

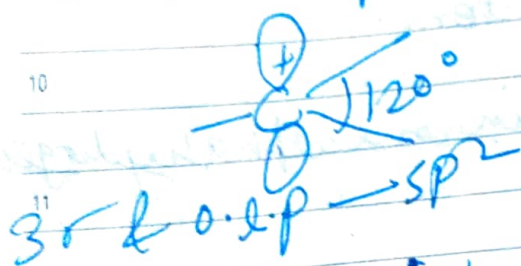
20

FEB
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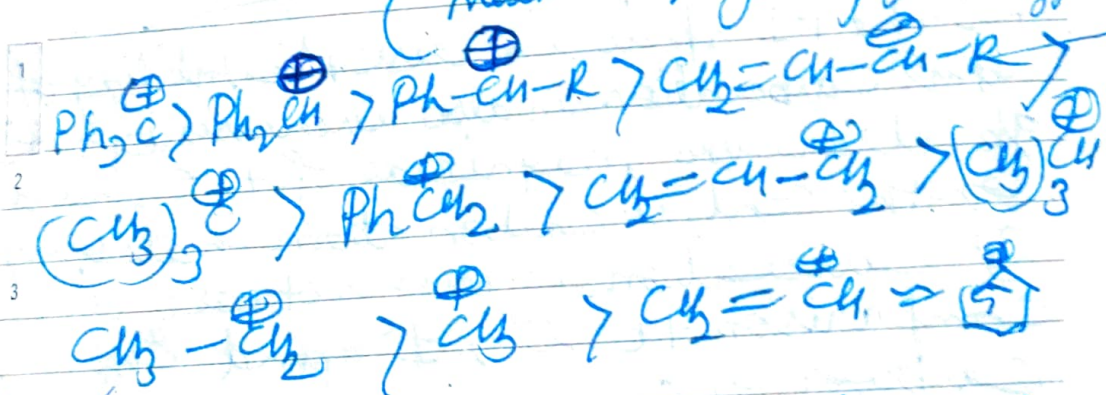
2015

FEBRUARY 2015						
5	6	7	8	9	10	11
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19	20	21	22	23	24	25
26	27	28	29	30		
MON	TUE	WED	THU	FRI	SAT	SUN

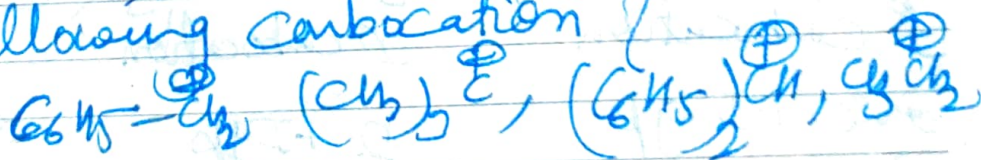
Carbocation: Carbocation is trivalent species having one +ve charge on the central carbon atom. In carbocation the central carbon atom is sp^2 hybridized so its shape is triangular planar.



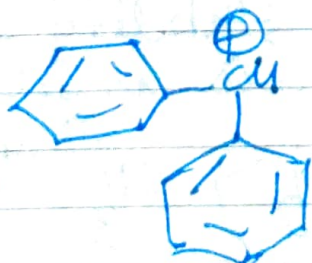
Carbocation Stability $2^\circ > 1^\circ$, $+H$, $+I$ gp
(mesomeric) hyperconjugative effect

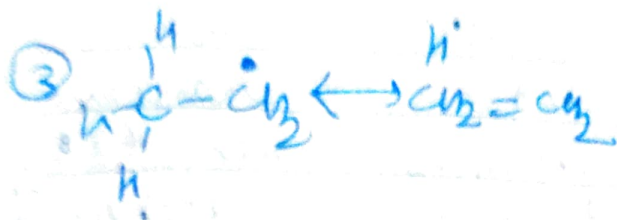


Question 2 mark explain the stability of following carbocation?



Ans





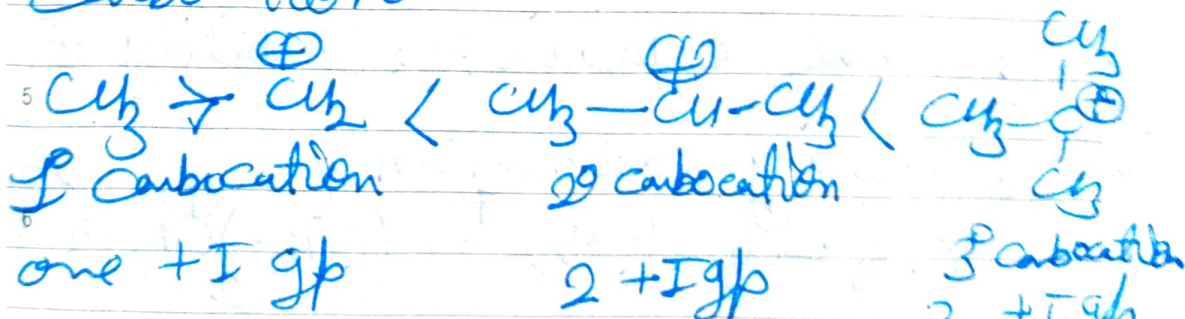
→ Compound must contain at least one sp^2 hybridized Carbon atom.

→ Compound must contain one alpha hydrogen atom.

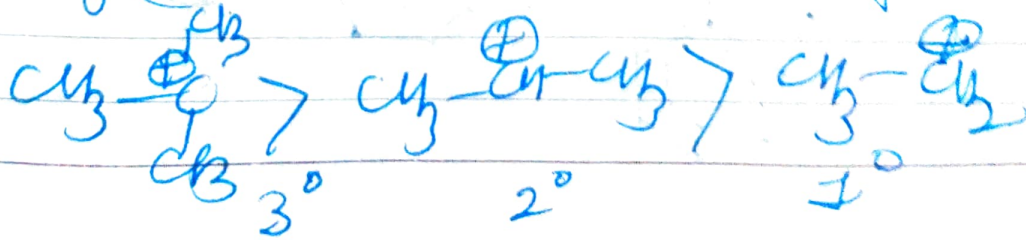
Stability of alkyl Carbocation :

1 As the +I gp is increases the stability of alkyl Carbocation is also increases b/c +I gp decreases magnitude of +ve charge on the central Carbon atom that's why

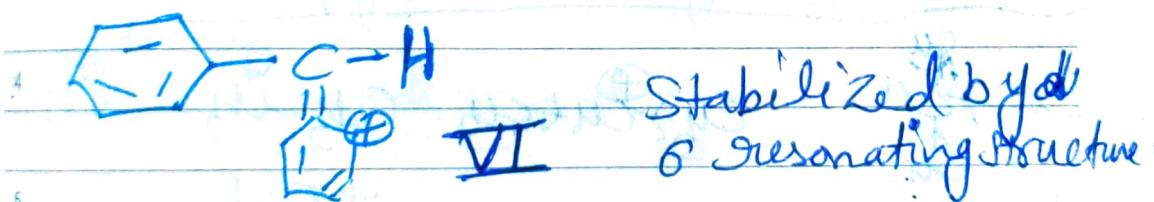
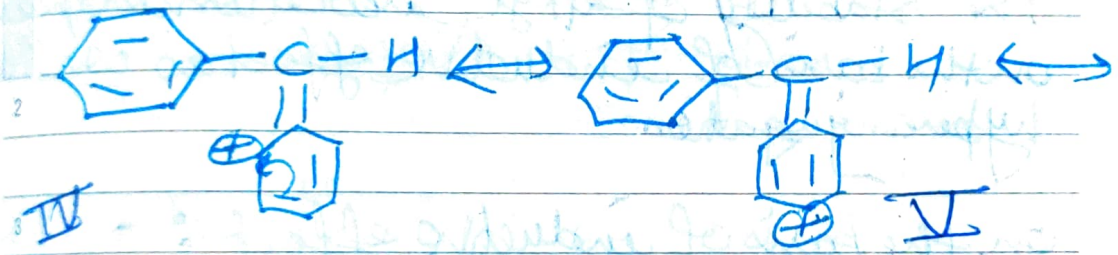
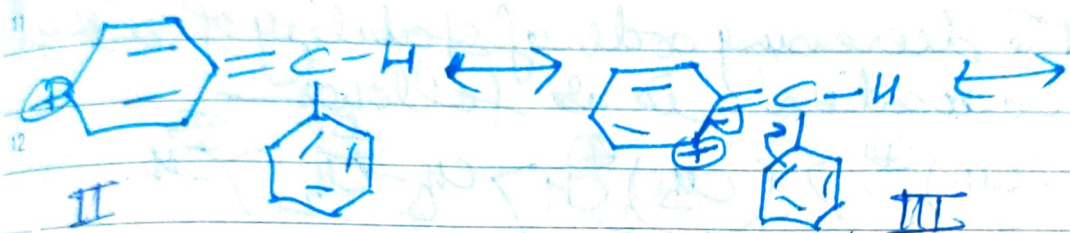
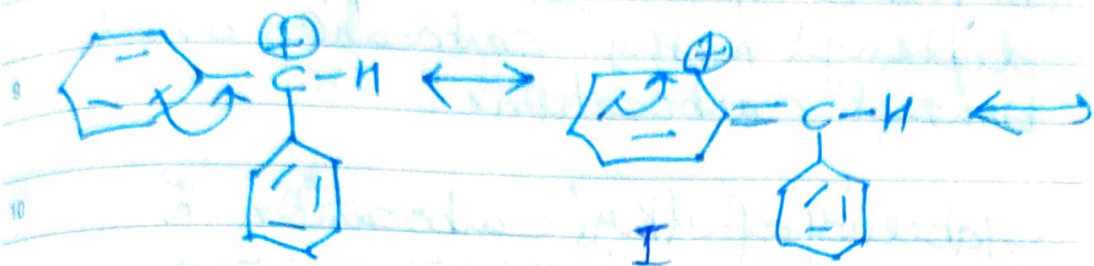
2 3° Carbocation is more stable in comparison to 2° , 1° and CH_3 Carbocation.



decreasing order of stability of alkyl Carbocation is as follows-

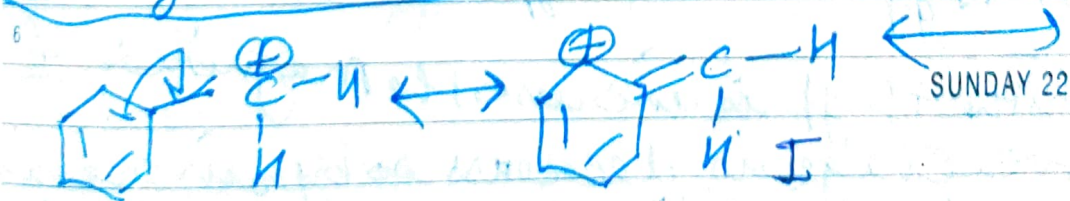


diphenyl methyl carbocation is stabilised by following resonating str.

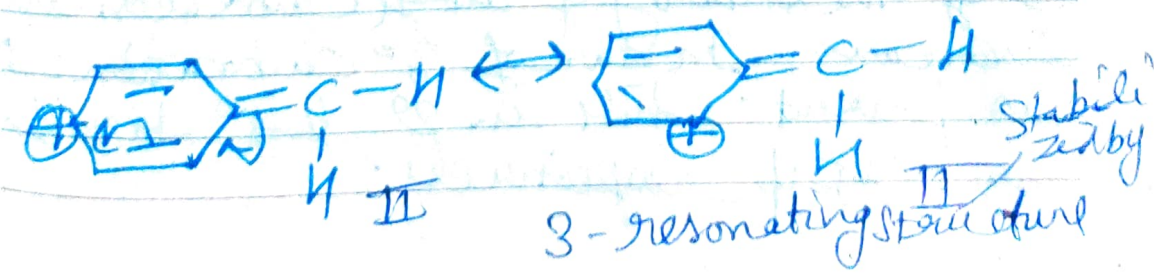


Stabilized by 6 resonating structure.

Benzyl Carbocation :-



SUNDAY 22

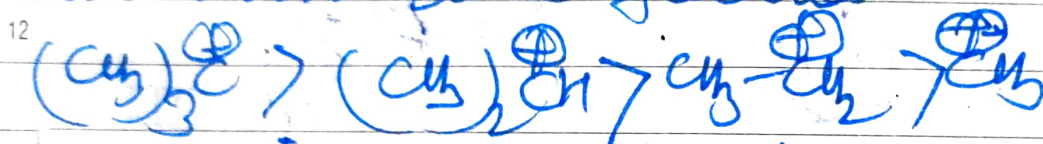


Stabilized by 3-resonating structure

Thus on the basis of above explanation it is clear that triphenylmethyl carbocation is more stable in comparison to diphenyl methyl carbocation and benzyl carbocation.

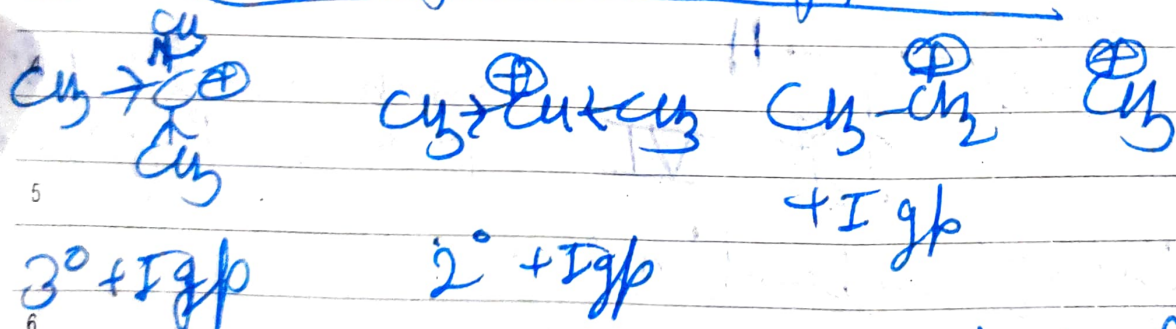
⇒ Stability of alkyl Carbocation : —

The decreasing order of stability of alkyl Carbocation is as follows —



The stability of alkyl carbocation is explain on the basis of inductive effect as well as hyperconjugation.

on the basis of inductive effect : —

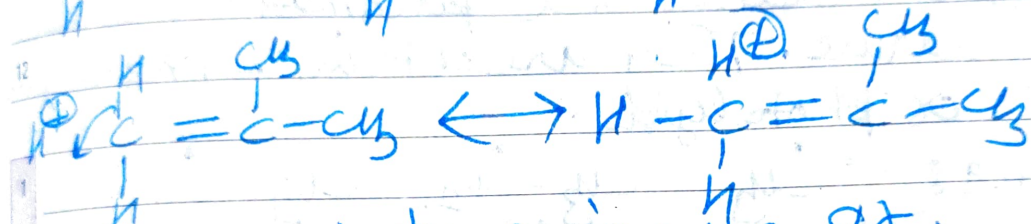
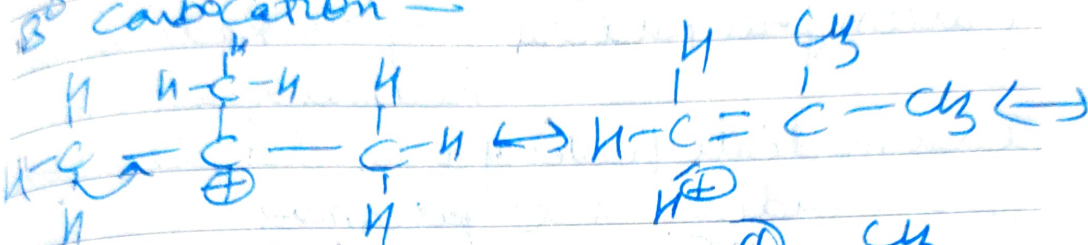


As the +I gp is increases the magnitude of +ve charge is decreases so by increasing +I gp the stability of alkyl Carbocation is increases. In case of 3° carbocation 3 +I gp is present while in 2° & 1° two & one +I gp respectively.

That's why 3° Carbocation is more stable Carbocation in comparison to the 2° 1° Carbocation.

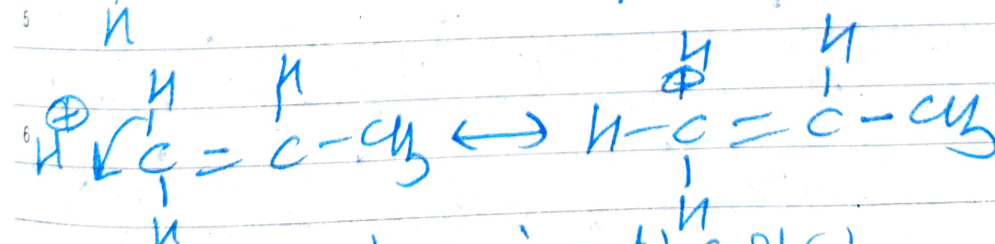
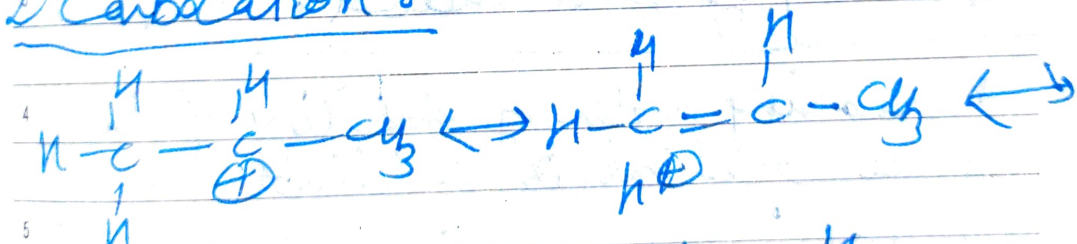
on the basis of hyperconjugation :-

3° Carbocation -



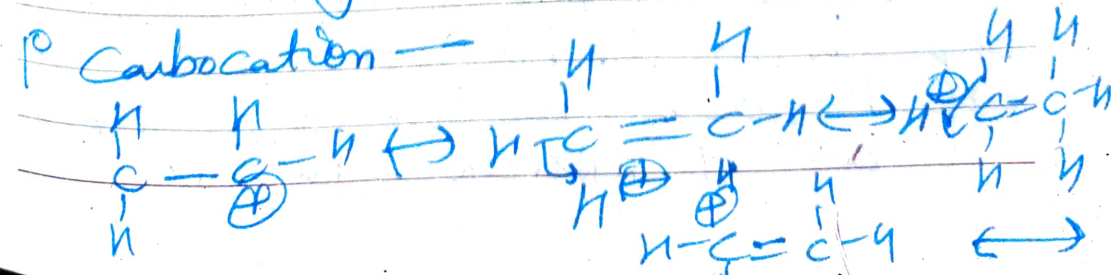
6 more hyperconjugative str.

2° Carbocation :-



3 more hyperconjugative str.

1° Carbocation -



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02							FEBRUARY 2015						
5	6	7	8	9	10	11	1	2	3	4	5	6	7
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29	30						29	30					
WK	M	T	W	T	F	S	WK	M	T	W	T	F	S

more will be hyper conjugation
 more will be stability of the species
 that's why 3° -carbocation is more stable in comparison to the 2° & 1° carbocation.

