GOVERNMENT DEGREE COLLEGE

MUMMIDIVARAM

DEPARTMENT OF CHEMISTRY

ASSIGNMENTS:: 2024-2025

I B.Sc.(Chemistry)

I - SEMESTER

Assignment topics given to the students

S.NO.	DATE	ASSIGNMENT TOPIC	REMARKS
1.	21-10-2024	Quantum Numbers & its significance	-
2.	30-10-2024	Electronic configuration Aufbau principle,Hund's rule,Pauli exclusion principle	-
3.	06-11-2024	Vitamins	-
4.	25-11-2024	Scope of chemistry	-
5.	30-11-2024	Carbohydrates	-
6.	02-12-2024	Industrical chemistry & its applications	-

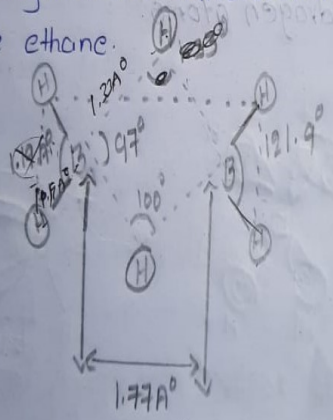
Assignment writing session - Enhancing knowledge and Skills

Assignment sample

* Explain the structure of Diborane with M.O theory

A) * Structure of Diborane *

→ the structure of Diborane (B_2H_6) resemble with Ethane (C_2H_6). ~~the~~ it is Diborane is a electron defficient compound. It has 12 valency and electron For bonding purpose of instead of 14 valency like ethane.

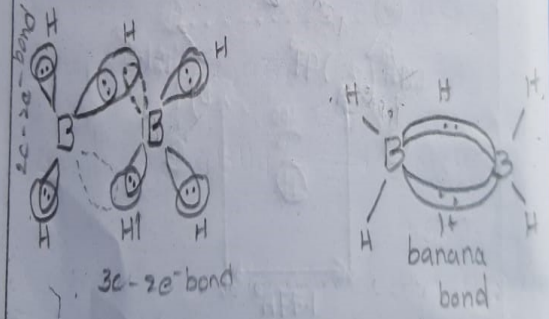


→ The following point suggest the Diborane bridged like structure.

