# BIOINSTRUMENTATION

## 22ZOOVC19

# UNIT-1

## BIOINSTRUMENTATION

Bioinstrumentation is used in space mainly to monitor the health status of the crew and for research purposes.

## INSIGHTS

•Provides detailed insights into a variety of biomedical instruments for use in different medical areas such as radiology, cardiology and physiotherapy

•Equips researchers with an understanding of the working principles of various instruments, thus preparing them for the future development and design of innovative devices in the health domain

•Contains various mathematical derivations and numerical data that connect theory with the practical environment

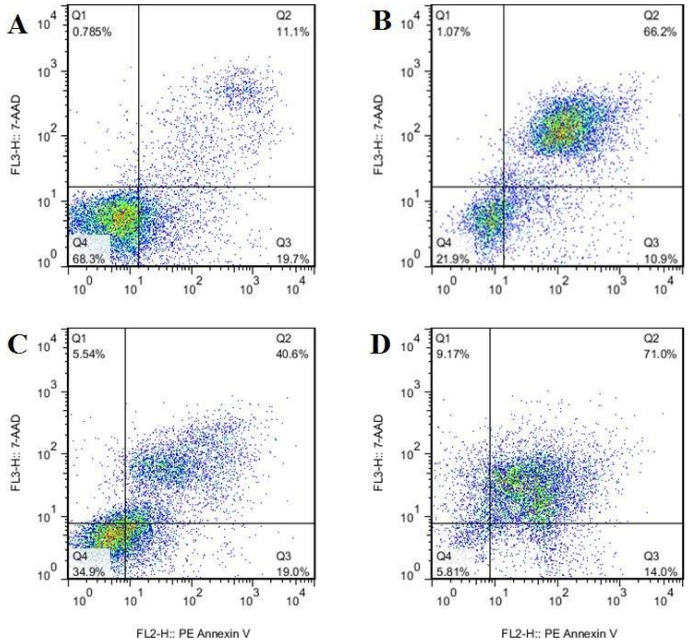
# The Metric System

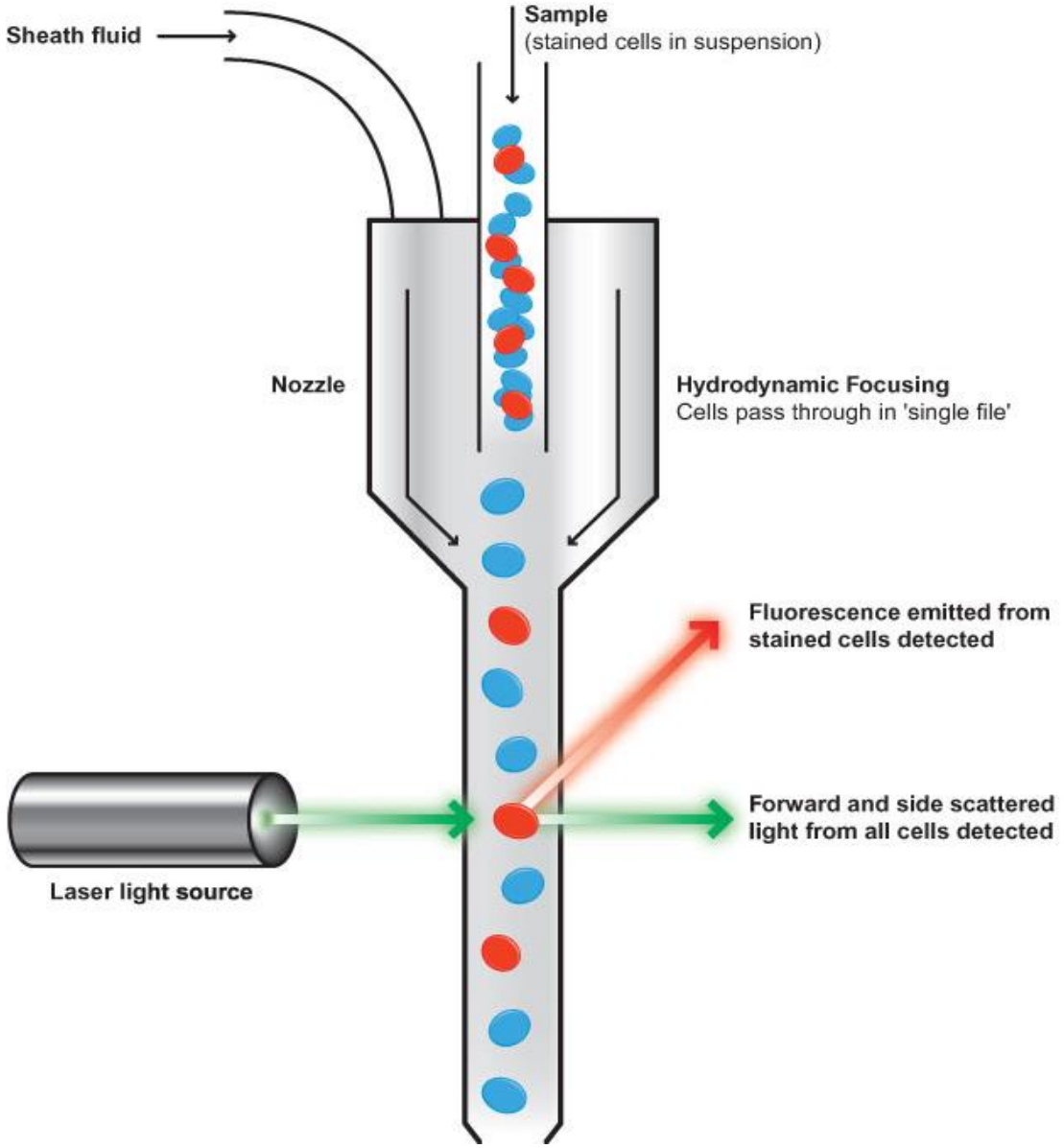
mega- 10,000
kilo- 1,000
hect- 100
deca- 10
liter, meter, gram- 1
deci- .1
centi- .01
milli- .001
micro- .0001

