🡺 NAME MUHAAMMAD AWAIS

 🡺DEPT BS-MLT

 🡺ID 14629

 🡺INSTRUCTON: MAM SAIMA HADII

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 🡺PAPER: BIOLOGICAL/ LAB INSTRUMENTATION

Q NO.01:-

ANSWERNO.01:-

* PH-METER:-

 - PH-Meter was invented by the American chemist scientist her name is Sir, Arnold in 1934.

 It is used for measurement of PH of solution.

* VORTEX-MIXER:- (vortexer)

 A vortex mixer is a simple electric device which can use for commonly in laboratories to mix small vials of liquid.

* BALANCE:- (weighing-scale)

 This is a machine and used for measured to weight.

 Balance measuring machine the mass of the object and use in only for science.

* WATER STILL:-

 This is instrument machine and only used for laboratories purification of water. It is work for the principle of distillation.

* DEIONIZER:-

 This is also instrument of lab and used for purification of water.

 It is work for the principal of Deionization.

QNO.02:-

ANSWER NO:02:-

 🡺 ELECTROPHORESIS:-

 -Sir, Ferdinand F was proposed first theory of reuses by doing

 To experiment on migration of colloidal clayparticles.

 -Their term means is migration withelectricity.

 -There is involves the separation of sample components.

 -Differentiate in the presence of electric field.

 -Electrophoresis is migration of charge particles or molecules.

 -In medium under the influences of an applied electric field.

 🡺 IMPORTANT:-

 -Efficiency of high separation.

 -Short time of analysis.

 -Electrolyte consumption and Low sample.

 -Low generation waste.

 -Operation of Ease.

 -Used for the analysis of blood, pharmaceutical products.

 -The development of technologies to facilitate.

 -Electrophoretic separation of protein can replay on fundamental

 -Principles of chemical of chemical Eng.

QNO.03:-

ANSWER.03:-

 🡺FLOW-CYTOMETRY:-

 > Flow-cytometry is define as, there is a technology and

 -Used for the physical analysis and chemical characteristics of

 -Particles in a fluid and its pass through the least point on laser.

 > More than thousands if particles can be per-second are

 -analysed and get through the pass of liquidstream.

 > Excited by the laser to emit light at varying wavelengths of

 -cell components are the fluorescently labeled.

 🡺 MAIN CONTNT OF FLOW CYTOMETRY:-

* FLUIDICS:-

 >Fluidics system is to transport the particles in a stream of

 -Fluid to laser beam where they areinterrogated.

 > If a solid tissue from cell, they require disaggregation

 -analyzed can be before.

 >Section of fluid stream that contains particles is referred - to sample.

🡺OPTICAL SYSTEM:-

 >lasers which illuminate particles present in stream.

 >Through they can pass and scatter light from laser.

 >Flourescent molecules that are on particle emit

 -fluorescence, which is detected by carefully positioned

 -lenses.

 > Data collected on particle and each event to the

 Characteristics of those events or particles aredetermined

 based on their fluorescent and light scattering properties .

 🡺ELECTRONIC SYSYTEM:-

 >Used to change light signals anddetected into electronic

 - Pulses.

 >Data can then be studied to ascertain information about

 -the large number of cells over a short period of information

 -of heterogeneity and different subsets cell in population -can be measuered and identified.

 >Data are usually presented in the form of single parameter.

 > Data in the from of dot plot, a contour plot or a density

 -plot.

QNO.05:-

ANSWERNO.05:-

 🡺 AUTO-CLAVE:-

 >Autoclave is the sterilization and used for pressure chamber.

 >The instruments is also termed as sterilizer.

 >Instruments is first developed by the Dr.

 >It as a steam digester.

 >The steam digester was invented by 1879 by Dr. Charles

 -Chamberland.

 🡺 DEFINITION:-

 >Autoclave is a pressurized device designed to heat

 - aqueous solutions above their boiling point at normal

 - atmospheric pressure to achievesterilization.

 -AUTO 🡺 SELF

 -CLAVIS 🡺 SELF LOCKING DEVICE.

 🡺USESS:-

 >Surgical Instruments.

 >Plastic Sharps containers.

 >Glassware.

 >Solutions and water.

 >Animal food and bedding.

 >Biohazardous waste.

 🡺COMPONENTS:-

 >Pressure gauge.

 >Safety vave.

 >Autocalve Lid.

 > Handles.

 >Auto clave body.

 >Steam release body.

 >Vacuum Release valve.

 >Outer Stand.

 🡺PRINCIPLE:-

 > This principle is employed in sterilizing material by steam

 -at temperature higher than 100oC and the process is

 -called autoclaving.

 >For autoclaving in the laboratory, is the most agreeable

 - And commonly used method is to use steam at 121oC for

 -15 to 30 minutes depending upon the particular material

 -sterilized.

 > When its vapour water boils pressure equals the pressure

 of surrounding atmosphere.

QNO.04:-

ANSWER NO.04:-

 🡺BEER LAMBERT LAW:-

 >Beet Lambert Law was first discovered byJohn Hnrich Lambert

 -In 1760.

 🡺DEFINITION:-

 >The law sate that the quantity of light absorbed by a substance

 -which is dissolved in a fully transmitting solvent is directly

 -Properties to the concentration of the substances and

 -path of the light through the solution.

 🡺USES:-

 >Used to determine the concentration of a chemical species in

 -A solution using colorimeter andspectrophotometer.

 >Used in uv-visible absorption spectroscopy.

 🡺PRINCIPAL:-

 >For any particular wavelength.

 A=EBC 🡺 A= Absorbance.

 E= Molar absorptivity 🡪 ( mol /cm)

 B= Path length🡪