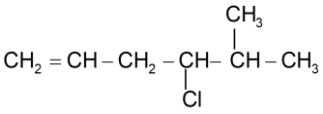
Chapter 01

Halogen Derivatives

NEET RANKER'S STUFF

Q.1 Consider the reaction.

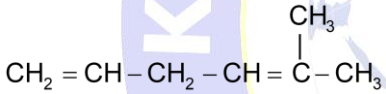


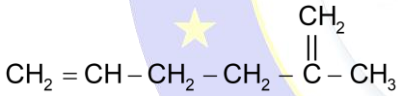
$\xrightarrow[\Delta]{OH^-}$ Product Major

The major product is

(1) 

(2) 

(3) 

(4) 

Q.2 Which of the following statements is true?

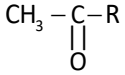
(1) $CH_3–CH_2–CH_2–I$ will react less readily than $(CH_3)_2$ CHI for reactions.

(2) $CH_3–CH_2–CH_2–Cl$ will react more readily than $CH_3–CH_2–CH_2–Br$ for reaction.

(3) $CH_3–CH_2–CH_2–CH_2–Br$ will react more readily than $(CH_3)_3C–CH_2–Br$ for reaction

(4) $CH_3–O–C_6H_4–CH_2Br$ will react more readily than $NO_2–C_6H_5–CH_2Br$ for reaction

Q.3 Which of the following statement is not correct?

(1) Carbonyl compounds of the general structure  give a positive iodoform test.

(2) All secondary alcohols give iodoform reaction.

(3) Alkanols of the structure $CH_3CH(OH)–R$ (where R=H, alkyl or aryl) give iodoform reaction.

(4) The only aldehyde giving iodoform reaction is acetaldehyde.

Q.4 Chlorination of toluene in the presence of light and heat followed by treatment with aqueous NaOH gives :

(1) o-cresol

(2) p-cresol

(3) 2,4– dihydroxytoluene

(4) Benzoic acid

Q.5 In order to prepare 1-chloropropane, which of the following reactants can be employed?

(1) Propene and Cl_2 followed by treatment with aq. KOH

(2) Propene and HCl in the presence of peroxide

(3) 1–Propanol and $SOCl_2$/pyridine

(4) Any of the above can be used

Q.6 Which of the following molecules would have a carbon-halogen bond most susceptible to nucleophilic substitution ?

(1) 2-chlorobutane (2) 2-fluorobutane

(3) 2-bromobutane (4) 2-iodobutane

Q.7 Which of the following cannot be used for the preparation of iodoform ?

(1) Acetone (2) Methanol

(3) Ethanol (4) Acetaldehyde

Q.8 A suspension of $CaOCl_2$ in water is heated with ethanol. The product formed is :

(1) Ethylene (2) Ethanol

(3) Trichloromethane (4) Chloroethane

Q.9 When iodoform is heated with silver powder, the gaseous product formed is :

(1) Ethene (2) Ethyne

(3) Ethane (4) Silver iodate

Q.10 $(CH_3)_2CHI \xrightarrow[EtOH]{KOH} (A) \xrightarrow[475K]{SO_2Cl_2} (B)$

Compound (B) in the sequence is :

(1) Dimethyl sulphate

(2) 1,2-Dichloro ethane

(3) 3-Chloro propene

(4) 1-Chloro-2-iodopropane

Q.11 Fire extinguisher pyrene is :

(1) CO_2 (2) CCl_4 (3) $CHCl_3$ (4) H_2CO_3

Q.12 Carbylamine test is performed by in alcoholic KOH by heating a mixture of :

(1) Chloroform and silver powder

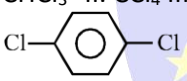
(2) Trihalogenated methane and a primary amine

(3) An alkyl halide and a primary amine

(4) An alkyl cyanide and a primary amine

Q.13 Consider the following halogen - containing compounds:

I. $CHCl_3$ II. CCl_4 III. CH_2Cl_2 IV.CH_3Cl

V. 

