 *IQRA NATIONAL UNIVERSITY*

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**Q1:**

**Ans :**

* **PH Meter:**
* A PH meter is an electronic device used for measuring the PH (acidity or alalinity)of a liquid (though special probes are some time used to measure the PH of semi-soild substance).
* A typical PH meter consists of a special measuring probes (a glass electrode) connected to an electronic meter that measure and displayes the PH reading.

**OR:**

PH stand for power of hydrogen .PH device use in laboratory for measurement of hydrogen in a solution.this device determine the acidity or basidity.

* **Vortex Mixer:**

Vertex mixer is a simple device use in laboratoy .this device use for mixing any solution or reagent . it completely opposite from the centrigue . centrifgue separate the solution component .and this deveice mix the component.

A vertex mixter , or vertex , is simple device used commonly in laboratoy to mix small vials of liquid.

* OR:

A vortex mixer, or vortexer, is a simple device used commonly in laboratories to mix small vials of liquid

* **Balance:**

A weighing scale is a device for measuring weight

Balance measure the mass of an object and are used in science.

* OR:

Balnance is a type of device use in laboratry . they measure weigth or mass . thses are also known weight scale , weigth balance ,mass balance.

* **Water Still :**

Water still also known as laboratory . that measure is a type of device use in laboratry they heat the water .water convert to volatile phase and also they separate into non- volatile impurites.

* **Deionizer :**

 an apparatus used to remove ions from a solution; a common variant contains a mixture of cation exchange resin in the acid form and anion exchange resin in the hydroxyl form inside a replaceable cartridge; ions in aqueous solution are exchanged for the elements of water by passing the solution through the mixed resin.

**Q2:**

**Ans : Electrophoresis:**

* Term means: migration with electricity.
* Involves the separation of components of a sample by differential rate of migration in the presence of electric field.
* Theory was first proposed by Prof Ferdinand F reuss by doing experiment on migration of colloidal clay particals.
* Gel electrophoresis is a separate techinque commonly used in lab .gel electrophoresis separation molecule DNA, RNA, PROTIEN, according to heir size .charge molecule movement through a gel an electric is pass across it.
* Why we say gel electrophoresis .beacuse in this method for molecule separation use gel . in this gel on we applied electric current one end of the gel has a postive charge and the other end of the gel has negative charge .
* Molecule has migratin towared oppostive charge . negative molecule pull towared the opposite charge .
* Electic current present on gel .molecule travel when an electric current pass across it .
* Smaller molecule migration gel more and large fragment that migrate very slowly.
* **Importance:**
* Gel electrophoresis is seprartion DNA fragment or other macromolecule such as protien RNA on the basic of size .
* The separation DNA fragment are obsevation with ethidium bromide solultion,
* The DNA band are cut from gel and purified .the DNA we got by gel electrophorsis can be used in constructing recominated by jiont them with cloing vector .
* The end of the gel with the wells is positioned towards the negative electrode. The end without wells (towards which the DNA fragments will migrate) is positioned towards the positive electrode.

**Q3:**

**Ans :Flow Cytometery:**

* Flow cytometer is a techinique used for measure chemical and physical characteric for different types of cell or particale.
* In this device process a simple containing cell or prictale is suspended in a fluid and injected in to the flow cytometer instrument . the instrument of light pss on the and other compontent . cell are often labedled with florescent marker so nlight is obserbed and then emitted in a band of wave lenth thousand of cell can be quickly examind and processed by a computer.
* **Component of flow cytometery:**
* Light source.
* Flow chamber.
* Optical system.
* Light detector.
* Computer.
* **Uses of flow cytometry :**
* Cell counting or similar quantification of cell.
* Cell sorting or separate the cell according to their type.
* Determine cell characteristics and their function .
* Detection of microoganism which exist in single celled or conyl of cell.
* Biometer detection indicated biology condition norml process.pathogenic process.
* Protien engineering detection understand on protien foilding protien designing .
* Diagnostic of health disorder such as blood.
* Flow cytometry instrument provide that quantification data from a simple.
* **Application of flow cytometery:**
* The techonolgy has appliction in a number of fild.
* Molecular biology,pathology,immunology and virology.
* Broad application in medicine in transplantation ,hematology,chemotherapy etc

**Q4:**

**Ans :**

* **Bee Lambert law**
* **Lambert’s law:**

When monochromatic radiation is passing through a medium the radiation with thickness of the medium is directly proportional to intensity of the incident radiation.

* Mathematically it could be expressed as

- dIo/ db=KTo

Final equation

IE = Io.10-kb (1)

* **Beer’s law:**

When a monochromatic radiation is passed through a transparent medium, rate of decrease in the intensity of radiation with the concentration of medium is directly proportional to the intensity of incident light

* Mathematically

-dIo**/**dc = kIo

Final equation

It = Io.10-KiiC  (2)

Combining equation (1) and (2)

Log ( Io / It) = kikiibC

A = abc

* **Uses:**
* Remove the curvettes from the instrument when not is use
* Use the correct type of curvette in the colorimeter as recommended by the manufacture.
* Read the user manual carefully.
* Bring filter into place before switching on the colorimeter
* Principal:
* Colored solutions have the property of absorbing certain wavelength of light when a monochromatic
* light is passed through
* The amount of light absorbed or transmitted by a colored solution is in accordance with two laws.
* The difference in color intensity results in the difference in the absorption of light.
* Involves the quantitative estimation of colors.

**Q5:**

**Ans :Auto clave:**

* Autoclave instrument also know as sterizal .Medical autoclave is a device use for the sterilizer equiment and other object.this mean that all virus,bacteria, funge and spori are inactivated.
* The autoclave was invented by charles land in 1879. The autoclave name come from grekword .
* **Auto** Self:
* **Clave** Self locking device.
* Types of auto clave:
* Different types of auto claves devence present.
* Present cooker type.
* Common lab autoclave.
* Vertile autoclave.
* Horizontal auto clave.
* Large atuo clave.
* **Uses of clave:Auto.**
* Surgical .
* Plastic Sharps containrs.
* Glassware .
* Plastic tube and pipette tips.
* Solution and Water.
* Animal food and bedding.
* Biohazardous waste.
* **Components of Auto clave:**
* Pressure Gauge.
* Safety valve.
* Autoclave.lid
* Handles.
* Autoclave body.
* Steam Release.
* Vacuum Release valve.
* Outer stand.
* Temperture controlleer.
* Water level sensor.
* Door gasket.