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SUBJECT : BIOMEDICAL INSTRUMENTS

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QUSTION 1 : WHAT IS MICROSCOPE ? AND ALSO EXPALIN PRINCIPLE OF MICROSCOPE ?

Answer: MICROSCOPE:

- It is GREEK words (Micros) small (Skopien ) to see
- It is used for a magnify a small object several time bigger to visible by naked eye.

Principles of MICROSCOPE ;

Magnification : To magnify /enlarge the image

Resolution : It is used for the separate the details of two image/ object.

Contrast : It is used the difference in light intensity between image and background intensity.

QUESTION :2 Describe chromatography and also explain its phases ?

Answer: Chromatography : It is derived from GREEK word (chroma) mean color and (Graphien) mean to write .

It is the collective term for a set of laboratory techniques for the separation mixture.

Phases of Chromatography : There are two phase

Mobile phase: The liquid or gas that flows through Chromatography system

Stationary phase: The solid or liquid phase of Chromatography on which the materials to be separated are selectively absorbed.

QUESTION 3 :Write down the application of flame photometery ?

ANSWER : APPLICATIONS OF FLAMEPHOTOMETERY:

- Flamephotometer can be applied both for quntative and qualatative analysis of elements.
- Soft drinks ,fruit juice and alcoholic beverages can also be analysed by using flame photometery to determine the concentrations of various metals and elements.
- In cement industry it is used for the Review of sodium, potassium or calcium contact in the construction and cement industries
- In the environmental analysis it is used for the laboratory measurement for the determination of alkali and alkaline metal .

QUESTION 4 Explain the components of centrifuges ?

ANSWER : Centrifuges :It is techniques which involves the application of centrifugal force to separate particles from solution according to their sizes, density, shape and viscosity of the medium and rotor speed.

COMPONENTS OF CENTRIFUGES :

- There are three basic components :
- A rotor
- A drive shaft
- A motor

The rotor holds the tubes , bottles bag containing the liquids to be centrifuged .

Different rotor types and sizes, interchangeable with one another can be mounted on the drive shaft, which connects to the motor.

The motor provides the power to turn the rotor.

QUESTION 5: Write note on water bath ?

ANSWER :Water Bath: water bath is an instrument which is used to incubate the tube or sample at constant temperature. Water bath is filled with water in which tube are kept. Water bath maintain constant temperature of water which maintain the temperature of tube.

Components of water bath:

Trough: It is made of insulated metal usually stainless steel or heat _ resistant glass with / without, an insulated lid.

ELECTRICAL ELEMENTS: It is used to heat the water contain in the trough, it helps to maintain the water . it constant temperature.

STRIZER: it is used to circulate the water trough in order to maintain uniform temperature

THERMOMETER : it is used to detect the temperature of the water .

USES OF WATER BATH : It is used for histology procedure.

It is used for warming blood bag blood.

It is used for the incubation of test such as PT,ATTP and COOMBS test .

It provide indirect heat.

QUESTION : 6 EXPLAIN THE TYPES OF CENTRIFUGES :

ANSWER : TYPES OF CENTRIFUGES :

There are the following types of centrifuges

LOW SPEED CENTRIFUGE: It is used to centrifuge routine sedimentation of heavy metal.

low speed centrifuge has maximum speed of 4000 _ 5000 RPM.

It is used for sedimentation of red blood cells.

HIGH SPEED CENTRIFUGE :

The high speed centrifuge has maximum speed of 15,000 _ 20,000RPM.

High speed centrifuge are used In more sophisticated biochemical application , higher speed and temperature control of the rotor chamber are essential

ULTRACENTRIFUGE :

Ultracentrifuge has a maximum speed of 65,000RPM.

Intense heat is generated due to high speed this the spinning chambers must be refrigerated and kept at a high vacuum

It is used for bath preparative work and analytical work.