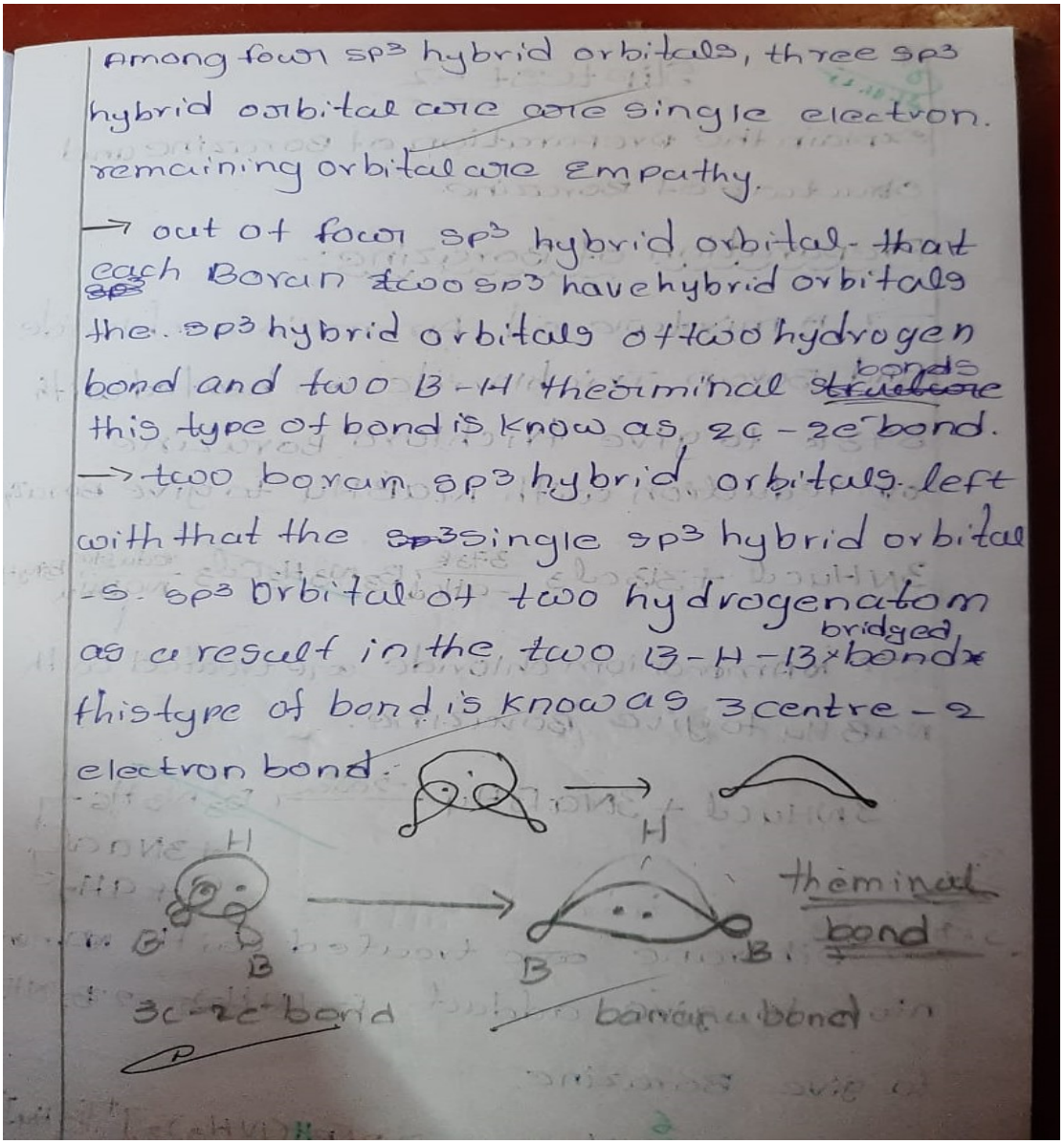
a) the bridged structure of Diborane are four Hydrogens and two borane like same plane. remaining two Hydrogen atoms are in that same this plane.

b) only four hydrogen atoms are in Diborane replace by the methyl group. Indicate the two types of Bond - Hydrogen bond present in Diborane.

c) two ~~diffe~~ types of bond distance is B-H and bond angle is consistence of two Hydrogen atoms.



→ the bridged structure of Diborane can be explained the mo theory. Acc. to MO theory is Diboran, is Boran undergoes the sp^3 hybridiation.



Signature of the Lecturer: D. PALLAMRAJU

D.PALLAM RAJU
M.Sc
Lecturer in Chemistry
Govt. Degree College
MUMMIDIVARAM - 533216
Dr.B.R.Ambedkar Konaseema Dist, A.P.

Head of the Department: D. PALLAMRAJU

D.PALLAM RAJU
M.Sc
Lecturer In-charge
Department of Chemistry
MUMMIDIVARAM - 533216
Dr.B.R.Ambedkar Konaseema Dist, A.P.

Signature of the Principal: DR. S. PRABHAKAR

PRINCIPAL
GOVERNMENT DEGREE COLLEGE
MUMMIDIVARAM - 533 216
Dr.B.R. Ambedkar Konaseema Dt. A.P.

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DEPARTMENT OF CHEMISTRY

ASSIGNMENTS:: 2024-2025

II B.Sc. (Chemistry)

III - SEMESTER

S.NO.	DATE	ASSIGNMENT TOPIC	REMARKS
1.	22-08-2024	Resonance effect and its applications	-
2.	30-08-2024	Hyper conjugation and its application & Hoffmann rule	-
3.	02-09-2024	Organic Reagents	-
4.	10-09-2024	Markonikov's Rule	-
5.	14-10-2024	Jablonski Diagram	-
6.	18-10-2024	Kohlrausch's Law & its applications	-

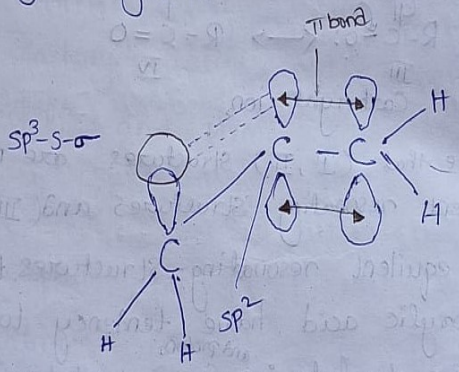
Assignment writing session - Enhancing knowledge and Skills

ASSIGNMENT SAMPLE

Assignment - 2

* Explain hyperconjugation? and its applications

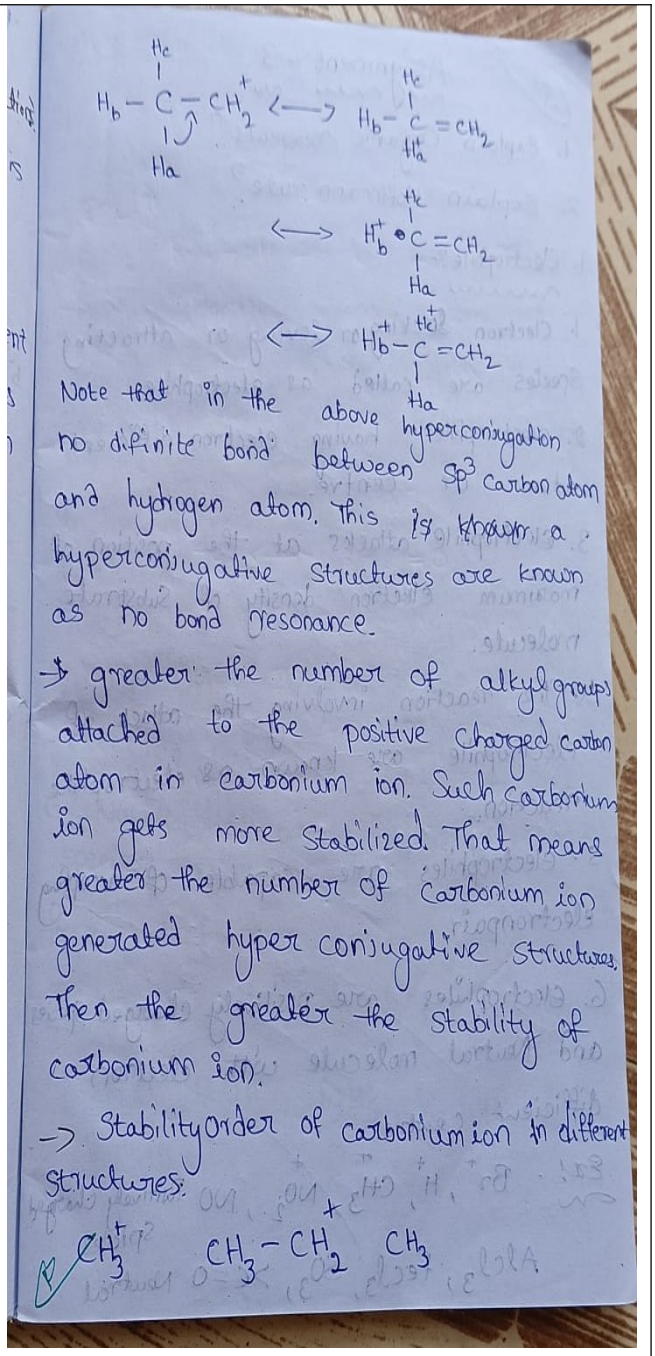
Hyperconjugation:- When sp^3 carbon atom is directly attached to sp^2 carbon atom and sp^3 carbon atom having at least one hydrogen atom then the displacement of $C sp^3 - H - \sigma$ bonded electrons towards the sp^2 carbon atom. This phenomena is known as hyperconjugation.



Applications of hyperconjugation:-

Stability of carbonium ion:-

Ethyl carbonium ion undergo hyperconjugation to for the following structures.

