

CLASS : XIIth DATE :

## SOLUTION

**SUBJECT : CHEMISTRY DPP NO. :4** 

## Topic :-HALOALKANES AND HALOARENES

1 (a)

Tertiary halide preferentially undergo  $S_{N}\mathbf{1}$  substitution as they can give stable carbocation.

 $CH_3$ 

|  
H<sub>3</sub>C − C − Cl 
$$\frac{\text{Slow}}{-\text{Cl}}$$
 (H<sub>3</sub>C)<sub>3</sub>C<sup>+</sup>  $\frac{+ 0\text{H}^{-}}{\text{fast}}$  (H<sub>3</sub>C)<sub>3</sub>COH  
|  
Carbocation t-butyl alcohol  
CH<sub>3</sub>  
t-butyl chloride  
2 (d)  
In CHCl<sub>3</sub>, carbon is sp<sup>3</sup>-hybridised.  
3 (d)  
CCl<sub>4</sub> + KOH(aq.) → C(OH)<sub>4</sub> → CO<sub>2</sub> + 2H<sub>2</sub>O  
4 (c)  
CCl<sub>4</sub> + 2HF  $\xrightarrow{\text{SbCl}_3}$  CCl<sub>2</sub>F<sub>2</sub> + 2HCl  
5 (c)  
Iodoform test is positive for compounds which have O  
|  
CH<sub>3</sub> − C  
group or 2° alcohol group.  
H  
(a) CH<sub>3</sub> − CH<sub>2</sub> − C − CH<sub>3</sub>  
|  
OH  
has 2° alcoholic group  
0  
|  
(b)CH<sub>3</sub> − CH<sub>2</sub> − CH<sub>2</sub> − C − CH<sub>3</sub>  
has CH<sub>3</sub>CO − group  
0  
|  
0

(d) CH<sub>3</sub> - C - C<sub>6</sub>H<sub>5</sub> has CH<sub>3</sub>CO - group
∴ Compounds in choice (a), (b) and (d) give positive iodoform test.
0
||
CH<sub>3</sub> - CH<sub>2</sub> - C - CH<sub>2</sub> - CH<sub>3</sub>
∵ This compound doesn't have CH<sub>3</sub>CO - or 2° alcoholic group.
∴ It does not give positive iodoform test.
6 (a)
In C<sub>6</sub>H<sub>5</sub>Cl, Cl is firmly attached to C<sub>6</sub>H<sub>6</sub> nucleus.
7 (b)

For iodoform reaction, we need an oxidising agent which is provided by only  $\frac{I_2}{KOH}$ , *i.e.*, IO<sup>-</sup> ion.

Hypoiodide ion first oxidises

 $CH_3CH_2OH \rightarrow CH_3CHO$ 

and then brings about iodination of CH<sub>3</sub>CHO to I<sub>3</sub>C . CHO. Alkaline hydrolysis of Cl<sub>3</sub>CHO then gives

CHl<sub>3</sub>. The other three reagents do not contain any oxidising species and hence, fail to give iodoform

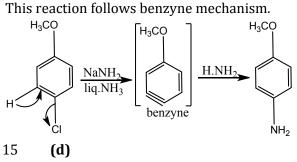
test.

## 9 **(b)**

Statement (b) is not correct regarding the  $S_N 1$  reaction for alkyl halide because in  $S_N 1$  reaction no inversion takes place. The removal of X and the attachment of  $OH^-$  will take place from the same side.

 $R - X \xrightarrow{Slow} R^{+} + X^{-}$   $R^{+} + OH^{-Fast} ROH$ 10 (c) Alkyl halides are soluble in organic solvents. 11 (d) C<sub>2</sub>H<sub>5</sub>Br + AgNO<sub>2</sub>(alc.)  $\rightarrow$  C<sub>2</sub>H<sub>5</sub>NO<sub>2</sub> + AgBr nitro ethane

13 **(a)** 



Grignard reagent give nucleophilic addition (of  $R^-$ ) at +ve centre.

16 **(a)** 

Tetrahydrofuran when treated with excess HI, give 1, 4-diiodobutane.

$$\begin{array}{c} & & \\ & &$$

 $I_2$  possesses antiseptic nature.

19 **(d)** 

Wurtz's reaction involves the



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