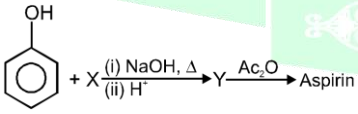
The compounds with a net zero dipole moment are :

(1) (II), (V) (2) (II) (3) (III), (IV) (4) (I), (IV)

Q.14 CH_3NH_2+ $CHCl_3$ + KOH → Nitrogen - containing compound + KCl + H_2O. The nitrogen - containing compound is:

(1) $CH_3 - C \equiv N$ (2) $CH_3 - NH - CH_3$

(3) $CH_3 - \overset{\ominus}{N} \equiv \overset{\oplus}{C}$ (4) $CH_3 \overset{\oplus}{N} \equiv \overset{\ominus}{C}$

Q.15 

X is:

(1) $CHCl_3$ (2) CCl_4

(3) CO_2 (4) 2 & 3 both

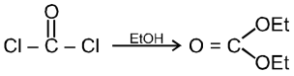
Q.16 Which of the following can show haloform reaction

(1) $CH_3 - \overset{O}{\overset{\|}{C}} - Cl$ (2) $CH_3 - \overset{O}{\overset{\|}{C}} - C_6H_5$

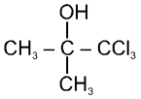
(3) $CH_3 - \overset{O}{\overset{\|}{C}} - NH_2$ (4) $CH_3 - \overset{O}{\overset{\|}{C}} - OC_6H_5$

Q.17 Which among the following options is incorrect?

(1) 1% ethanol is added in chloroform to convert poisonous $COCl_2$ into nonpoisonous diethyl carbonate



(2) $CHCl_3 \xrightarrow{HNO_3} CCl_3 - NO_2$(Chloropicrin)

(3) $CHCl_3 \xrightarrow{CH_3COCH_3}$ 

(Chloretone)

(4) $CHCl_3 \xrightarrow{Ag(s)} CH_2 = CH_2$

Q.18 Match the following columns :

Column-I (Reaction)	**Column-II (About product)**
(A) $CHCl_3 \xrightarrow{HNO_3}$	(P) Poisonous gas
(B) $CHCl_3 \xrightarrow{CH_3-\overset{O}{\overset{\|}{C}}-CH_3}$	(Q) Hypnotic (colourless solid)
(C) $CHCl_3 \xrightarrow[KOH]{RNH_2}$	(R) Unpleasant smell compound
(D) $CHCl_3 \xrightarrow[hv]{O_2}$	(S)Insectiside(Tear gas)

(1) (A - S), (B - Q), (C - R), (D - P)

(2) (A - Q), (B - S), (C - P), (D - R)

(3) (A - R), (B - S), (C - Q), (D - P)

(4) (A - P), (B - R), (C - Q), (D - S)

Q.19 Among the following the one that gives positive iodoform test upon reaction with I_2 and NaOH is

(1) $CH_3CH_2CH(OH)CH_2CH_3$

(2) $C_6H_5CH_2CH_2OH$

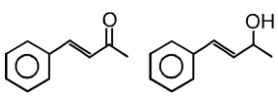
(3) 

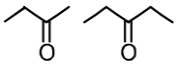
(4) $PhCHOHCH_3$

Q.20 Which of the following pair is not differentiated by iodoform test?

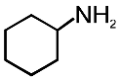
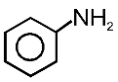
(1) $H - \overset{O}{\overset{\|}{C}} - H$, CH_3CHO

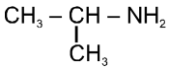
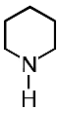
(2) $CH_3 - \overset{O}{\overset{\|}{C}} - CH_3$, $H - \overset{O}{\overset{\|}{C}} - H$

(3) 

(4) 

Q.21 Which of the following gives negative carbylamine reaction?

(1)  (2) 

(3)  (4) 

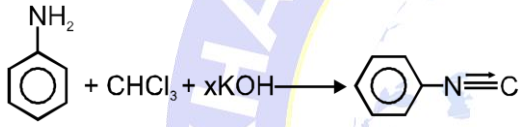
Q.22 Which of the following is used as refrigerant?

(1) CO_2 (2) $CHCl_3$ (3) SiC (4) CF_2Cl_2

Q.23 When chloroform is hydrolysed with KOH, then the final product is :

(1) HCOOH (2) HCOOK

(3) CH_3OH (4) None of these

Q.24 

Moles of KOH used in :

(1) 1 (2) 2 (3) 3 (4) 4

Q.25 Which of the following compound is used to remove phosgene

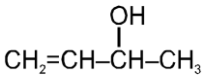
(1) $CH_3 - OH$ (2) 

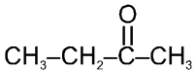
(3) $C_2H_5 - OH$ (4) None of these

Q.26 Which of the following is responsible for ozone Layer depletion ?

(1) $CHCl_3$ (2) CF_2Cl_2 (3) CH_2F_2 (4) CCl_4

Q.27 Compound [X], whose MF is C_4H_8O gives positive haloform test but gives no 2, 4-DNP derivative is

(1)  (2) $CH_3–CH_2–CH_2–CHO$

(3)  (4) 

Q.28 Which statements are true for S_N2 reaction of alkyl halides?

