Liquid Chromatography

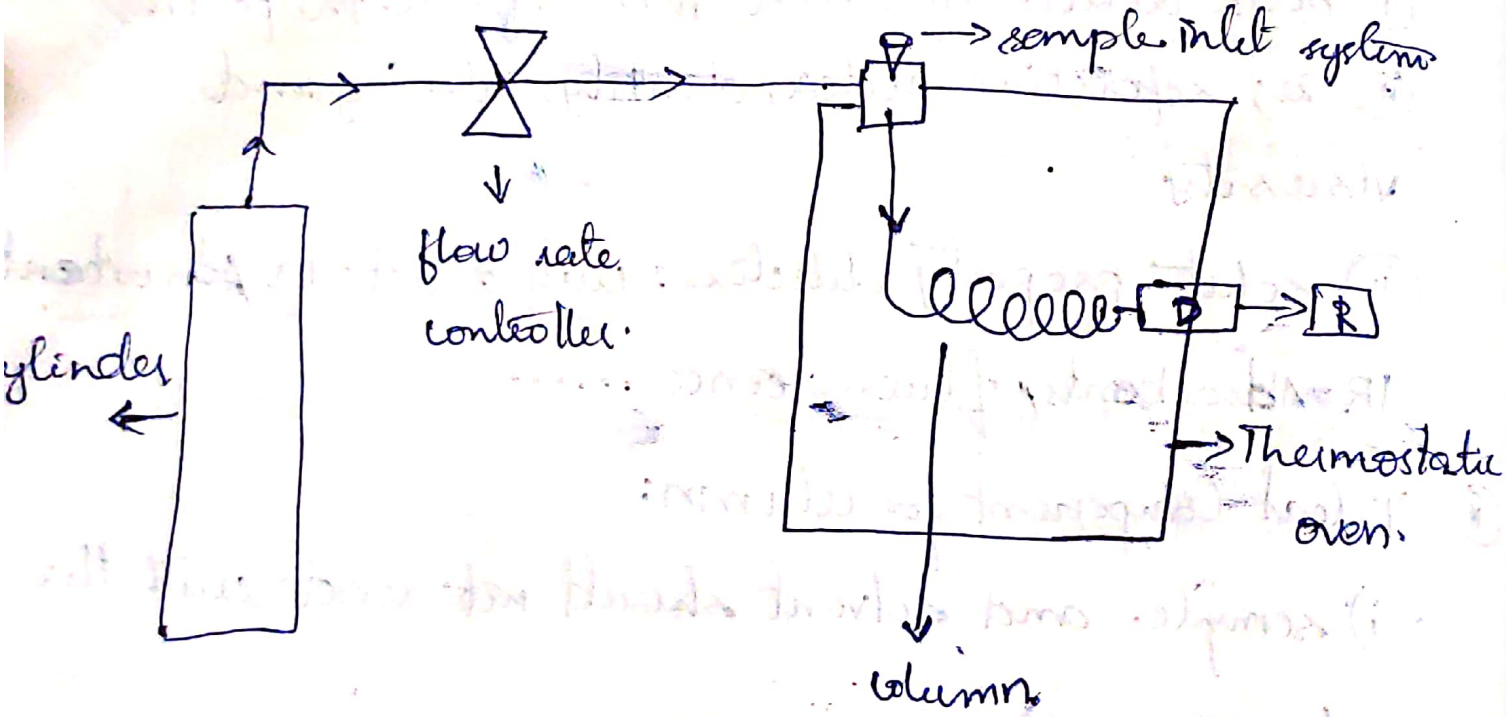
(HPLC)

MP	SP	principle
Liquid	solid	Adsorption
liquid	liquid	Partition

Gas Chromatography

MP	SP	principle
gas	solid	Adsorption
gas	liquid	partition

Gaschromatography



① Carrier gas housed in cylinder. gas will be inert in nature.

② GC consists of Column, sample inlet system, detector, column oven, amplifier, recorder or read out, flow rate controller

③ The sample used must be an organic compound.

④ The sample should be able to volatilise but not thermaly labile.

⑤ gases used are inert, ie; helium, Argon, hydrogen, nitrogen. Helium and hydrogen are commonly used although helium is more efficient.

Characteristics of ideal gas.

① It should be inert.

② should be stable.

③ should provide flow rate

④ should provide reproducibility

⑤ Nitrogen is less sensitive ∴ It is least used.

⑥ Hydrogen is more advantageous but is dangerous.

⑦ Helium is preffered bgut is expensive, it has excellent thermal conductivity in a low density and allows greater flow rate.

② Sample inlet system

sample is injected using syringe.

Column

(CSP) - diatomaceous earth used is

column are of two types:

i) packed column which is less efficient.

ii) capillary or open tubular column which is more efficient.

Control of temperature in Oven is Obtained through thermostatic Oven.

sample separated is recognised by detector which is then converted to electrical signals and then amplify and then converted to digital signal and is plotted by a computer as a Chromatogram and is recorded.

sample inserted should be volatile and thermaly stable.

Hyperdermic capillary microsyringe is used to insert the sample.

it is boiled at a high temperature to form vapours of the liquid at a time.

Columns vary in length from less than 2m to 50m and more. They can be made up of

stainless steel, glass, fused silica, or Teflon.

Capillary columns are also known as Golay columns.

glass is resistant to chemical etching, hence it is more offenly used.

detectors used are ① flame ionization detector, ② thermal conductivity detector, ③ electron capture detector.

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