# UNIT METRIC
## CONVERSION CHART

| Prefix | Abbr. | Exponential Factor | Conversion Factor | (Multiply by) |
|---|---|---|---|---|
| tera | T | $10^{12}$ | 1 000 000 000 000 | a trillion |
| giga | G | $10^{9}$ | 1 000 000 000 | a billion |
| mega | M | $10^{6}$ | 1 000 000 | a million |
| kilo | k | $10^{3}$ | 1 000 | a thousand |
| hecta | h | $10^{2}$ | 100 | a hundred |
| deka | da | $10^{1}$ | 10 | a ten |
| — | — | $10^{0}$ | 1 | a unit |
| deci | d | $10^{-1}$ | 0.1 | a tenth |
| centi | c | $10^{-2}$ | 0.01 | a hundredth |
| milli | m | $10^{-3}$ | 0.001 | a thousandth |
| micro | | $10^{-6}$ | 0.000 001 | a millionth |
| nano | n | $10^{-9}$ | 0.000 000 001 | a billionth |
| pico | p | $10^{-12}$ | 0.000 000 000 001 | a a trillionth |

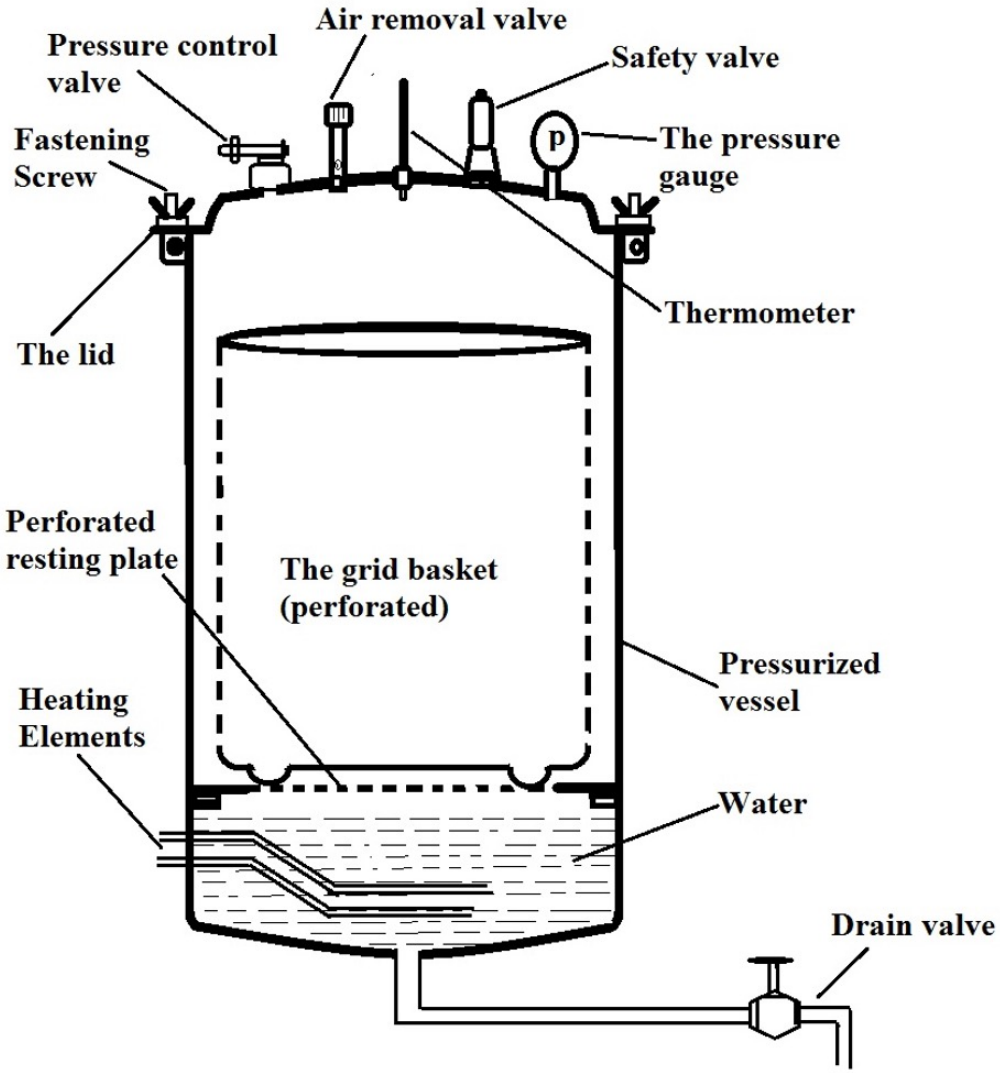
# FLOW CYTOMETRY



# UNIT-II

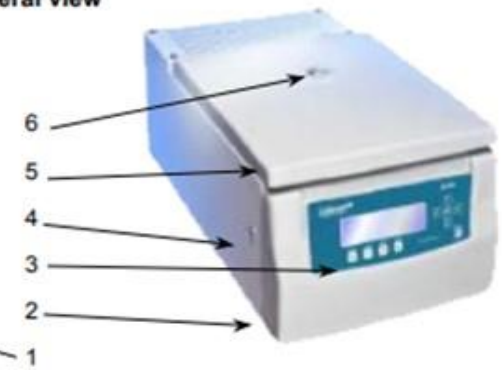
## AUTOCLAVE



# CENTRIFUGE

1

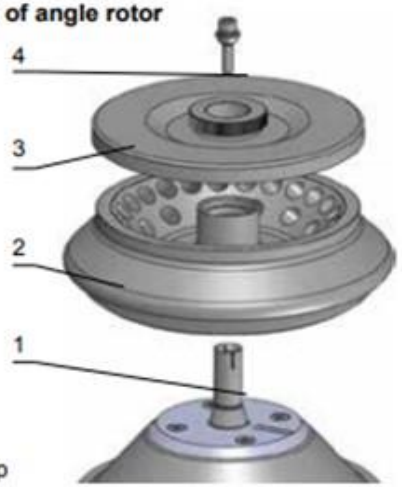
Fig.1. General view




1. Power switch
2. USB