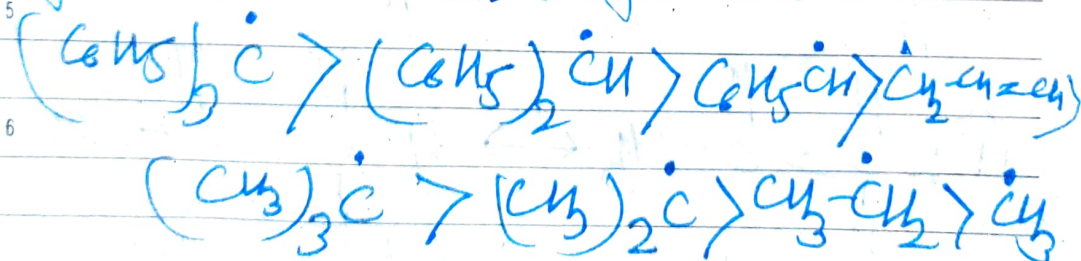
Carbon free Radical :- free Radical is neutral reaction

intermediate having one odd electron
 free radical are paramagnetic in nature. They are obtain by pyrolysis or photolysis.

eg: $\text{CH}_3\cdot$ methyl free radical
 $\text{CH}_3\text{CH}_2\cdot$ ethyl free radical
 $\text{CH}_3\text{CH}_2\text{CH}_2\cdot$ isopropyl free radical

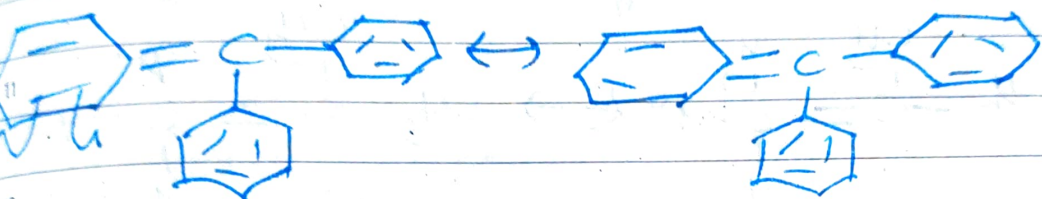
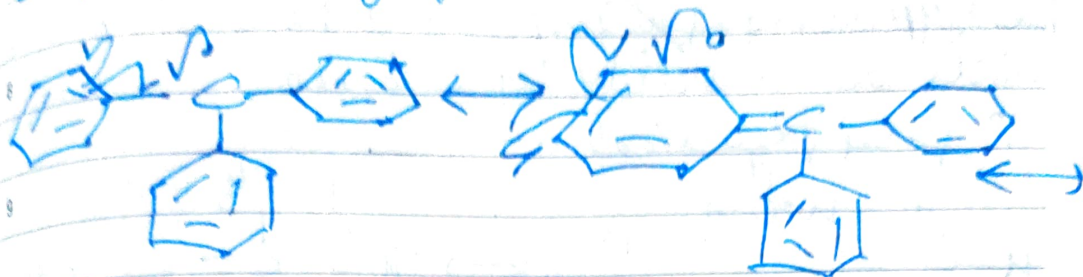
Stability of free radical :- The

decreasing order of stability of some free radical is as follows



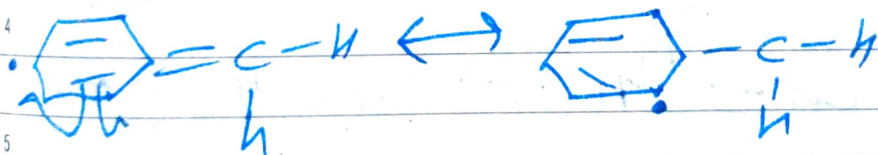
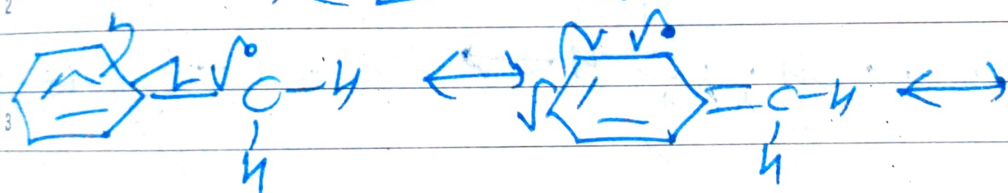
The stability of 1° four radical is explain on the basis of resonance effect while rest explain on the basis of hyper conjugation.