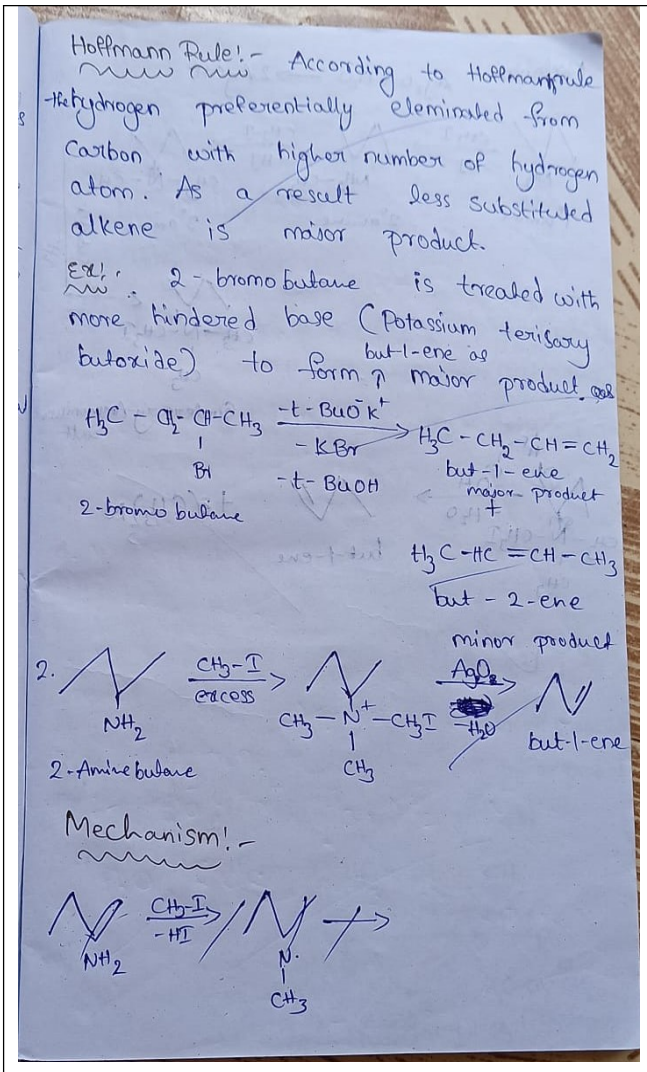


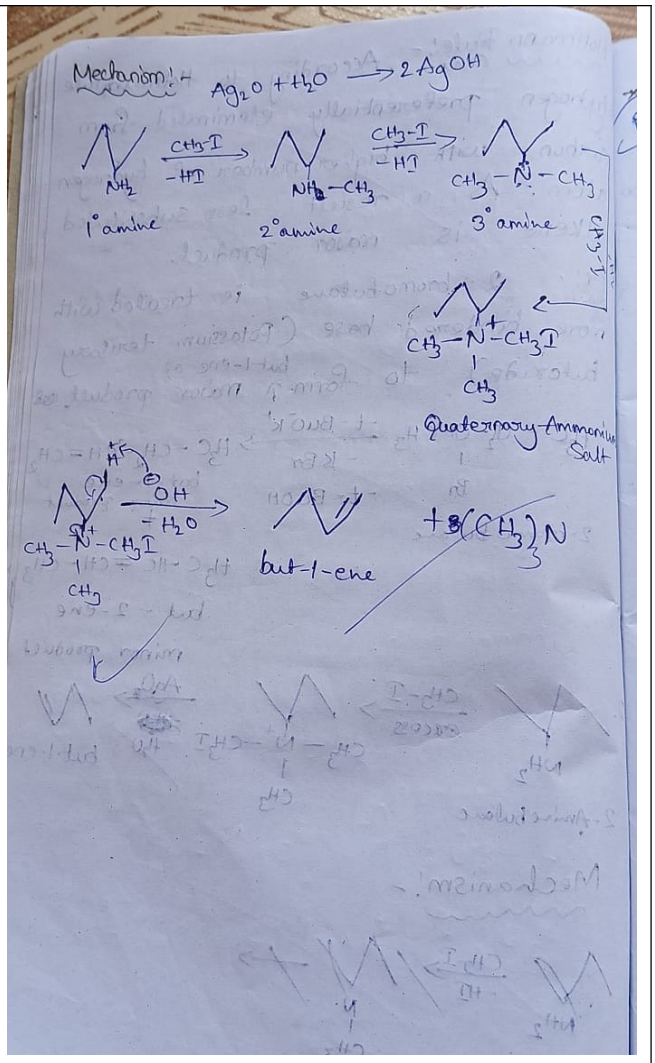
Note that in the above hyperconjugation no difinite bond between sp^3 carbon atom and hydrogen atom. This is known as hyperconjugative structures are known as no bond resonance.

