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COURSE BIO MEDICAL INSTRUMENT

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QUESTION : 1 Define the following term ?

Answer : **PH METER** ; A pH meter is a device which are used to measure the hydrogen ion activity of a solution, its shows its acidity or basicity expressed as ph.

- The PH meter was built in 1934 the American chemist Arnold O Bechman.
- It is used for the diagnosis for various disorders in the human body.
- It is used in agriculture
- It is used in brewing.

VORTEX MIXER;

A vortex mixer is an instrument which are used commonly in laboratory to mix small vials of liquid.

USES : liquid mixing.

OTHER NAME : vortex shaker .

BALANCE :

A weight scale is an instrument which are used to measuring weight.

- Balance measure the weight of an objects and are used in science.

WATER STILL:

It is device which are used in laboratory for distillation of water .

USES : used for purification.

DEIONIZER:

It is an device which are used in laboratory for the purification.

- Deionizer is a process by which both positively and negatively charged ions are removed from water .

QUESTION :2 Describe electrophoresis and its importance ?

ANSWER : **ELECTROPHORESIS :**

Electro mean electricity,

Phoresis mean separation

It is a technique commonly used in the laboratory to separate charged molecules , like DNA according to size .

- It is also called gel electrophoresis
- It is also used to separate
- DNA
- RNA
- Protein.

IMPORTANCE OF ELECTROPHORESIS

It is used in DNA fingerprinting i.e

It is used for paternity testing

It is used for forensic study

Molecular biology, genetic code.

MECHANISM :

- Charged molecules move through the gel when the current is applied .
- One end of the gel is connected to the positive electrode and the other to the negative .
- Molecules migrate toward opposite charges .
- The gel consists of a permeable matrix.
- Smaller molecules move through the gel quickly and travel further than larger fragments.
- As a result, molecules are separated by size.

QUESTION 3 write a note on flow cytometry ?

ANSWER ; **CYTOMETRY**

Measuring the physical and chemical properties of a single cell is called cytometry.

FLOW CYTOMETRY :

Measuring the physical and chemical properties of a single cell in a fluid stream in instrument is called flow cytometry.

CLASSIFICATION :

Cytometry.

ANALYTES :

Cells , particles .

RELATED :

Coulter counted.

COMPONENTS FLOW CYTOMETRY :

- LASER
- DICHROIC
- MIRRORS
- FILTER DETECTOR

simple steps for flow cytometry.

We can start from tissue, cell any other sources of cells like culture cells etc.

Whatever source are starting from you have prepared cell suspension .

And this suspension prepared as sample and now put in flow cytometric cuvette.

And now placed in the flow cytometric . and after that flow cytometric is sucked up your sample and start the analyses.

Sample loading > flow chamber > light sources > scattering > light detector > computer .

QUESTION 4 WHAT DO YOU KNOW ABOUT BEER LAMBERT LAW (USES, PRINCIPLE) ?

ANSWER :

Beer Lambert law

The Beer Lambert law state that the quantity of a light absorbed by a substance dissolved in a fully transmitting solvent is directly proportional the concentration of substance and the path length of the light through the solution.

USES : COLORIMETRY : is the uses of the human eye to determine the concentration of coloured species.

SPECTROPHOTOMETRY;

It is the use of instrument to the same measurement.

PRINCIPLE :

When a monochromatic light passes through a coloured solution some specific wavelength of light is absorbed which is related to color intensity.

QUESTION 5 : EXPLAIN AUTOCLAVE , ITS USES AND COMPONENTS ?

ANSWER :

AUTOCLAVE

AUTO mean self

CLAVE mean self locking devices

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

USES

Sterilization

INVENTOR

Charles Chamberlain

RELATED ITEMS

Waste autoclave.

COMPONENTS OF AUTO CLAVE

- HEATING ELEMENT
- TEMPERATURE CONTROLLING
- PRESSURE SENSOR
- DOOR GASKET
- SOLENOID VALVE
- WATER LOAD SENSOR
- CHAMBER.

USES OF AUTO CLAVE

- It is used in surgical instruments.
- Used in glass ware
- Used in plastic sharp
- Used in animal food
- Used in breeding
- Used in industrial.