Triphenyl methyl free Radical



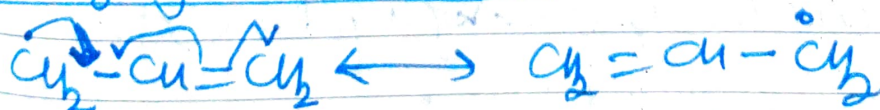
6 more R.S.

Benzyl free Radical



3 Resonance Str.

Allyl free Radical



Stability of alkyl free Radical

Stability of alkyl free Radical are explain

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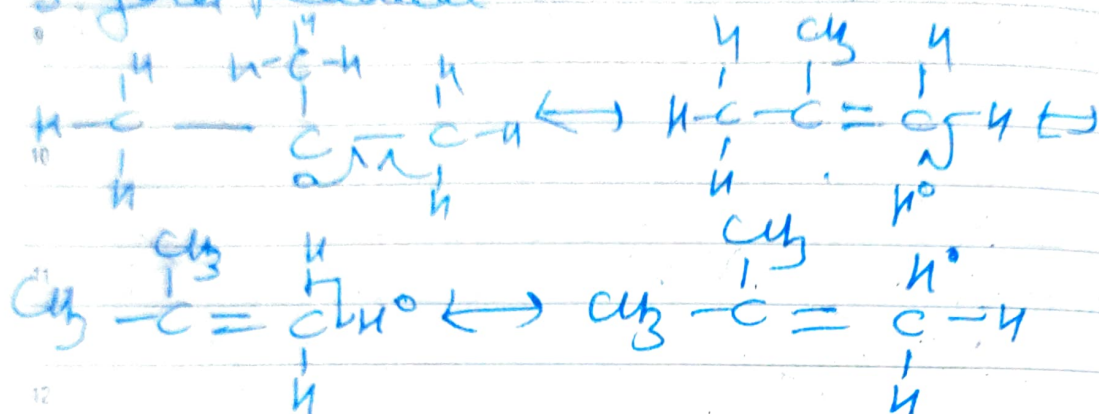
02

FEBRUARY 2018

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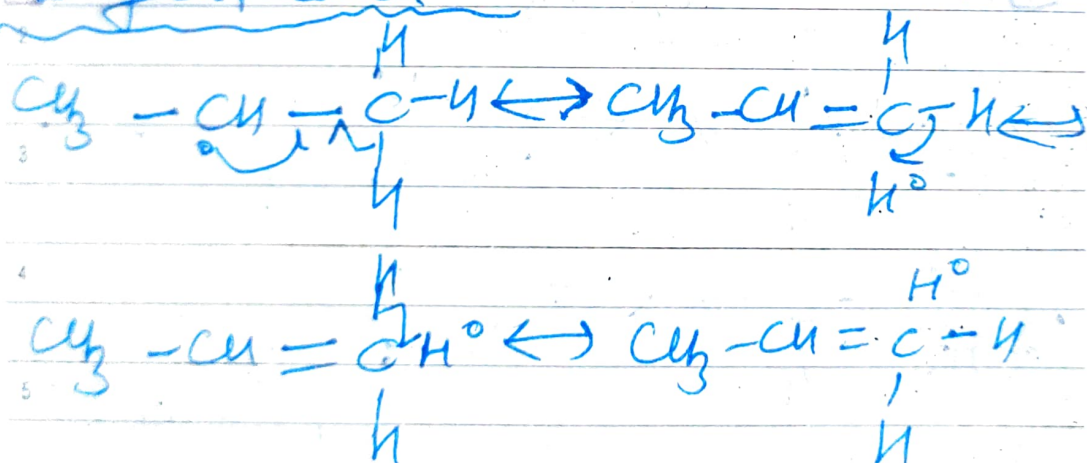
On the basis of hyperconjugation more more will be hyperconjugative/conjugative st more will be Stability of Species.

3° free Radical —



6 more Hyperconjugative st.

2° free Radical —



3 more hyperconjugative st.

1° free Radical :

