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Paper: Lab instrumentation
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Q1.Define the following terms:

Ans:

i. PH Meter:

A pH meter,also called a pH tester,measures the acidity and alkalinity of a liquid and other substance,on a scale with a range of 0 to 14,where 7 is neutral,8 to 14 alkaline,and 0 to 6 acidic.

ii.Vortex Mixer:

A vortex mixer,or vortexer is a simple device used commonly in laboratories to mix the contents of small tubes of liquids by means of rapid oscillations.

iii. Balance:

A weighing scale is a device for measuring weight.Balance measure the mass of an object and are used in science.

iv.Water Still:

It is an instrument used in laboratory for Purification of water.It works on the principle of Distillation.

v.Deionizer:

An apparatus used to remove ions from a solution is known as Deionizer.

Q2.Describe Electrophoresis and it's importance?

Ans:Electrophoresis:

A method used in clinical and research laboratories for separating molecules according to their size and electrical charge.

Importance of Electrophoresis:

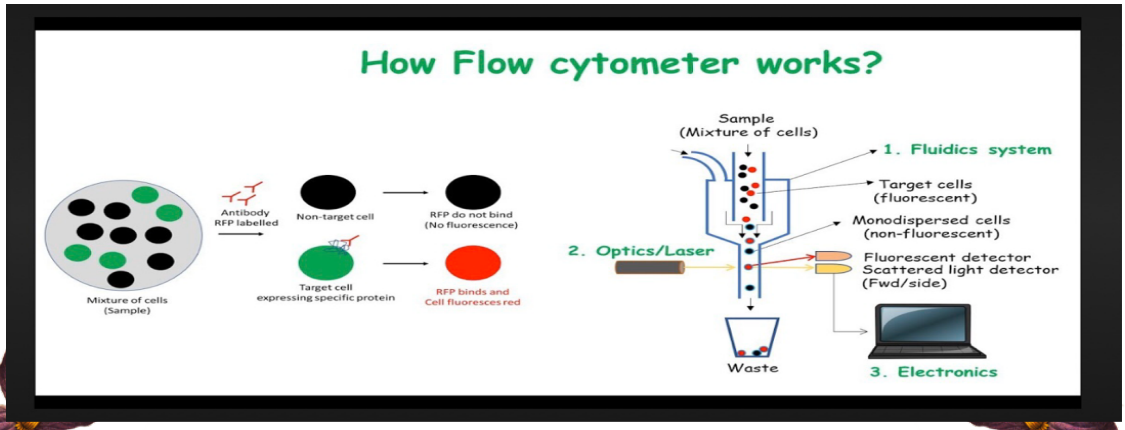
i.Electrophoresis of RNA is an integral procedure in many studies of gene expression.
ii.Purification and analysis of vaccine and antibiotics.
iii.Separation of proteins,DNA,RNA and other macromolecules.
iv.Many scientific questions can be answered using electrophoresis.

Q3.Write a note on Flow Cytometery?

Ans:Flow Cytometery:

- Flow cytometery is a technology that is used analyze physical and chemical characteristics of particles in a fluid as it passes through at least one laser.

- Cell components are fluorescence labelled and then excited by the laser to emit light at varying wavelengths.
- Up to thousands of particles per second can be analyzed as they pass via liquid stream.
- Examples of properties measured include particles relative granularity,size and fluorescence intensity as well as its internal complexity.
- Main contents of flow cytometery are:
  1.Fluidics.
  2.Optics system.
  3.Electronics system.



Q4.What do you know about Beer Lambert Law(uses,principle)?

Ans:Beer Lambert Law:

This law states that "absorbance of a light is directly proportional to the thickness of the media through which the light is being transmitted multiplied by the concentration of absorbing chromosphere".

Uses of Beer Lambert Law:

- Used in fields of chemistry,physics and meteorology.
- Used to measure the concentration of chemical solutions,to analyze oxidation,and to measure polymer degradation.
- Used by scientists to understand the attenuation of particle beams,such as neutrons.

Principle of Beer Lambert Law:

- Beer Lamber Law
- Is applicable for the clear solutions only with chemical deformation and reformations.
- Lamberts law is the relation between the total absorption of light and the path length through which the light traverse.
- Beers law is the relation between the absorption of light to the

concentration of the absorbing medium.

Q5.Explain Autoclave,it's uses and components?

Ans:Autoclave:

Autoclave is pressurized device designed to heat aqueous solution above their boiling point at normal atmospheric pressure to achieve sterilization.

Auto => Self

Clavis =>Self locking device

Uses of Autoclaving:

- Surgical instruments.
- Glassware.
- Plastic sharps container.
- Plastic tubes and pipette tips.
- Animal food and bedding.
- Solutions and water.
- Biohazard waste.

Components of Autoclaving: