DPP-02

Solution

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1. (A) $\left(\underset{\text{Nucleophile}}{\overset{\oplus}{\text{Na}}\overset{\ominus}{\text{OH}},} \quad \underset{\text{neutral nucleophile}}{\ddot{\text{N}}\text{H}_3}\right)$ ⇒ Both are nucleophile

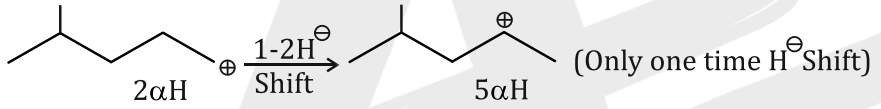
(B) $\left(\text{AlCl}_3, \overset{\oplus}{\text{C}}\text{H}_3\right)$ ⇒ Both are Electrophiles

(C) $\left(\underset{\text{Electrophiles}}{\text{Br}_2 \rightarrow {}^{\delta+}Br - Br^{\delta-},} \quad \underset{\text{nucleophile}}{\overset{\ominus}{\text{Cl}}}\right)$ ⇒ It Contains both Electrophiles & Nucleophiles

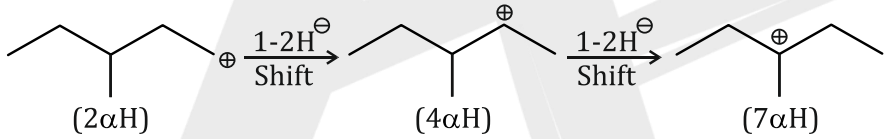
(D) $\left(\underset{\downarrow}{\text{Na}^{\oplus},} \quad \underset{\text{Nucleophile}}{\text{H}_2\ddot{\text{O}}}\right)$

cation of alkali metals are not Electrophiles

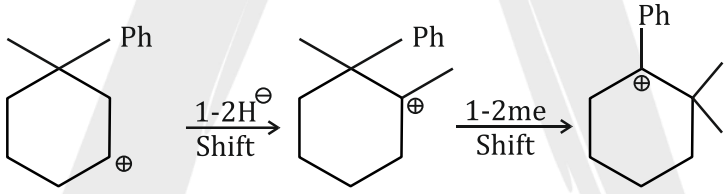
Ans (C)

2. (A) 

(Only one time H⊖ Shift)

(B) 

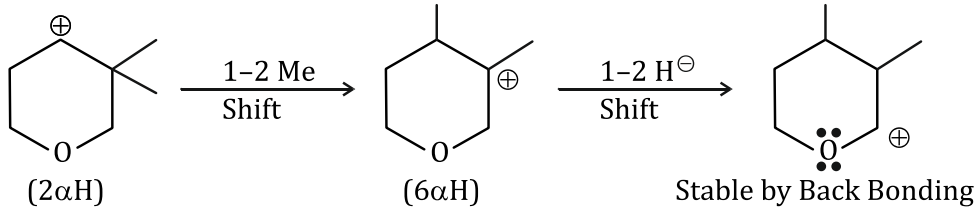
(Two time H⊖ Shift)

(C) 

Stable By Ph (resonance)

⇒(One Shift is H⊖ Shift)

⇒(Second Shift is methyl Shift)

(D) 

(2αH) (6αH) Stable by Back Bonding

Ans (B)

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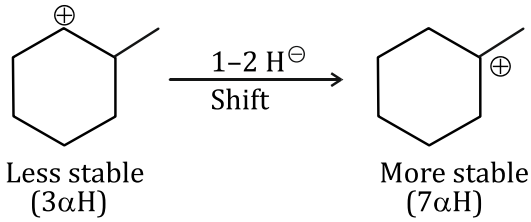
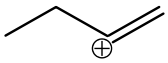
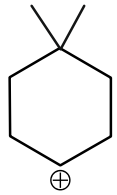
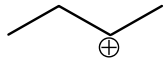
3. (A) $CH_3-\overset{\oplus}{C}=O$ this positive charge is in hybrid orbital can't Rearrange

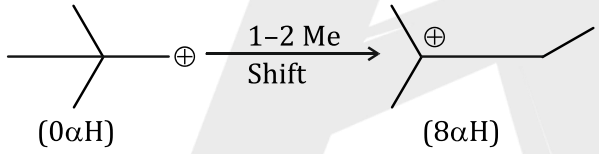
(B) 

(C)  this positive charge is in hybrid orbital (No Rearrangement)

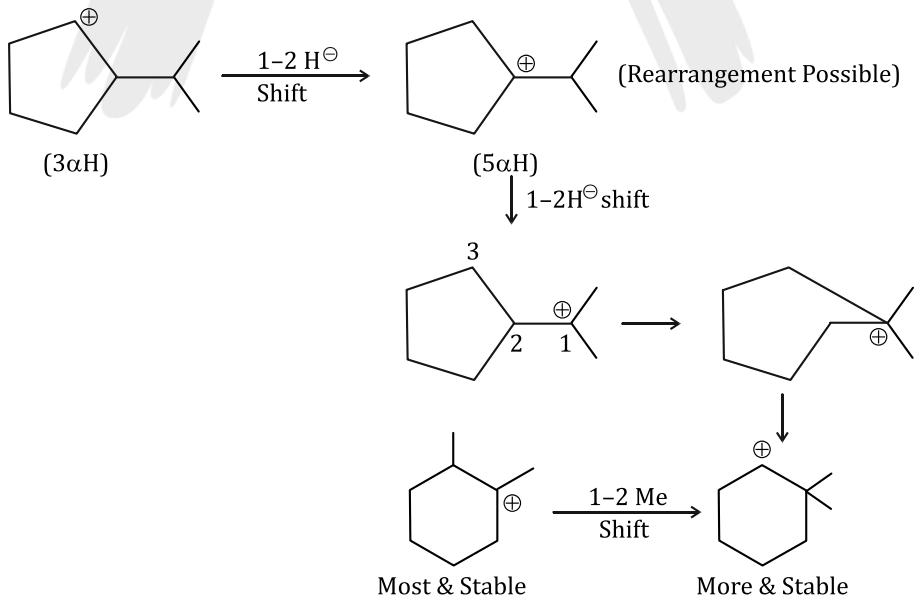
(D)  No Rearrangement (for rearrangement in each step stability increases)

Ans (B)

4. (A)  ⟶ No Rearrangement

(B) 

(C) 

(D) 

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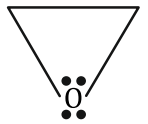
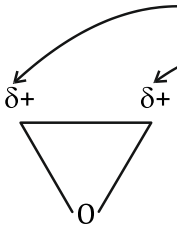
Ans. (B,D)

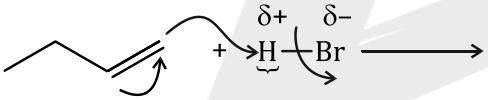
5. (A) $\overset{\delta+}{CH_3}$ (E) — $\overset{\delta-}{Br}$ + $\overset{\oplus}{Na}\overset{\ominus}{OH}$ (Nu) ⟶

(B)  + $AlCl_3$ ⟶

(Nu) (E)

(C)  + NH_3 ⟶

(E) (Nu)

(D) 

(Nu) (E)

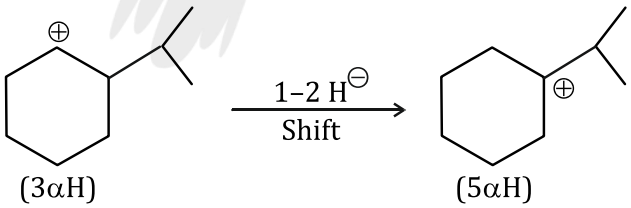
Ans. (B,D)

6. $NaI > NaBr > NaCl > NaF$

$I^{\ominus} > Br^{\ominus} > Cl^{\ominus} > F^{\ominus}$

⇒ Non polar solvent & polar protic solvent

Ans. (A,C)

7. 

(3αH) — 1–2 $H^{\ominus}$ Shift ⟶ (5αH)

Most stable

Only one time it Rearranged

Ans. (1)