3. Control panel
4. Point of emergency lid opening
5. Lid
6. Inspection glass

Fig.2. Right side of centrifuge

Fig.3. Assembly of angle rotor

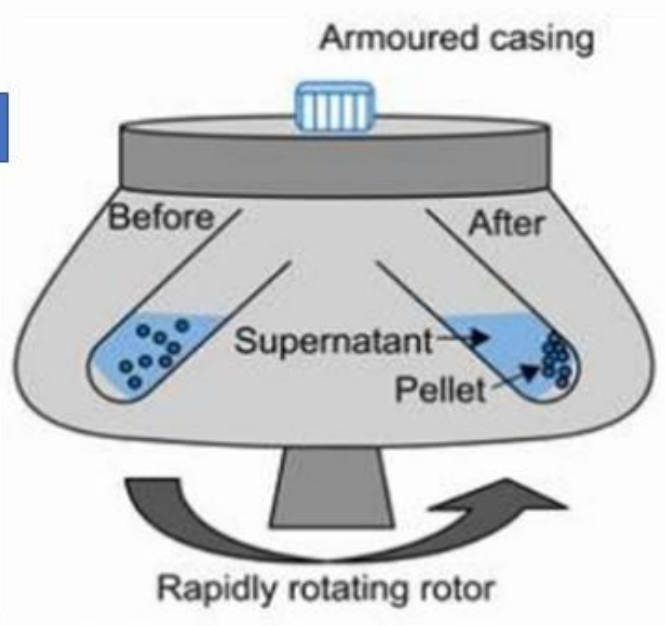



1. Motor axle
2. Rotor
3. Rotor lid
4. Complete clamp

Fig.4. Mains socket back of the centrifuge


1. Main socket
2. Fuse socket

2

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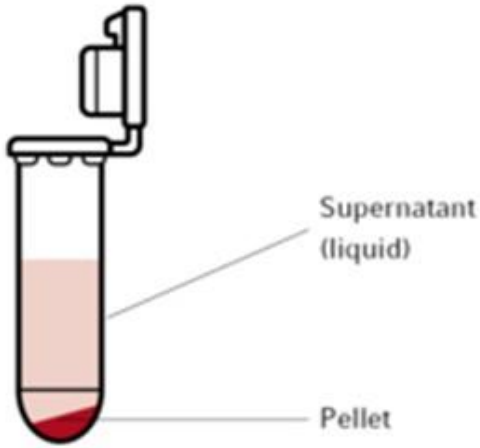
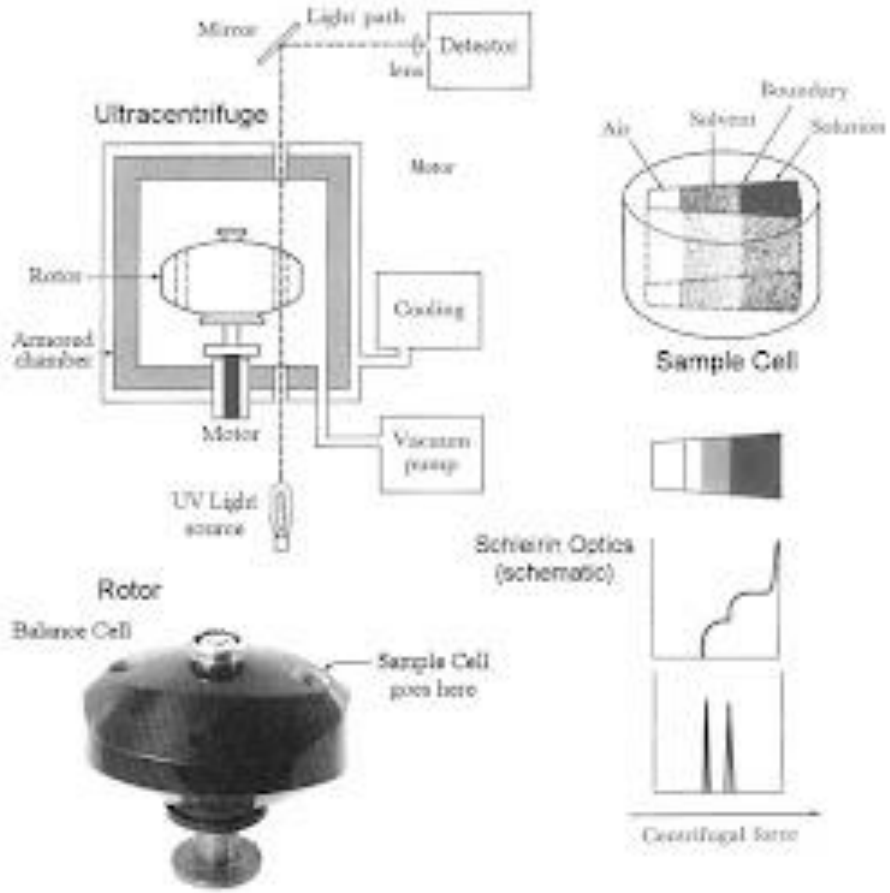
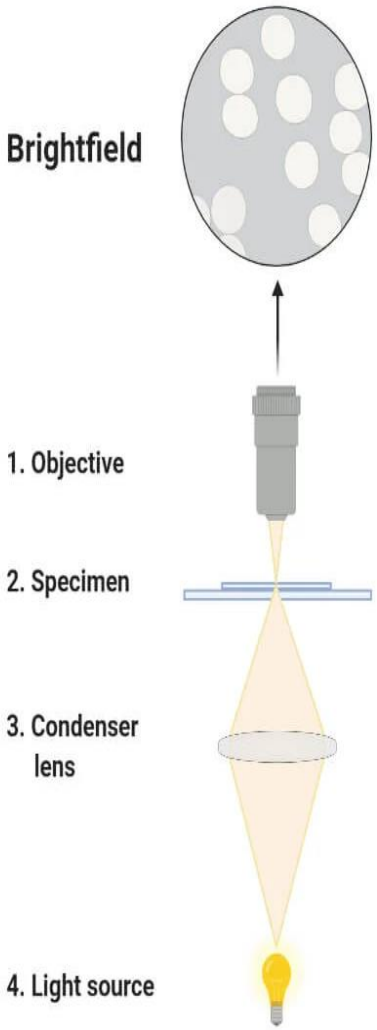


