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🡺DATE /22/6/2020/

🡺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 clay particles.

-Their term means is migration with electricity.

-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 liquid stream.

> 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 are interrogated.

> 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 are determined

based on their fluorescent and light scattering properties .

🡺ELECTRONIC SYSYTEM:-

>Used to change light signals and detected 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. Denis Papin.

>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 achieve sterilization.

-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 by John 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 and spectrophotometer.

>Used in uv-visible absorption spectroscopy.

🡺PRINCIPAL:-

>For any particular wavelength.

A=EBC 🡺 A= Absorbance.

E= Molar absorptivity 🡪 ( mol /cm)

B= Path length🡪