(i) Both of the alkyl halide and nucleophile are involved in the transition state.

(ii) Reaction proceeds with inversion of configuration at the substitution centre.

(iii) Reaction proceeds with retention of configuration at the substitution centre.

(iv) The order of reactivity is 3° > 2° > 1°.

(v) The nucleophile must have an unshared electron pair or bear a negative charge.

(vi) The greater the nucleophilicity of the nucleophile, the greater the rate of reaction.

(1) i, ii, v, vi (2) i, iii, v, vi

(3) i, ii, iv, v (4) i, ii, vi

Q.29 What is the reagent(s) needed for the following reaction?

(1) HCl (2) NaBr (3) HBr (4) Br_2

Q.30 Which statements are true for S_N1 reaction of alkyl halides?

(i) Both of the alkyl halide and nucleophile are involved in the transition state.

(ii) Reaction proceeds with inversion of configuration at the substitution centre.

(iii) Reaction proceeds via the formation of carbocation intermediate.

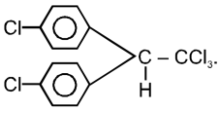
(iv) The order of reactivity is 3° > 2° > 1°.

(v) The nucleophile must have an unshared electron pair and bear a negative charge.

(vi) Protic solvents favour S_N1 reaction.

(1) iii, iv, vi (2) ii, iv, v

(3) i, ii, vi (4) i, ii, v, vi

Q.31  The above structural formula refers to

(1) BHC (2) DNA (3) DDT (4) RNA

Q.32 Benzene hexachloride is

(1) 1, 2, 3, 4, 5, 6-hexachlorocyclohexane

(2) 1, 1, 1, 6, 6, 6-hexachlorocyclohexane

(3) 1, 6-diphenyl-1, 6-dichlorohexane

(4) 1, 1-diphenyl-6, 6-dichlorohexane

The questions given below consist of two statement each printed as Assertion and Reason. While answering these questions, you are required to choose any one of the following four options.

(A) If both Assertion and Reason are correct and Reason is correct explanation of Assertion.

(B) If both Assertion and Reason are correct and Reason is not correct explanation of Assertion.

(C) If Assertion is correct but Reason is incorrect.

(D) If Assertion is incorrect but Reason is correct.

Q.33 **Assertion:** Isobutanal does not give iodoform test.

Reason: It does not have α–hydrogen

(1) A (2) B (3) C (4) D

Q.34 **Assertion:** tert-Butyl methyl ether is not prepared by the reaction of tert-butyl bromide with sodium methoxide.

Reason: Sodium methoxide is a strong nucleophile.

(1) A (2) B (3) C (4) D

Q.35 **Assertion:** Benzonitrile is prepared by the action of chlorobenzene with KCN.

Reason: Cyanide ion (CN^-) is a strong nucleophile.

(1) A (2) B (3) C (4) D

Q.36 **Assertion:** Aryl halides undergoes nucleophilic substitution reactions with ease.

Reason: The C–H bond in aryl halides has partial double bond character.

(1) A (2) B (3) C (4) D

Q.37 **Assertion:** Benzyl bromide when kept in acetone water, it produces benzyl alcohol.

Reason: The reaction follows S_N2 mechanism.

(1) A (2) B (3) C (4) D

ANSWER KEY

PRACTICE SECTION-01

Que.	1	2	3	4	5	6	7	8
Ans:	4	1	4	1	3	3	2	2

PRACTICE SECTION-02

Que.	1	2	3	4	5	6	7	8
Ans:	2	4	4	1	2	1	2	2

TOPIC WISE QUESTIONS

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	1	1	4	2	4	4	1	3	3	3	4	3	4	2	1
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	4	3	1	3	1	1	2	4	1	2	4	2	3	1	3
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	1	1	1	2	2	3	1	2	1	3	2	3	1	2	2,3,4
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	1	1	3	4	3	4	1	2	2	3	3	2	4	2	4
Que.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	4	2	3	1	2	2	3	2	1	4	1	3	1	2	3
Que.	76	77	78	79	80	81	82	83	84	85	86	87			
Ans.	2	1	3	2	3	3	1	3	1	3	1	4			

NEET RANKER'S STUFF

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	1	3	2	4	3	4	2	3	2	3	2	2	1	4	4
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	2	4	1	4	3	4	4	2	3	3	2	1	1	3	1
Que.	31	32	33	34	35	36	37								
Ans.	3	1	3	2	4	4	3								

NEET-FLASHBACK

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	1	2	4	2	1	3	4	3	2	1	3	3	2	4	4
Que.	16	17	18	19	20	21									
Ans.	2	1	2	3	3	2									