→ greater the number of alkyl groups attached to the positive charged carbon atom in carbonium ion. Such carbonium ion gets more stabilized. That means greater the number of carbonium ion generated hyper conjugative structures. Then the greater the stability of carbonium ion.

→ Stability order of carbonium ion in different structures.

CH_3^+ $CH_3 - CH_2^+$ CH_3





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ASSIGNMENTS:: 2024-2025

III B.Sc. (BZC)

V - SEMESTER

S.NO.	DATE	ASSIGNMENT TOPIC	REMARKS
1.	09-07-2024	Classification of Chromatography	-
2.	28-08-2024	Write scope and mushroom cultivation	-
3.	06-09-2024	Write an essay on mushroom poisoning symptoms ,treatment and precautions	-
4.	12-09-2024	Write short notes on poisonous mushroom and its harmful effects	-
5.	25-10-2024	Write an essay on the layout of a mushroom farm	-
6.	29-10-2024	Write an essay on structural details of cropping room	-

Assignment writing session - Enhancing knowledge and Skills

Dt :- 29/07/24
Day:- Monday

Assignment-1

① Explain and Classification of chromato-graphy.

→ Classification of chromatography
interaction between components and stationary phase.

→ In classification of chromatography the mixture of components interacts with the stationary phase in different ways. in chromatography classified as follows.

1. Adsorption chromatography.
2. partition chromatography.
3. Ion-Exchange chromatography.

1. Adsorption chromatography:
→ In stationary phase are induced in a solid particles is called adsorption. liquid or gas particles are dissolved in surface of solid
→ In this the mixture of components are induced with stationary phase on solid particles is called as adsorption.
→ liquid or gas particles are dissolved in surface of solid particles is called adsorption.

→ In this chromatography to seperation of components in a mixture is called adsorption and desorption process.

→ The mixture of components of stationary phase is solid is called (Silicagel, alumina)
→ In principal involves in this chromatography
→ In this chromatography two adsorbent adsorbate force. forces are present they are vandeywall's forces and induct forces is high component in a stationary phase and nature of components.

→ In this phase principals involved in adsorbed and to components adsorbent. In different ways

2. partition chromatography:
→ When component dissolved in stationary phase dissolved to passing Components, after that entering the mobile phase the two Components differential blw the two Components are immuse phase. is called partition chromatography.
→ In this chromatography seperation of components in a mixture.
in adso Desorption partition process.

→ Some times stationary phase liquid and Mobile phase liquid so it is Called as liquid - liquid chromatography.
→ some times Mobile phase is a gas so it is Called as liquid gas chromatography.
→ The principals involved in this chromatography Componds are different between in to components.

$K_D = \frac{\text{Concentration of Component in stationary phase}}{\text{Concentration of component in Mobile phase}}$

3] Ion-Exchange chromatography.
→ In stationary phase and Mobile phase ion's are Exchange is Called Components and Mixture is called recion.
Solid - $H^{\oplus} + M^{\oplus} \rightarrow$ solid - $M^{\oplus} + H^{\oplus}$

