
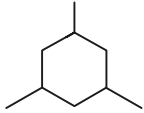


Multiple Correct Answer Type (8 Questions)

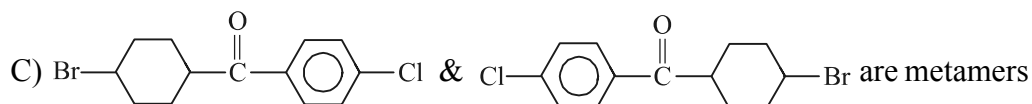
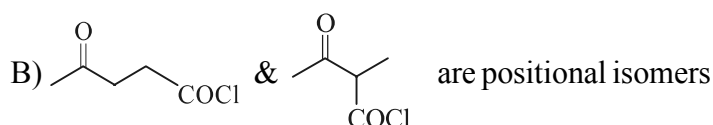
1. B) atomic radii of transition metals increase rapidly with increase in atomic number because of poor shielding of nuclear attraction by $(n - 1)d$ electrons

Ans. (B)

Sol. The atomic radii of transition decrease very slightly with increase of atomic numbers because the increase in nuclear charge is almost annulled by the shielding of the ns electrons by the $(n - 1)d$ electrons.

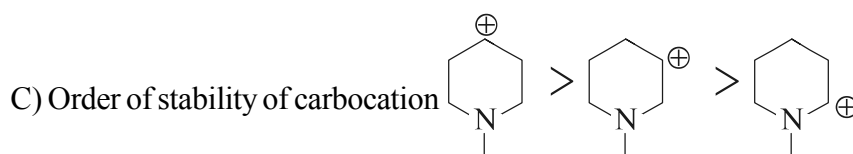
2. A)  C) $\text{Me} - \text{CH} = \text{C} = \text{C} = \text{CH} - \text{Me}$ D) 

3. A) $\text{H}_3\text{C} - \text{CH}_2 - \text{CH}_2 - \text{NH} - \text{CH}_3$ and $\text{H}_3\text{C} - \underset{\text{CH}_3}{\text{CH}} - \text{NH} - \text{CH}_3$ are chain isomers

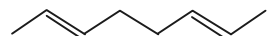
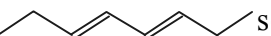


D) Anti form is the most stable form of ethane-1, 2-diol (ethylene glycol)

4. A) Order of heat of hydrogenation $\text{C}=\text{C}-\text{C}-\text{C}-\text{C}=\text{C}-\text{C} < \text{C}-\text{C}-\text{C}=\text{C}-\text{C}=\text{C}-\text{C}-\text{C}$

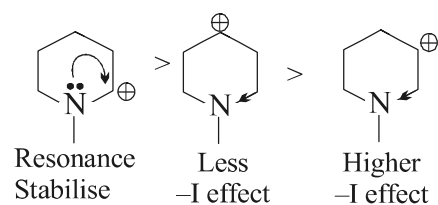


D) Order of heat of combustion cis-1,4-bis-(t-butyl) cyclohexane $<$ Trans-1,4-bis-(t-butyl) cyclohexane

\Rightarrow  is less stable than  so having higher heat of hydrogenation Hence 'A' is incorrect.

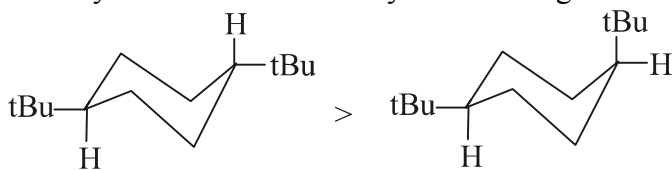
\Rightarrow Heat of combustion of cyclo alkanes decreases from cyclohexane (Higher No. of C-atom) to cyclo propane hence B is incorrect.

\Rightarrow Stability of Carbocation.



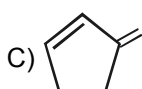
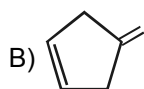
Hence C is incorrect.

