

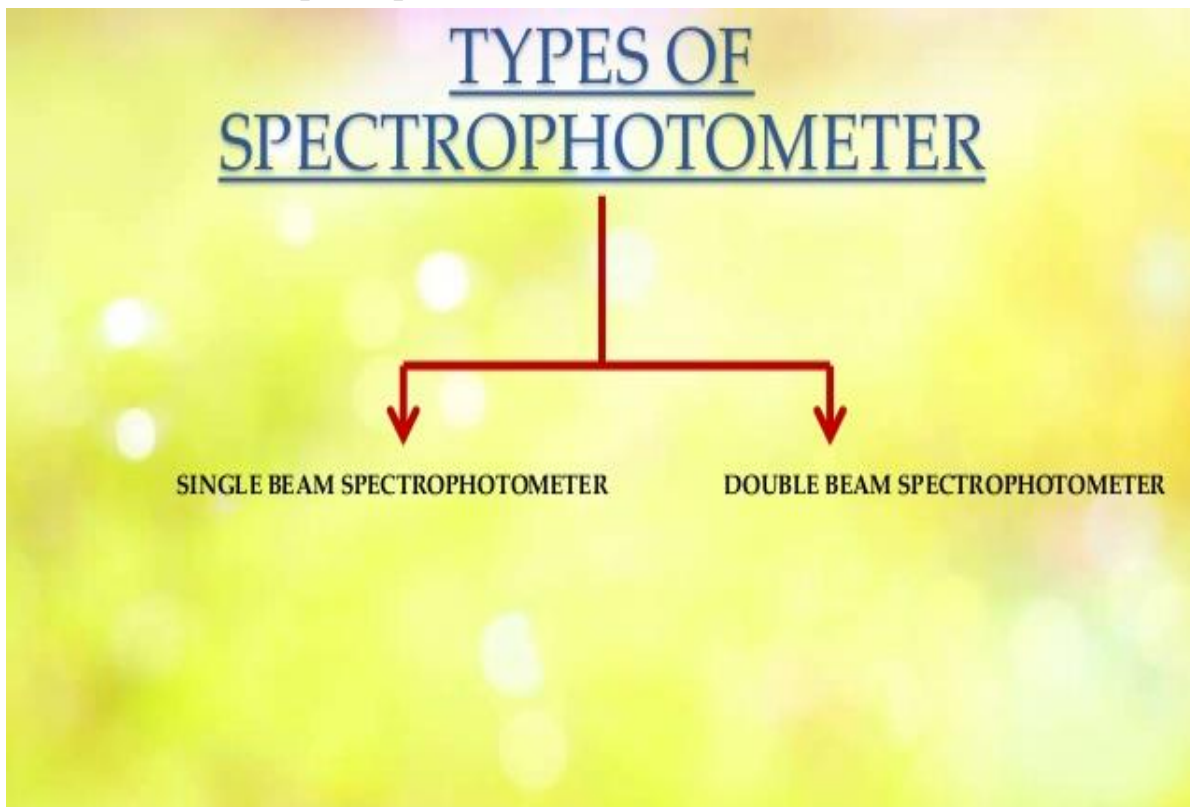
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TYPES OF SPECTROPHOTOMETER

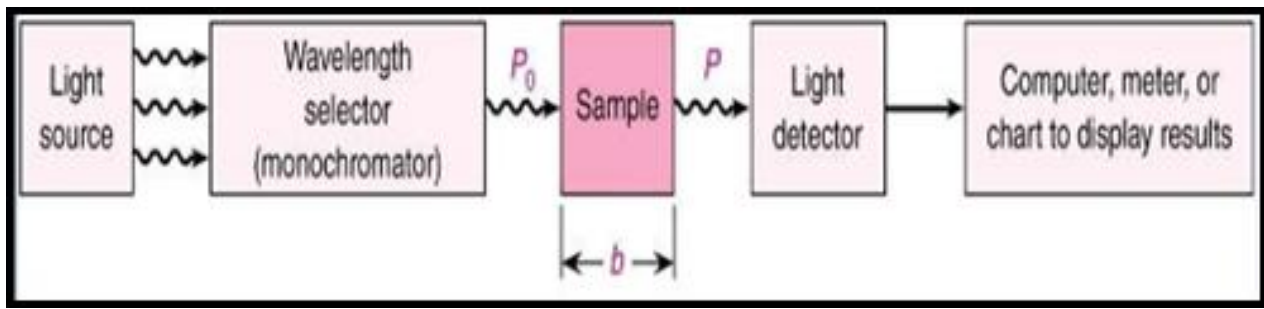
Spectrophotometer is of two types :

- Single beam spectrophotometer
- Double beam spectrophotometer



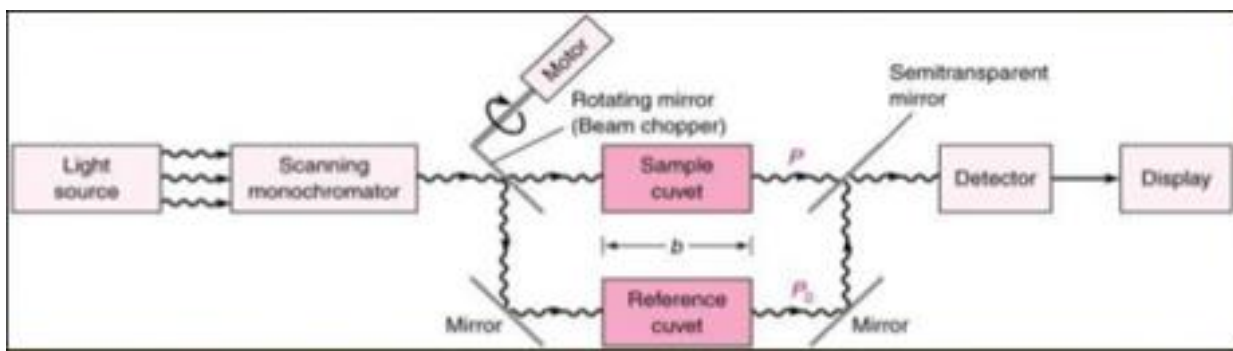
1. SINGLE BEAM SPECTROPHOTOMETER

- ❖ It operates between 325-1000nm wavelength. To measure the intensity of the incident light the sample must be removed so that the reference can be placed each time as it possess only one photo cell.
- ❖ This type of spectrophotometer is usually less expensive and less complicated.
- ❖ In this type we get only 1 reading at a time.



2. DOUBLE BEAM SPECTROPHOTOMETER

- ❖ It operates between 485-1000nm wavelength. It has 2 photocells and it splits the lights into 2 beams. From these one beam passes through the sample and second one is used for reference.
- ❖ This gives an advantage of taking the reference reading and sample reading simultaneously.



APPLICATIONS OF THE SPECTROPHOTOMETER.

- The spectrophotometer is commonly used for the determination of the concentration of coloured as well as colourless compounds by measuring the optical density or its absorbance.
 - It is used for determination of the course of the reaction by measuring the rate of formation and disappearance of the light absorbing compound in the range of the visible & UV region of electromagnetic spectrum.
 - It is used in forensic sciences.
 - It is used in molecular biology. We can measure the growth of microorganisms like bacteria by spectrophotometer.
 - UV - spectrophotometer is used in pharmaceutical industry to determine the composition of the drugs.
 - It is used in foods and paints industry.
 - It is used in water quality check.
 - Blood is analysed by spectrophotometer.
 - It is used in diagnosis of diseases.
 - It is used in detection of impurities in organic compounds.
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