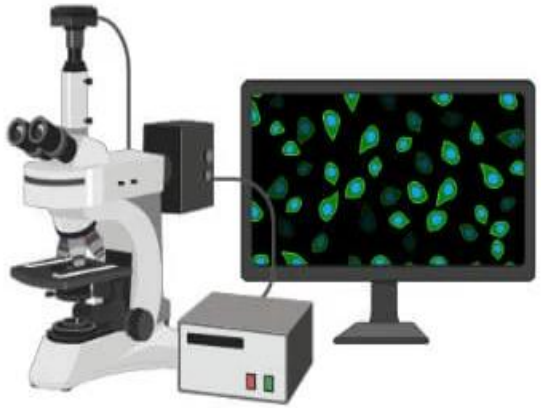
# ULTRACENTRIFUGE




# UNIT III

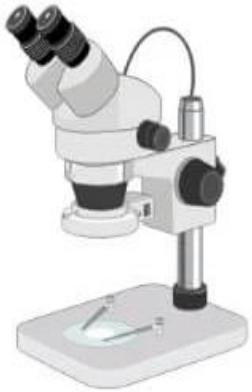



Light Microscope

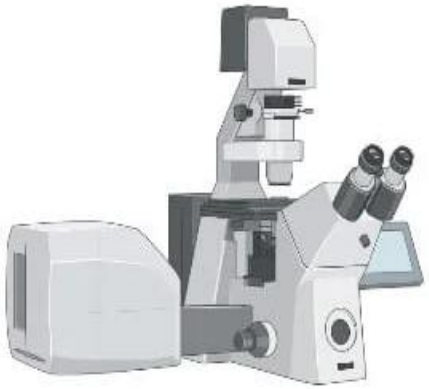


Fluorescence Microscope

