DPP
DAILY PRACTICE PROBLEMS

CLASS : XIIth
DATE :

SOLUTION

SUBJECT : CHEMISTRY
DPP NO. : 5

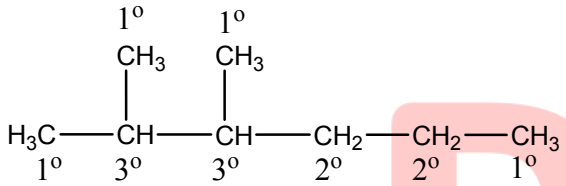
Topic :-ORGANIC CHEMISTRY - SOME BASIC PRINCIPLES AND TECHNIQUES

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

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

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

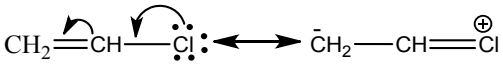
Molecular formula $= (CHCl_3)_1 = CHCl_3$

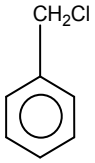
10 **(d)**

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 nuclophilic substitution reaction.

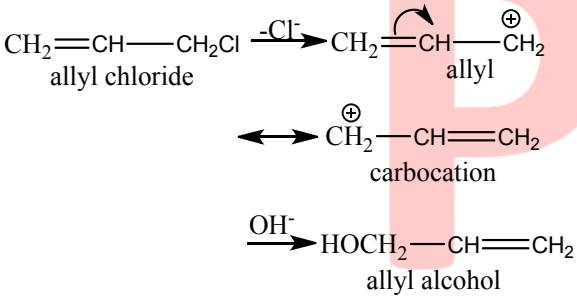
In vinyl chloride $CH_2 = CH - Cl$ and chlorobenzene C_6H_5Cl the $C - Cl$ bond has partial double bond character due to resonance.

∴ They do not give nucleophilic substitution reaction easily



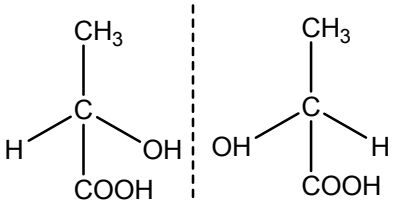


Benzyl chloride, give nucleophilic substitution easily because they carbocation formed is stabilised due to resonance.



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 $RO^- < RS^-$

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

Thus, $RO^{\ominus}$ is more nucleophilic but less basic than RO^-

15 **(a)**

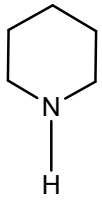
We know that there are seven isomers in $C_4H_{10}O$. Out of these seven isomers, four are of alcohol and three are of ether.

16 **(a)**

Tertiary halide always favours S_N1 mechanism (as they give comparatively stabler carbocation) white 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 posses a chiral or asymmetric carbon atom. 1-chloropentane is not chiral.

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