## **HALOGEN DERIVATIVES**

- 1. Alkyl halides can be obtained by all methods excepts
  - (1)  $CH_3$ — $CH_2$ —OH + HCl  $ZnCl_2$
  - (2)  $CH_2 = CH CH_3 + HBr \longrightarrow$
  - $(3) C_9H_5OH + NaCl \longrightarrow$
  - (4)  $CH_3COOAg + Br_2 / CCl_4 \xrightarrow{hv}$
- **2.** Which of the following will not give iodoform test
  - (1) CH<sub>3</sub>—C—CH<sub>5</sub>
  - (2)  $C_2H_5-C-C_2H_5$
  - (3) H—CH<sub>2</sub>—CH—C<sub>2</sub>H OH
  - (4) I—CH<sub>2</sub>—C—CH<sub>2</sub>—H
- **3.** Which of the following product is obtained when bleaching powder is distilled with acetone
  - (1) CCl<sub>4</sub>

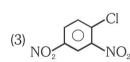
- (2) CHCl<sub>2</sub>
- (3) CH<sub>3</sub>—CH<sub>3</sub>
- (4) All
- 4. Which will give yellow ppt. with iodine and alkali
  - (1) Propan-2-ol
  - (2) Benzophenone
  - (3) Methyl acetate
  - (4) Acetamide
- **5.** Which of the following has the highest boiling point
  - (1) CH<sub>3</sub>CH<sub>3</sub>I
- (2) CH<sub>3</sub>Cl
- (3) CH<sub>3</sub>I

- (4) CH<sub>3</sub>Br
- **6.** A compound containing two –OH groups attached with one carbon atoms is unstable but which one of the following is stable
  - (1) CH<sub>3</sub>CH $\stackrel{ ext{OH}}{<}$ OH
- (2) CH<sub>3</sub>—C—OH
- (3) Cl<sub>3</sub>C-CH(OH
- (4) All

- 7. Arrange the following compounds in decreasing order of reactivity in  $SN^1$  reaction:-
  - (a) Ph-CH<sub>2</sub>-Cl
- b) (Cl

(c) Cl

- CH<sub>3</sub> | (d) CH<sub>3</sub>-C-CH<sub>2</sub>-Cl | CH<sub>2</sub>
- (1) a > c > b > a
- (2) c > d > b > a
- (3) a > b > c > d
- (4) b > a > c > d
- 8. The purity of CHCl<sub>3</sub> can be checked by
  - (1) treating CHCl<sub>3</sub> by NaOH
  - (2) treating CHCl<sub>3</sub> by HCl
  - (3) treating CHCl<sub>3</sub> with aq. AgNO<sub>3</sub>
  - (4) treating CHCl<sub>3</sub> by C<sub>2</sub>H<sub>5</sub>-OH
- **9.** Pure CHCl<sub>3</sub> and pure CHI<sub>3</sub> can be distinguished by
  - (1) treating with litmus paper
  - (2) treating with aq. KOH
  - (3) treating with HCl
  - (4) treating with aq. AgNO<sub>3</sub>
- **10.** Which of the following undergoes hydrolysis most easily
  - (1) O
- $(2) \bigcirc \bigcap_{NO}^{Cl}$



- $(4) NO_2 CI NO_2$
- 11. Which of the following is used as insecticide
  - (1) D.D.T.
- (2) Chloretone
- (3) CHCl<sub>3</sub>
- (4) All of them
- **12.** Which of the following when heated with KOH and primary amine gives carbylamine test
  - (1) CHCl<sub>3</sub>
- (2) CH<sub>2</sub>Cl<sub>2</sub>
- (3) CH<sub>3</sub>OH
- (4) CCl<sub>4</sub>