Electon Microscope



Stereo Microscope



Confocal Microscope

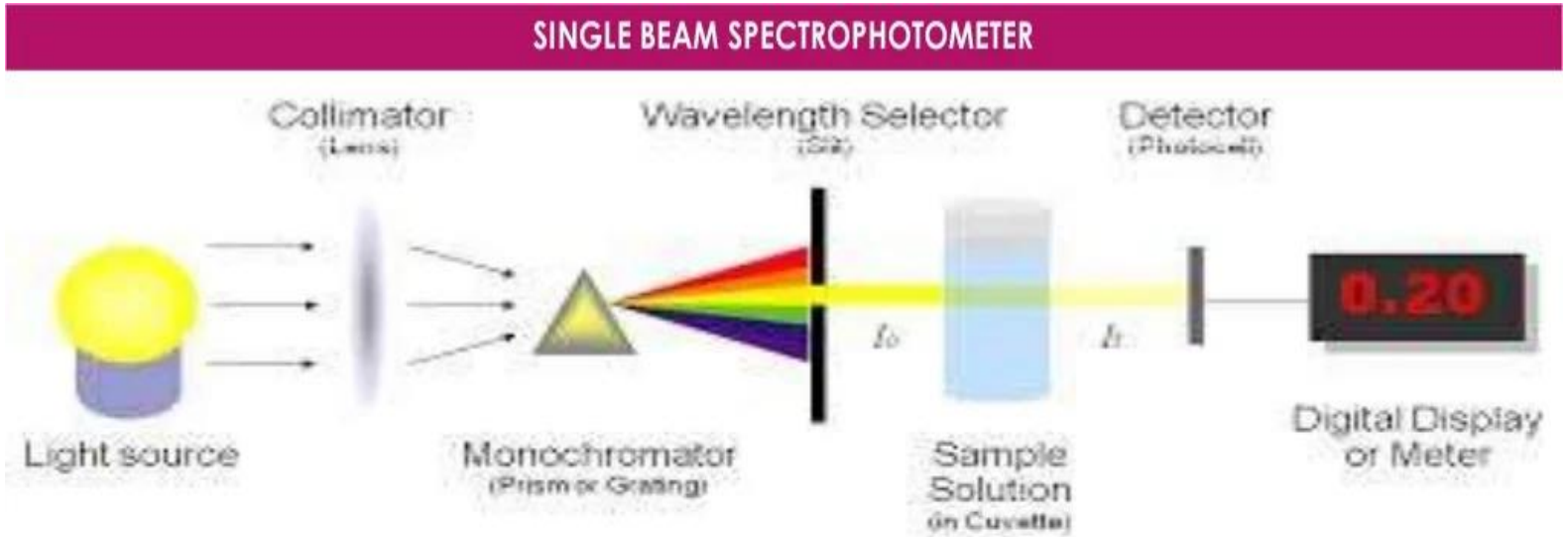
Atomic Force Microscope

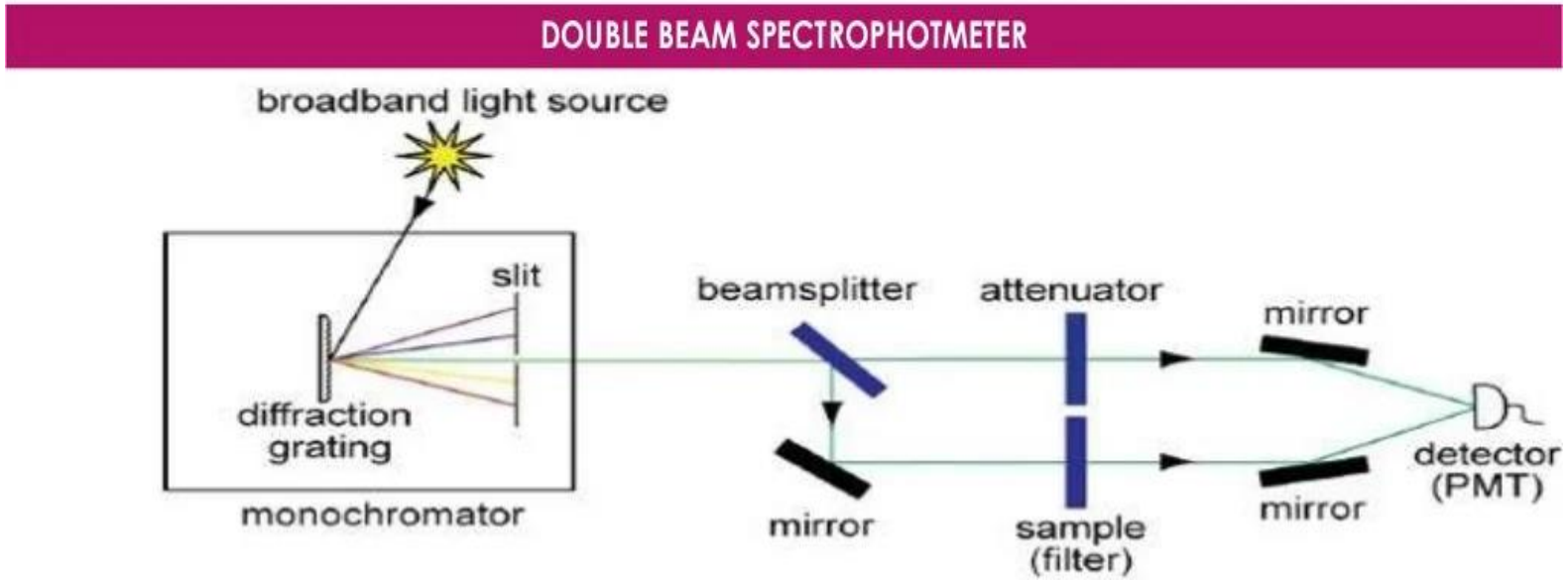
Inverted Microscope

Retinal Imaging Microscope

