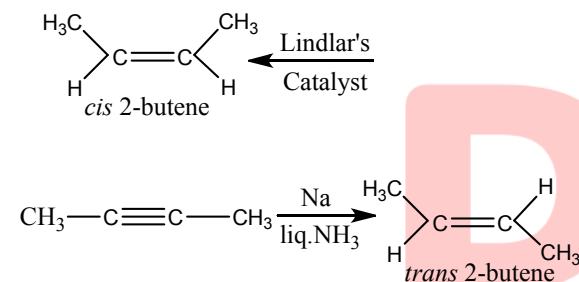


Topic :-HYDROCARBONS

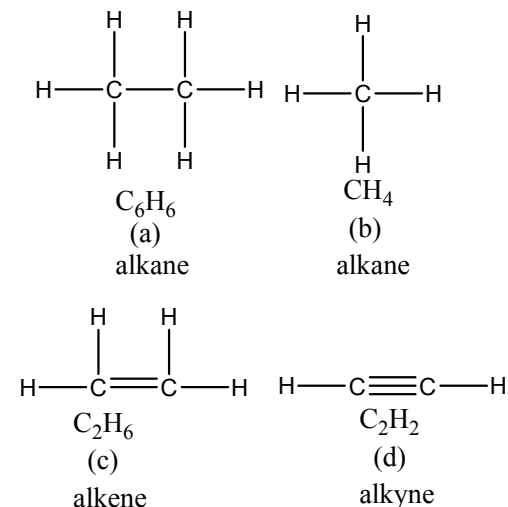
1 (a)

Alkynes give different products with different reducing agents *e.g.*, with Lindlar's catalyst (Pd/BaSO₄) or Ni *cis*-alkene is formed but with Na in liquid NH₃ (Birch reduction) *trans* alkene is formed.



2 (c)

- (i) Alkene and alkynes both react with KMnO₄ and decolourise it.
(ii) Only alkynes react with AgNO₃ to give white precipitate.



∴ C₂H₄ (an alkene) reacts with KMnO₄ and decolourises it and does not react with AgNO₃, C₂H₆ and CH₄ are alkane they do not react with KMnO₄ and NaOH.

3 (c)

It has maximum octane no.

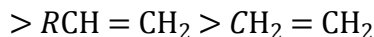
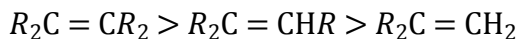
4 (c)

Pure C_2H_2 has ethereal odour.

6 (a)

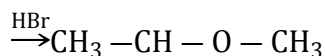
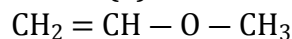
Alkylated alkenes are more stable. More the alkylation of alkene, more will be its stability.

∴ Order of stability of alkenes is

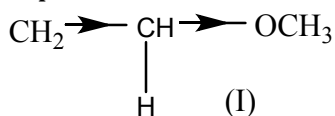


∴ Tetra alkylated alkene is most stable.

8 (d)

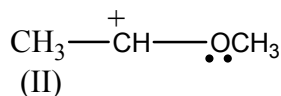


First protonation occurs, two possible intermediates are



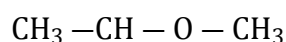
(-I effect destabilizes carbocation)

and



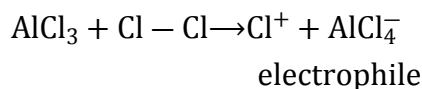
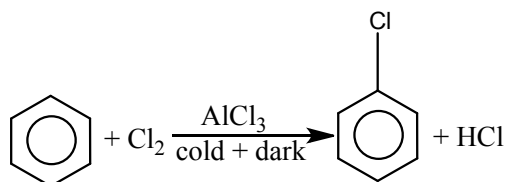
(+M effect stabilizes carbocation)

II, is more favourable. Hence, Br^- attacks, and product is



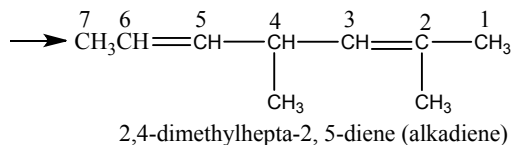
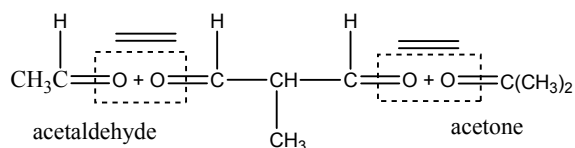
10 (b)

Halogenation of benzene in cold and dark is carried by electrophilic substitution. In this reaction, Cl^+ electrophile takes part in the reaction.



11 (a)

Since the alkadiene on reductive ozonolysis gives acetaldehyde (CH_3CHO), acetone (CH_3COCH_3) and 2-methylpropane-1, 3-dial [$OHCCH(CH_3)CHO$], the structure of alkadiene will be obtained as



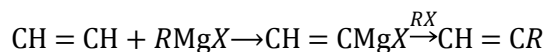
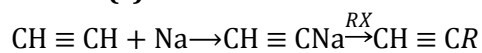
12 (b)

These are Fischer-Tropsch and Berzius method for synthesis of petrol.

13 (c)

It is an unsaturated two carbon atom molecule (gives catalytic hydrogenation) but not acetylene (does not give white ppt. with amm. AgNO_3). Thus, it is ethylene.

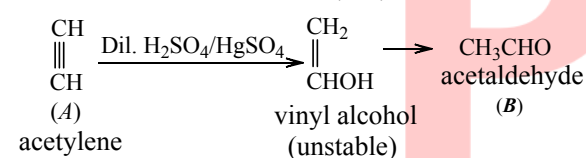
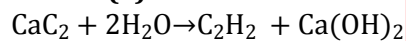
14 (c)



15 (b)

Addition of HBr first takes place round double bond.

17 (a)



18 (c)

An alkyne has higher b.p. than corresponding alkene and an alkene has higher b.p. than corresponding alkane.

ANSWER-KEY

Q.	1	2	3	4	5	6	7	8	9	10
A.	A	C	C	C	C	A	B	D	B	B
Q.	11	12	13	14	15	16	17	18	19	20
A.	A	B	C	C	B	D	A	C	B	C

PE