Final term exam

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Dep: BS MLT 4th

ASSIGNMENT Biomedical lab instrumentaion

**ssQ:-2**

**ELECTROPHORESIS**

* It is used for seferation and isolation of dna fregments
* Its means migration with electricity
* Thay separate the component of a sample with the help of electricity
* That theory descoverd by Fertdinand F reusswhen thay doing experiment on migration of colloidal clay particals

Molecule movement speed dependant on three things in the presence of electric field:-

* Molecule shape
* Molecule charge
* Molecule size

**IMPORTANCE**

* High seperation efficiency
* Thay have short anlysis time
* Low wast generation
* They have low sample and electrolyte consumption
* It is specially used for clinical investigation such as
* Seperation of glycoproteins
* Lipoproteins
* Heamoglobin from blood
* Serum analysis
* Myosin (muscle protein)
* Albumin(egg proteins)
* Casein(milk protein )
* Thay seperate DNA ,RNA and other macromolecules
* They can help in the analysis of vaccine and antibiotics.

**QUESTION NO :3**

**NOTE ON FLOW CYTOMETRY**

* It is a technology used to analyse chemical and physical charcteristics

Of partical in fluid

* This technique was first descover by wallace coulter in 1950s.
* And developed in the 1970s and applied to automated cell counting.

Three main system make up flowcytometer instrument ;-

**No 1:- The fliudics**

* Thay transport the particals in a stream of fluid to the laser

where thay are interograted

* That contain the particales as reffered to as the **sample core**
* The tiny stream of fluid take the cells past the laser light one cell at a time
* Solid tissue cells requaird disaggragation before thay can be analyse

**NO 2:-Optics system**

* It is made up of lasers
* They illuminate the particls which is present in the stream
* The light secttered from up more then six fluorescences is determined

For two different angles

* data can be collected on each particals
* characteristices of particls determined based on thier fluorescent and

light secttering properties.

**NO:3The electronic system**

* it is used to change the light signals detected into electronic pulses
* the data can be studied to ascertain information of cells over a short

period of time

* information of hetrogeneity within the cell can be identified
* data usually presented in the form of single parameter

which are refferd to cytogram

* cyto gram display data in the form of dot plat ,counter plat.

**QUESTION NO :4**

**B eer lambert law**

**INVENTION:-**

* It is dicovered by johann heinrich lambert in1760s

**Def:-**

* the law state that the quantites of light obserbed by a substance which is disolved ina fully transmitting solvent is directly proportional to the concentration of the substnce and the path of light through the solution.

**Uses:**

* use to determine the concentration of a chemical species in a solution using colorimeter and spectrophatometer
* used in UV- visible absorption spectroscopy

**principle:-**

FOR ANY PARTICULER WAVELENGTH:-

**Formola:- A=Ebc**

**A=** absorbance

E= moter absorbtivity

B =path length

C =concentration

QUESTION NO;-5

AUTO CLAVE

* It is a pressure chamber usedfor the sterlization
* Also called sterlizer
* Developed by dr:Danis papin and gave name as steam digester

DEF:-

Auto clave is a machine used steam under pressure to kill harmfull micro organisms

AUTO=SELF

CLAVE=SELF LOCKING DIVICE

* It is a pressurised device disigned to heat solution above thire boiling point at normal atmospheric pressure to acheive sterlization

USES

* SURGICAL instrumentation
* Plastic sharps continors
* Glassware
* Solution and water
* Animal food andbedding

Components:-

* PRESSURE gauge
* Safty valve
* Autoclave lid
* Hendles
* Autoclave body
* Stem release
* Vacuum release
* Outer stand

QUESTION NO 1;-

1. DIFINE PH METER

* PH meter is a electric divice which is used for the measurment of PH of solution
* Used to measured hydrogen ion activity-acidity in a solution

Discver in 1934 by the american scientist

(ii)**define VERTIX MIXRE**

DISCOVER in 1960s by juck A AND harold D –KRAFT both are brothers

DEF:-

Thevertix mixre is a vital peice of device communly found in research laboratory use to mix small vails of liquids

**(iii) define balance**

Balance used to measured the mass an object and are used in sceince

Or

It is a device used to measuring weight.

Invented by rechard salter in 1770s

(iv)**WATER STILL**

* A water still is adevice used in laboratoreis for purifecation of water
* HEATING WATER🡺STEAM🡺STEAM IS TUBE🡺LONDERING TO NEW PURIFEID WATER
* Water still are works an prenciple of distalation

(v)**DEIONIZER**

* Deionizer is a labortory instrument used for purification of water on the principal of deionization.
* Removal of all disolved salts from water is refered to as deionization.