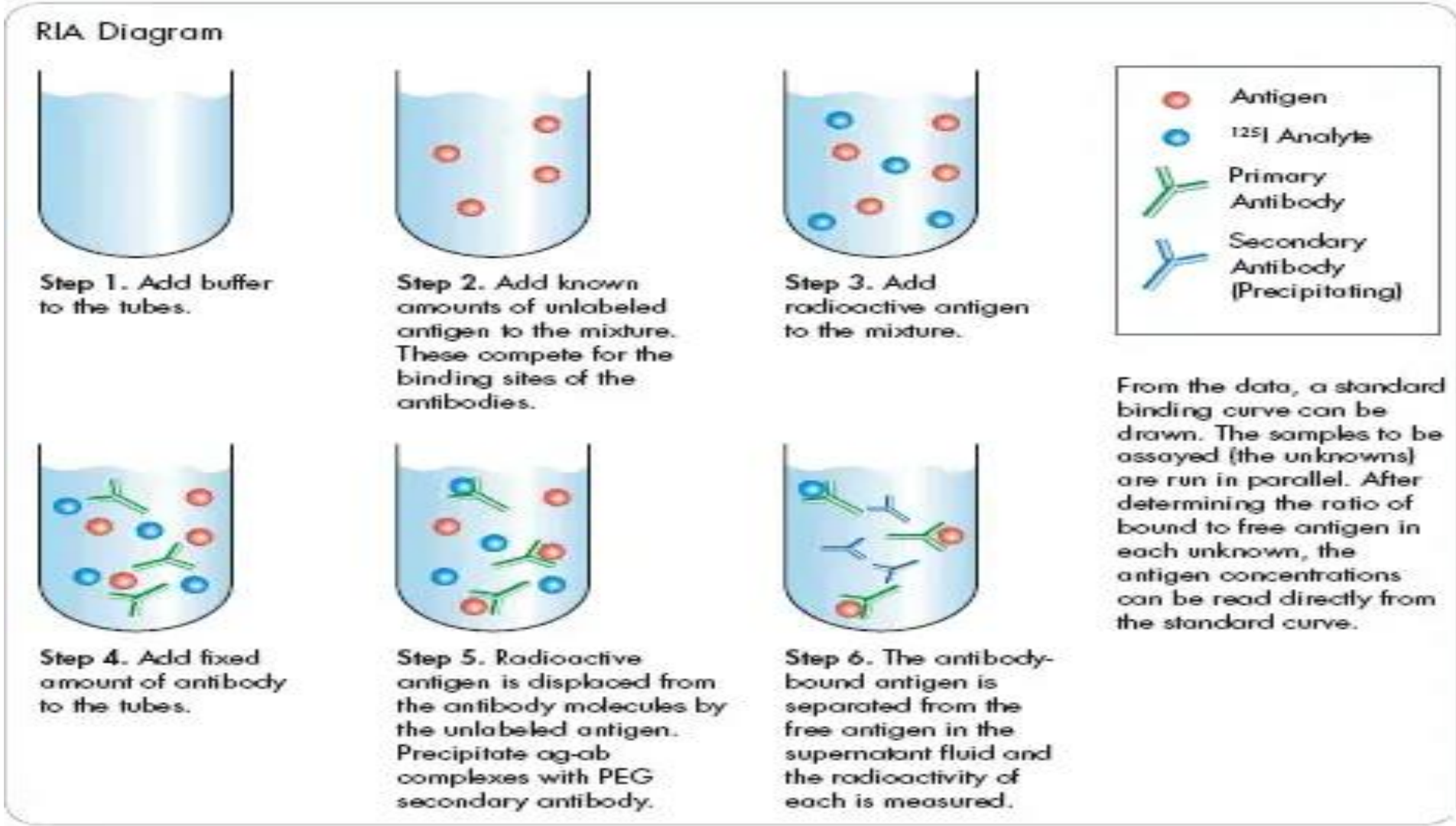
# UNIT-IV

## SPECTROSCOPY



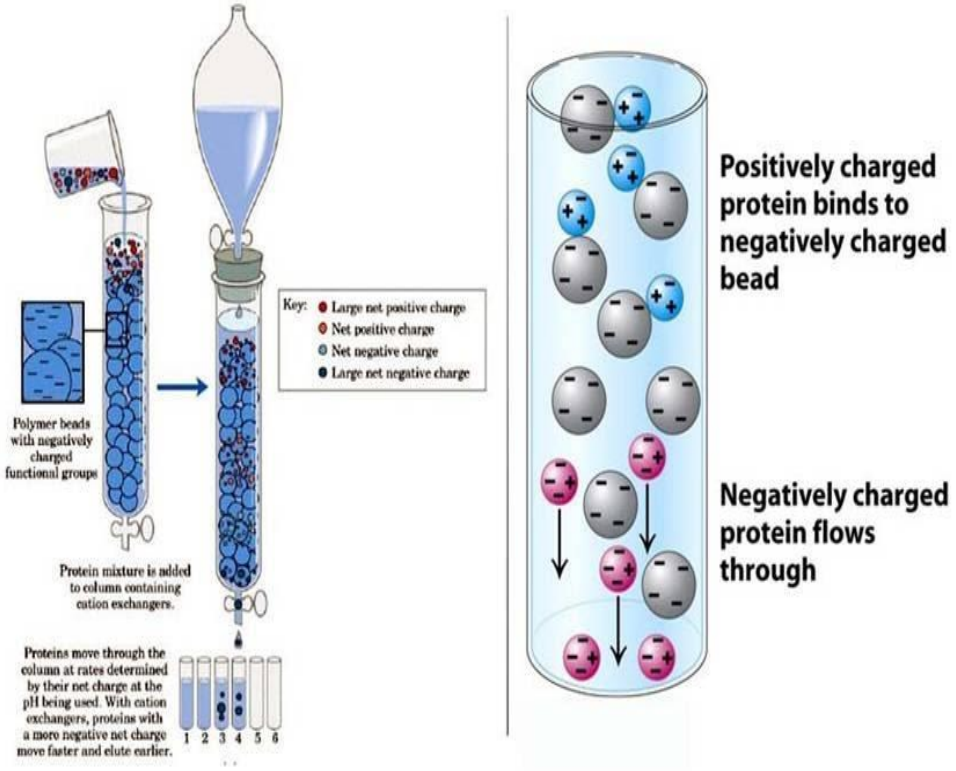



# RADIOIMMUNO ASSAY



# UNIT-V

## Ion Exchange Chromatography Principle