Which reaction gives elimination as a major product

(1) 
$$CH_3$$
 $\downarrow$ 
 $CH_3$ 
 $CH_3$ 
 $CH_3$ 
 $CH_3$ 
 $CH_3$ 

(2) 
$$CH_3$$
- $CH_2$ - $Br + NaCN \xrightarrow{DMSO}$ 

(3) 
$$CH_3 - CH_2 - Br + NaI - Dry acetone$$

(4) 
$$CH_3$$
 $\downarrow$ 
 $CH_3$ 
 $CH_3$ 
 $CH_3$ 
 $CH_3$ 
 $CH_3$ 
 $CH_3$ 

- **14**. When alkyl magnesium halide reacts with R'-NH<sub>9</sub> the product is
  - (1) R-R
- (2) R H
- (3) R<sub>2</sub>NH
- (4) R—X
- **15**. Chloroform on reaction with acetone gives:-
  - (1) Acetylene
- (2) Chloretone
- (3) Nitrochloroform
- (4) Chloroacetone
- Chloroform reacts with aniline and aqueous KOH **16**. gives :-
  - (1) Ph N  $\stackrel{\rightarrow}{=}$  C (Phenyl isocyanide)
  - (2) Benzene
  - (3) Phenyl cyanide
  - (4) None of these
- Which reaction product is wrong (major) product **17**.

$$(1) \bigcup_{Br} \frac{Zn(dust)}{\Delta} \longrightarrow \bigcirc$$

(2) 
$$CH_3CH_2CH_2Br \xrightarrow{Nal \text{dry Acetone}} CH_3CH_2CH_2I$$

(3) 
$$CH_3CHCHCH_3 \xrightarrow{Zn(dust)} CH_3CH=CHCH_3$$
Br Br

(4) 
$$CH_3CH_2CHCl_2 \xrightarrow{\text{(ij)NaNH}_2\text{(excess)}} CH_3C = CH$$

- Which of the following undergoes nucleophilic **18**. substitution by SN1 mechanism at fastest rate :
  - $(1) CH_3-CH_2-CI$

19. Which of the following pair is differentiated by iodoform test?

(4) 
$$CH_2$$
,  $CH_2$ 

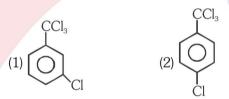
20. Identify z in the following series

$$CH_2 = CH_2 \xrightarrow{\text{HBr}} x \xrightarrow{\text{Hydrolysis}} y \xrightarrow{I_2/\text{NaOH}} z$$

- (1)  $C_2H_5I$  (2)  $C_2H_5OH$  (3) CHI.
- (3) CHI<sub>3</sub>
- (4) CH<sub>2</sub>CHO

21. 
$$C_6H_5CCl_3 \xrightarrow{Cl_2} X$$

In the above reaction X is



$$CCl_3$$
 (4) None of these

22. 
$$NaOH \rightarrow G$$
 NaOH  $A \otimes Pressure \rightarrow G$ 

Rate of reaction is maximum if G is :-

- $(1) OCH_3$
- $(2) CH_3$
- $(3) NO_{2}$
- (4) -H
- **23**. Hydrolysis of optically active 2-bromobutane gives-
  - (1) d-butan-2-ol
- (2) *ℓ*-butan-2-ol
- (3) ( $d\ell$ )-butan-2-ol
- (4) either of these

- **24.** When a haloalkane with  $\beta$ -hydrogen is heated with alcoholic solution of KOH the product and the type of mechanism is-
  - (1) Alcohol, S<sub>N</sub>1
- (2) Alkene,  $\alpha$ -elimination
- (3) Alcohol, S<sub>N</sub>2
- (4) Alkene, β-elimination
- 25. In RMgX, C-Mg bond is-
  - (1) Non polar covalent
  - (2) Polar covalent
  - (3) Ionic
  - (4) Coordinate
- 26. The incorrect reaction is-

