

DPP

DAILY PRACTICE PROBLEMS

CLASS : XIIth
DATE :

SOLUTION

SUBJECT : CHEMISTRY
DPP NO. : 5

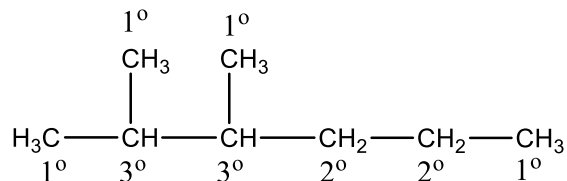
Topic :-ORGANIC CHEMISTRY - SOME BASIC PRINCIPLES AND TECHNIQUES

1 (b)

Formic acid was obtained from ant (fromica in greek). This is trivial name for HCOOH.

2 (a)

The structure of 2, 3-dimethyl hexane is



So, the number of tertiary carbon atoms=2

The number of secondary carbon atoms=2

The number of primary carbon atoms=4

3 (a)

Follow IUPAC rules.

6 (c)

CH_3^+ has planar structure.

7 (d)

These are characteristics of carbanion.

8 (a)

Follow Saytzeff rule for elimination. 3-halopentane will give only pentene-2.

9 (b)

Atom	Atomic Mass (a)	Percentage (b)	$\frac{b}{a} = x$	Ratio
C	12	10.06	$\frac{10.06}{12}$	1
H	1	0.84	$\frac{0.84}{1}$	1
Cl	35.5	89.10	$\frac{89.10}{35.5}$	3

Empirical formula = CHCl_3

Empirical formula mass = $12 + 1 + 106.5 = 119.5 \approx 120$

Molecular mass = $2 \times \text{V.D} = 2 \times 60 = 120$

$$n = \frac{\text{molar mass}}{\text{empirical formula mass}}$$

$$= \frac{120}{120} = 1$$

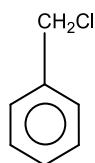
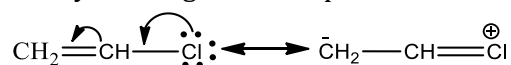
Molecular formula = $(\text{CHCl}_3)_1 = \text{CHCl}_3$

10 (d)

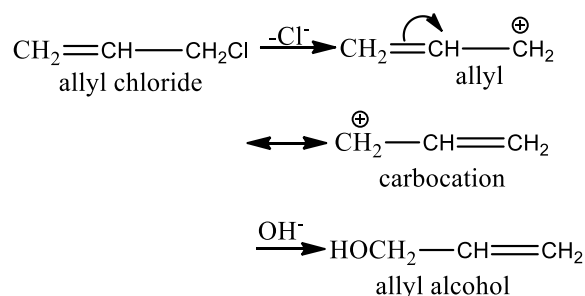
During nucleophilic substitution weaker nucleophile is replaced by stronger nucleophile. The compound having C-Cl bond which can be most easily broken will be most reactive towards nucleophilic substitution reaction.

In vinyl chloride $\text{CH}_2 = \text{CH} - \text{Cl}$ and chlorobenzene $\text{C}_6\text{H}_5\text{Cl}$ the C - Cl bond has partial double bond character due to resonance.

∴ They do not give nucleophilic substitution reaction easily

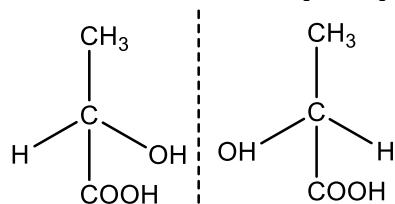


Benzyl chloride, give nucleophilic substitution easily because the carbocation formed is stabilised due to resonance.



11 (a)

Enantiomers are non-superimposable mirror images, *e.g.* lactic acid



Diastereomers are non-superimposable and are not the mirror images of each other. Moreover, *meso* form has plane of symmetry.

12 (b)

Nucleophilic strength increases down a column of the Periodic Table (in solvents that can have hydrogen bonds, such as water, alcohols, thio alcohols).

Nucleophilic strength $\text{RO}^- < \text{RS}^-$

Base strength $\text{RO}^- > \text{RS}^-$

Thus, RO^- is more nucleophilic but less basic than RS^-

15 (a)

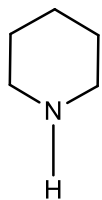
We know that there are seven isomers in $C_4H_{10}O$. Out of these seven isomers, four are of alcohol and three are of ether.

16 (a)

Tertiary halide always favours S_N1 mechanism (as they give comparatively stabler carbocation) while primary halide favours S_N2 mechanism.

17 (d)

Electron donors are bases. Since, electron density is highest at



(Piperidine), hence, it is most basic.

18 (d)

Follow IUPAC rules.

20 (c)

To be optically active, compound or structure should possess a chiral or asymmetric carbon atom. 1-chloropentane is not chiral.