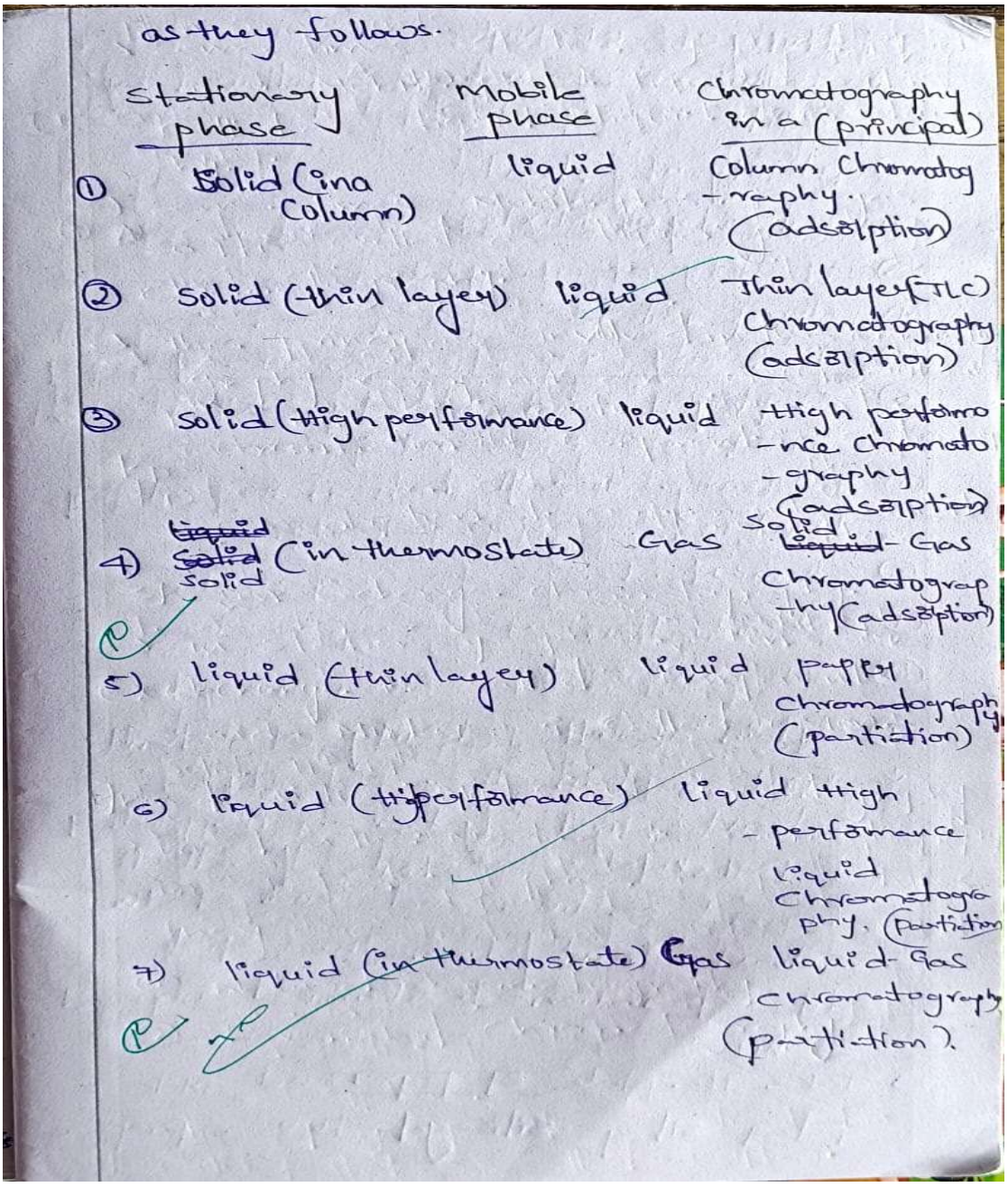
3] Based on the Modes of Chromatography:-
→ Based on the Modes of chromatography in stationary phase is two types they are
① Natural chromatography
② Reversabul chromatography

① Natural chromatography:-
→ In Natural chromatography in stationary phase is polar and Mobile phase is non-polar.
Example. Stationary phase is (Silicagel)

② Reversabel chromatography:-
→ Reversabel phase is stationary phase is non-polar and Mobile phase is polar
Example of stationary phase ODS (C_{18})

C] Based on the Geometry of ina stationary phase.
→ Based on the Geometry in a stationary phase involved in two steps they are
① Polar Chromatography
paper chromatography
② Column Chromatography
Ion Exchange Chromatography.

D] Based on the chromatography Nature of phases
→ In stationary phase solid or liquid Maybe and Mobile phase liquid or gas Maybe is Called as stationary phase and physical state, Mobile phase is and Nature of Components



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