(1) 
$$(i)$$
 NaOH, 280 K  $(ii)$  H<sup>+</sup>

(2) 
$$(i)$$
 NaOH, 443 K  $(ii)$   $H^+$   $(ii)$   $H^+$   $(ii)$   $H^+$ 

(3) 
$$NO_2$$
 (i) NaOH, 358 K  $NO_2$  (ii)  $N^+$   $NO_2$ 

$$(4) \xrightarrow{O_2N} \xrightarrow{NO_2} \xrightarrow{Warm H_2O} \xrightarrow{O_2N} \xrightarrow{O_1} \xrightarrow{NO_2} \xrightarrow{NO_2}$$

27. Conc. 
$$H_2SO_4 \rightarrow Q$$
(major)

(1) 
$$\bigcirc$$
 SO<sub>3</sub>H (2)  $\bigcirc$  SO<sub>3</sub>H

(3) 
$$\bigcirc$$
 (4)  $\bigcirc$  SO<sub>3</sub>H  $\bigcirc$  SO<sub>3</sub>H  $\bigcirc$  SO<sub>3</sub>H

28. The correct reaction is -

(1) 
$$Cl$$
  $conc. HNO_3$   $Cl$   $conc. H2SO4  $NO_2$  (major)$ 

(2) 
$$\longleftrightarrow$$
 +  $CH_3Cl$  Anhyd.  $AlCl_3$   $\longleftrightarrow$   $CH_3$  (major)

(3) 
$$Cl$$
 +  $CH_3COCl$  Anhyd.  $AlCl_3$   $COCH_3$  (major)

- (4) All of these
- **29.** Which of the following is correct

(1) 
$$2RX + 2Na \xrightarrow{wurtz \ reaction} R - R + 2NaX$$

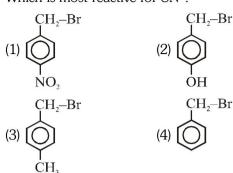
$$(2) \bigcirc + \text{Na} + \text{R-x} \xrightarrow{\text{wurtz-fittig}} + \text{NaX}$$

- (4) All of these
- 30. Incorrect match is-
  - (1) Iodoform Antiseptic
  - (2) Pyrene Fire extinguisher
  - (3) Freon 12 aerosol propellants
  - (4) DDT Fat insoluble
- **31.** Which is most reactive for  $S_N 1$  reaction :-

$$(1) \quad Ph \qquad C1 \qquad (2) \quad Ph \qquad Mc$$

## HALOGEN DERIVATIVES

**32.** Which is most reactive for SN<sup>1</sup>?



- **33.** The reaction  $,CH_3Br + OH^- \longrightarrow CH_3OH + Br^-$  obeys the mechanism
  - $(1) S_{N} 1$

(2)  $S_{N}^{2}$ 

(3)  $E^1$ 

- (4) E<sup>2</sup>
- ${\bf 34.} \quad {\bf S}_{\rm N} {\bf 1} \ {\rm reaction} \ {\rm on} \ {\rm an} \ {\rm optically} \ {\rm active} \ {\rm substrate} \ {\rm having} \\ {\rm only} \ {\rm one} \ {\rm chiral} \ {\rm centre} \ {\rm which} \ {\rm is} \ {\rm also} \ {\rm reaction} \ {\rm centre}, \\ {\rm gives} : \\$ 
  - (1) Retention in configuration
  - (2) Inversion in configuration
  - (3) Partially racemised product
  - (4) Complete racemised product

**35.** Arrange the following compounds in the increasing order of their  $SN^2$  reactivity?

- (1) (a) < (b) < (c) < (d)
- (2) (a) < (c) < (d) < (b)
- (3) (d) < (c) < (b) < (a)
- (4) (b) < (d) < (c) < (a)
- **36.** Which of the following alkyl halides gives a mixture of alkenes on dehydrohalogenation
  - (1) n-Propyl halide
- (2) Isopropyl halide
- (3) s-Butyl bromide
- (4) t-Butyl bromide

## **ANSWER KEY**

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	3	2	2	1	1	3	4	3	4	4	1	1	4	2	2
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	1	1	3	2	3	1	3	3	4	2	1	3	4	4	4
Que.	31	32	33	34	35	36									
Ans.	2	2	2	3	1	3									