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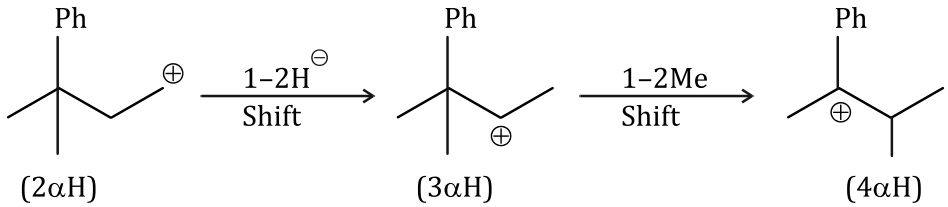
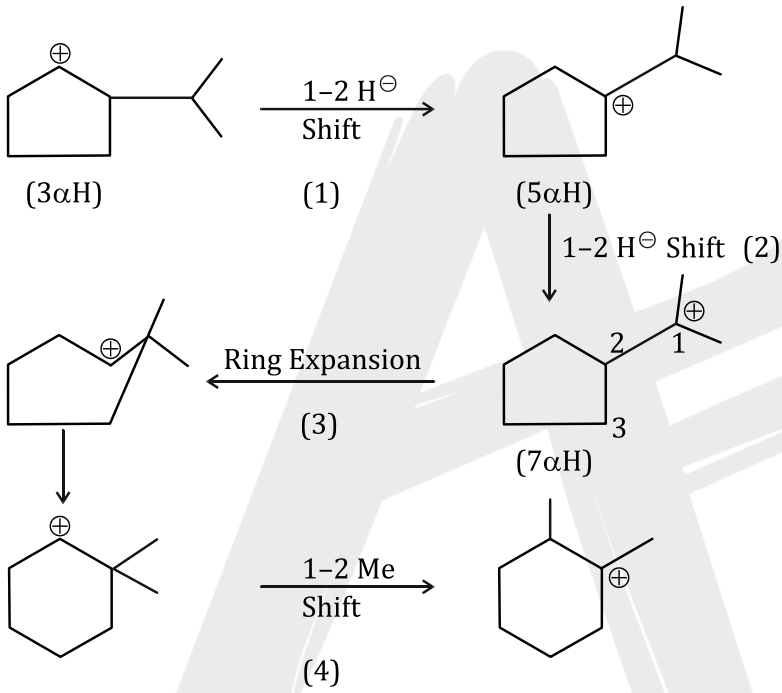
8.



⇒ Stable by Resonance with Benzene ring.

Ans. (4 **α – H**)

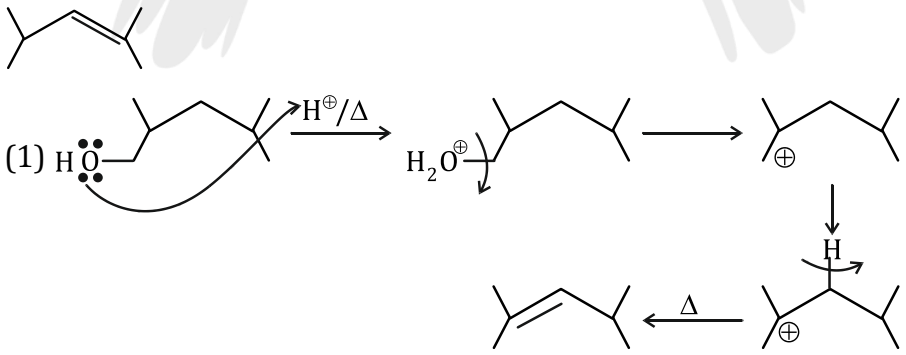
9.



Total No. of 1–2 Shift are = 4

Ans. (4)

10.



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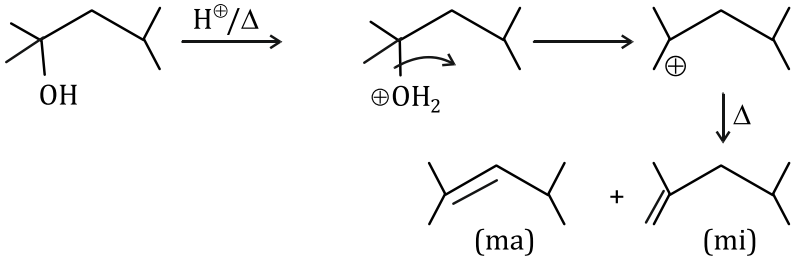
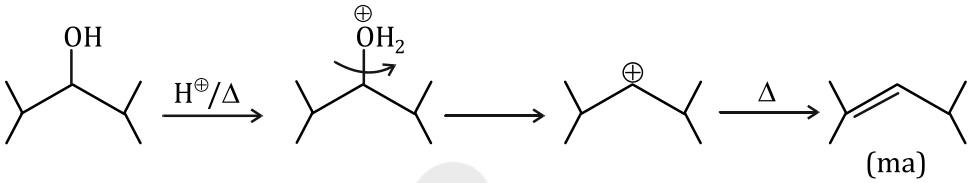
(2)



(3)



Total no of Alcohols are = (3)

Ans. (3)