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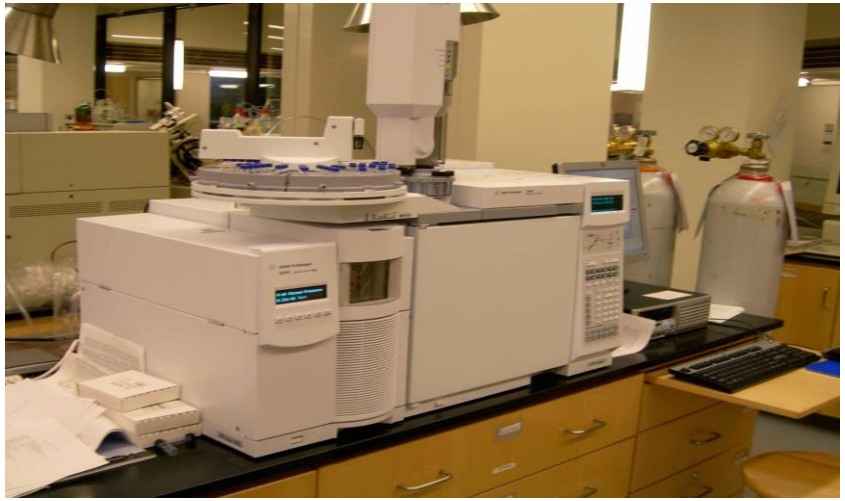
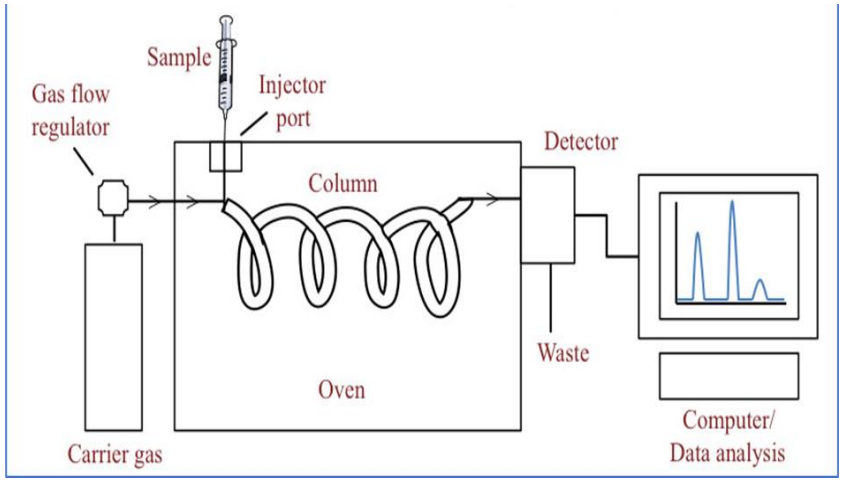
## GAS CHROMOTOGRAPHY





# High Performance Liquid Chromatography (HPLC)