DPP
DAILY PRACTICE PROBLEMS

CLASS : XIIth
DATE :

SOLUTION

SUBJECT : CHEMISTRY
DPP NO. : 7

Topic :-ORGANIC CHEMISTRY - SOME BASIC PRINCIPLES AND TECHNIQUES

1 **(b)**

Zn dust is used for dehalogenation,

$$CH_2X.CH_2X \xrightarrow[\text{alc.}]{\text{Zn dust}} CH_2{=}{=}CH_2$$

3 **(d)**

Resonance in a molecule is arised due to delocalisation of π-electrons.

4 **(d)**

$$\underset{sp^3}{CH_3}-\underset{sp^3}{CH_2}-\underset{sp^2}{CH}=\overset{\oplus}{\underset{sp}{CH}}$$

Electronegativity of different hybrid and unhybrid orbitals in decreasing order is as follows

$s > sp > sp^2 > sp^3 > p$

5 **(b)**

$$\begin{array}{l} CH_2Br \\ | \\ CH_2Br \end{array} + 2KOH \xrightarrow{\Delta} \begin{array}{l} CH \\ ||| \\ CH \end{array} + 2KBr + 2H_2O$$

ethylene dibromide acetylene

This is a dehydrohalogenation reaction.

6 **(d)**

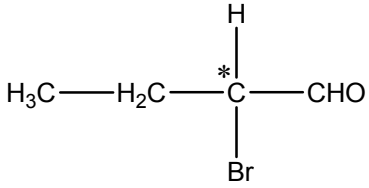
Stereoisomerism is of two types, geometrical and optical.

7 **(c)**

Follow IUPAC rules.

8 **(c)**

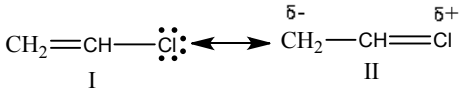
Compounds having asymmetric C-atom is optically active, *e.g.*,



The C-atom whose four valencies are satisfied by four different groups is asymmetric C-atom.

9 **(b)**

Chlorine of vinyl chloride ($CH_2 = CHCl$) is non-reactive (less reactive) towards nucleophile in nucleophilic substitution reaction because it shows the following resonating structure due to $+M$ effect of –Cl atom.



In structure II, Cl-atom have positive charge and partial double bond character with C of vinyl group, so it is more tightly attracted towards the nucleus and it does not get replaced by nucleophile in S_N– reaction.

10 **(d)**

Follow mechanism of debromination.

11 **(c)**

Atom	**Atomic Mass (a)**	**Percentage (b)**	$\frac{b}{a} = x$	**Ratio**
C	12	40	$\frac{40}{12} = 3.33$	1
H	1	6.66	$\frac{6.66}{1} = 6.66$	2
O	16	53.34	$\frac{53.34}{16} = 3.33$	1

Hence, empirical formula $= CH_2O$

12 **(d)**

Grignard reagents can act as electrophile and nucleophile.

13 **(b)**

Both these carbon atoms have 3σ-and 1π-bond. Recall hybridized orbitals never from π-bonds.

14 **(c)**

S_N1 mechanism involves the formation of carbocation intermediate. Hence, the species which gives the most stable carbocation readily undergoes S_N1 mechanism. t-butyl bromide gives the most stable carbocation, *i.e.*, 3° carbocation, so it readily undergoes S_N1 reaction.

15 **(b)**

Follow IUPAC rules.

16 **(b)**

In the Lassaigne's test, a blue colour is obtained if the organic compound contains nitrogen. The blue colour is due to ferri-ferro cyanide *i.e.*, $Fe_4[Fe(CN)_6]_3$.

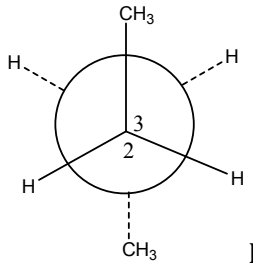
17 **(d)**

According to Cahn-Ingold-Prelog sequence rules, the priority of groups is decided by the atomic number of their atoms. When the atom (which is directly attached to the asymmetric carbon atom) of a group has higher atomic number, then the group gets higher priority. Groups which atoms of comparable atomic number having double or triple bond, have high priority than those have single bond.

Hence, the order of priority of group is

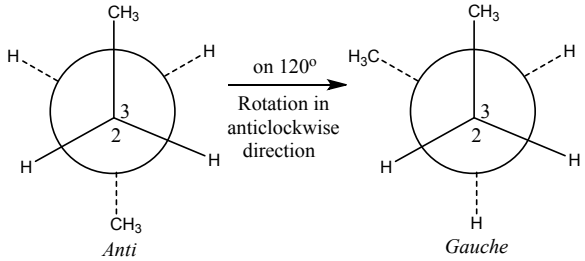
$-OH > -COOH > -CHO > -CH_2OH$

18 **(c)**

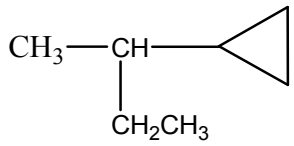


Here, when C_2 is rotated anticlockwise 120° about $C_2 - C_3$ bond the resulting conformer is *Gauche* conformer.

Hence,

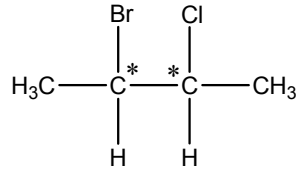


19 **(c)**



contains asymmetric carbon, thus optically active.

20 **(c)**



2-bromo 3-chloro butane

∴ Number of asymmetric carbon atoms=2

∴ Number of chiral isomers $= 2^n = 2^2 = 4$

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