⇒ Stability order of disubstituted cyclohexane is given as

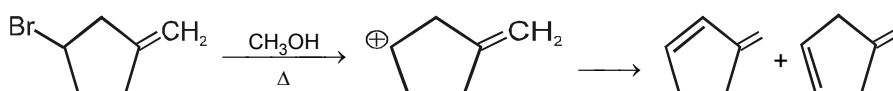


So D is incorrect.

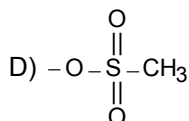
5.



Sol.



6.



Sol. Leaving group ability \propto Stability of anion.

7.

B) They are favoured by polar solvents.

C) 3° alkyl halides generally react through this mechanism.

D) Concentration of nucleophile does not affect the rate of such reactions.

Sol. In S_N1 reaction carbocation intermediate is formed.

8.

A) Each of the above reactions is likely to be S_N2

D) The important factor behind this order of reactivity is "steric effect"

Sol. Due to steric effect

Paragraph Type

Paragraph 1

9. C) 33.33 %

10. B) 75 %

Paragraph 2

11. C) $CHCl_3$ s

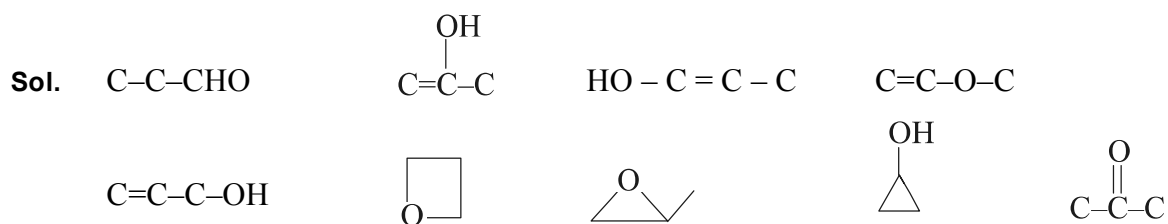
Sol. In the compound at least one hydrogen on the α -carbon is necessary for α -elimination

12. D) tert-Butyl bromide

Sol. Tert-butyl bromide undergoes β -elimination most readily due to formation of most stable alkene

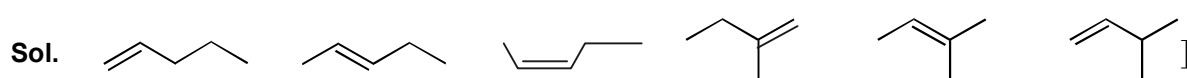
Integer Type

1. 9



2. 3

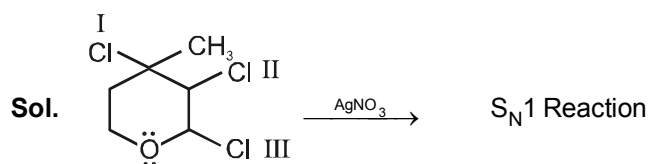
3. 6



4. 0

5. 4

6. 3



Reaction Intermediate — Carbocation :

III will give most stable carbocation \Rightarrow stabilised by +m effect of $-\ddot{O}-$

I will give stable carbocation \longrightarrow 3° carbocation so order of reaction = III > I > II.

7. 3

8. 3

- Sol. 1) True
It is because of Lanthanide contraction
- 2) False
Across a period from left to right ionisation energies gradually increase with increase in atomic number. This is because the nuclear charge increases and the atomic size decreases with increase in atomic number along the period. Consequently making the removal of outer electron difficult.
- 3) False
Due to charge transfer phenomenon
- 4) True
 $2KMnO_4 + 5H_2 \longrightarrow 2KOH + 2MnO + H_2O$.
- 5) True
Interstitial compounds ave high melting points which are higher than those of pure metals because of strong interatomic bonding.
- 6) False
In alkaline medium it also acts as oxidising agent according to the following reaction ;
 $e^- + MnO_4^- \longrightarrow MnO_4^{2-}$.