocal microscope, which uses optical sectioning to get better resolution of the fluorescence image.



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Vortex Mixer

A vortex mixer, or vortexer, is a simple device used commonly in laboratories to mix small vials of liquid. It consists of an electric motor with the drive shaft oriented vertically and attached to a cupped rubber piece mounted slightly off-center. As the motor runs the rubber piece oscillates rapidly in a circular motion. When a test tube or other appropriate container is pressed into the rubber cup (or touched to its edge) the motion is transmitted to the liquid inside and a vortex is created. Most vortex mixers are designed with 2 or 4-plate formats, have variable speed settings ranging from 100 to 3,200 rpm, and can be set to run continuously, or to run only when downward pressure is applied to the rubber piece.



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Table Top Centrifuge

A laboratory centrifuge is a piece of laboratory equipment, driven by a motor, which spins liquid samples at high speed. There are various types of centrifuges, depending on the size and the sample capacity. Like all other centrifuges, laboratory centrifuges work by the sedimentation principle, where the centripetal acceleration is used to separate substances of greater and lesser density.



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Centrifuges work by the sedimentation principle, where the centripetal acceleration is used to separate substances of greater and lesser density. Centrifuge rotors have tremendous kinetic energy during high speed rotation. Rotor failure, caused by mechanical stress from the high forces imparted by the motor, can occur due to manufacturing defects, routine wear and tear, or improper use and maintenance. Such a failure can be catastrophic failure, especially with larger centrifuges, and generally results in total destruction of the centrifuge.



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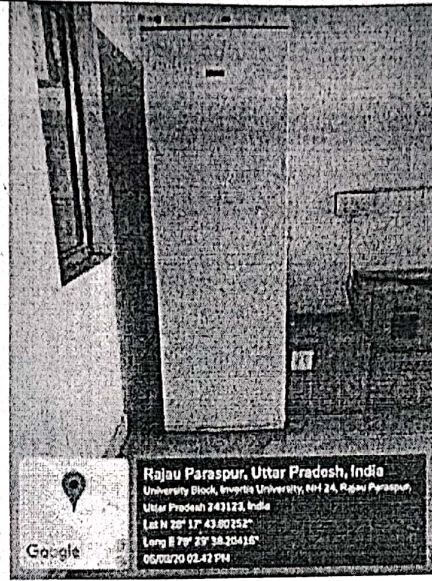


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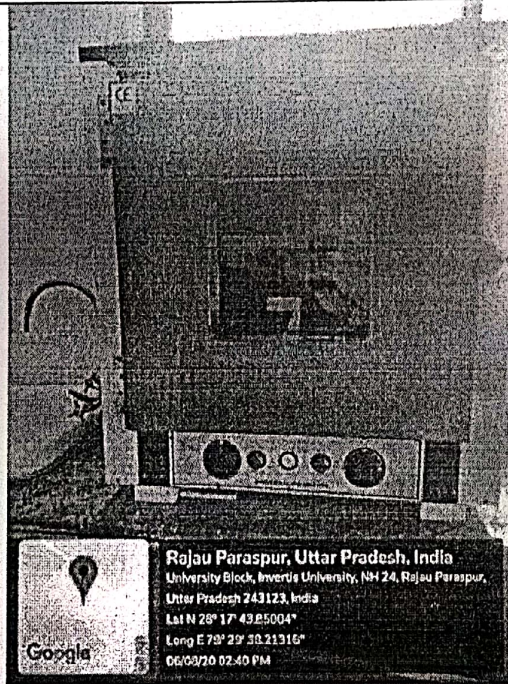
Deep Freezer(-20°C)

Laboratory Deep freezers play important role in safe storage of reagents, frozen vaccines and other temperature sensitive specimens for research purposes that require freezing temperature up to -20 degree.



Incubator

A laboratory incubator is a heated, insulated box used to grow and maintain microbiological or cell cultures. The incubator maintains optimal temperature, humidity and gaseous content of the atmosphere inside.



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