

ALKYL HALIDES

- Which one is not a nucleophile?
(a) H_2O (b) H_2S (c) **BF_3** (d) Cl_2
- Which reagent is good nucleophile?
(a) **NH_3** (b) HBr (c) Br_2 (d) BH_3
- Which nucleophile is required to convert 1-bromobutane to methyl butyl ether?
(a) Methyl iodide (b) **Methoxide ion** (c) Butoxide ion (d) Hydroxide ion
- Which of the following alkyl halides is the most reactive in an S_N -reaction.
(a) Ter-Butyl fluoride (b) Ter-Butyl chloride (c) Ter-Butyl bromide (d) **Ter-Butyl iodide**
- Shape of carbonium ion is.
(a) Tetrahedral (b) Octahedral (c) Linear (d) **Trigonal planar**
- Which rate equation describes an E_2 reaction.
(a) $\text{Rate} = k[\text{alkyl halide}]$ (b) $\text{Rate} = k[\text{alkyl Halide}][\text{nucleophile}]$
(c) $\text{Rate} = k[\text{alkyl Halide}][\text{base}]^2$ (d) **$\text{Rate} = k[\text{alkyl Halide}][\text{base}]$**
- Which reagent forms acetic acid when reacted with CH_3MgBr .
(a) CH_3I (b) $\text{C}_2\text{H}_5\text{OH}$ (c) **CO_2** (d) HCHO
- In primary alkyl halides, the halogen atom is attached to a carbon which is further attached to how many carbon atoms.
(a) **One** (b) Two (c) Three (d) Four
- The reactivity order of alkyl halides for a particular alkyl group is.
(a) Fluoride > Chloride > Bromide > Iodide (b) Chloride > Bromide > Fluoride > Iodide
(c) **Iodide > Bromide > Chloride > Fluoride** (d) Bromide > Iodide > Chloride > Fluoride
- When CO_2 is made to react with ethyl magnesium iodide, followed by acid hydrolysis, the product formed is
(a) Propane (b) **Propanoic acid** (c) Propanal (d) Propanol

11. Grignard reagent is reactive due to
 (a) The presence of halogen atom (b) The presence of Mg atom
(c) The polarity of C – Mg bond (d) None of the above
12. SN_2 reactions can be best carried out with
(a) Primary alkyl halides (b) Secondary alkyl halides
 (c) Tertiary alkyl halides (d) All the three
13. Elimination bimolecular reactions involve.
 (a) First order kinetics **(b) Second order kinetics**
 (c) Third order kinetics (d) Zero order kinetics
14. For which mechanisms, the first step involved is the same.
 (a) E_1 and E_2 (b) E_2 and SN_2 (c) SN_1 and E_2 **(d) E_1 and SN_1**
15. Alkyl halides are considered to be very reactive compounds towards nucleophiles, because they have.
 (a) An electrophilic carbon
(b) An electrophilic carbon and a good leaving group
 (c) A electrophilic carbon and a bad leaving group
 (d) A nucleophilic carbon and a good leaving group
16. The rate of E_1 reaction depends upon.
(a) The concentration of substrate
 (b) The concentration of nucleophile
 (c) The concentration of substrate as well as nucleophile
 (d) None of the above
17. Which one of the following is not a nucleophile?
 (a) H_2O (b) H_2S **(c) BF_3** (d) NH_3
18. Secondary alkyl halides are those in which halogen atom is attached with a carbon atom which is further attached to.
 (a) One β –carbon **(b) Two β - carbon** (c) Three β -carbon (d) Four β -carbon
19. The general formula of mono halo alkane is.
 (a) $C_nH_{2n}X$ (b) $C_nH_{n+1}X$ **(c) $C_nH_{2n+1}X$** (d) $C_{2n}H_{2n+1}X$

20. Ethyl chloride when reduces with $\text{Zn} + \text{HCl}$, the product will be.
 (a) Ethyl alcohol **(b) Ethane** (c) Butane (d) Propane
21. The IUPAC name of given compound is.

$$\begin{array}{c} \text{CH}_3 \\ | \\ \text{CH}_3 - \text{CH} - \text{CH}_2 - \text{Cl} \end{array}$$
 (a) 1-chloro 2- methylbutane **(b) 1-chloro-2-methyl propane**
 (c) Iso-butyl chloride (d) 3-chloro-2- methyl propane
22. Ethene reacts with halogen acids to form alkyl halide. The process is known as.
 (a) Halogenation **(b) Hydro halogenation** (c) Hydrogenation (d) Dehydrohalogenating
23. Which one of the following reagents does not change ethyl alcohol to ethyl chloride?
 (a) HCl Zn Cl_2 (b) SOCl_2 in pyridine (c) PCl_3 **(d) Aqueous KOH**
24. Which substance is used to convert alcohol to alkyl halide?
 (a) SOCl_2 (b) PCl_3 (c) $\text{HCl} + \text{ZnCl}_2$ **(d) All of these**
25. In which process, alkyl halide is not produced.
 (a) Reaction of alcohol with halogen acid
(b) Reaction of Grignard reagent with water
 (c) Reaction of alcohol with phosphorous pentachloride
 (d) Action of alkene on halogen acid
26. Which products is not formed when ethyl alcohol reacts with SOCl_2 in the presence of pyridine.
 (a) Ethyl chloride (b) Hydrogen chloride **(c) Sulphur trioxide** (d) Sulphur dioxide
27. For the reaction $\text{C}_2\text{H}_5\text{OH} + \text{HX} \longrightarrow \text{C}_2\text{H}_5\text{X} + \text{H}_2\text{O}$. The order of reactivity of HX is.
 (a) $\text{HBr} > \text{HI} > \text{HCl}$ **(b) $\text{HI} > \text{HBr} > \text{HCl}$** (c) $\text{HI} > \text{HCl} > \text{HBr}$ (d) $\text{HCl} > \text{HBr} > \text{HI}$
28. When alkyl bromide reacts with NaI , alkyl iodide is formed $\text{RBr} + \text{NaI} \longrightarrow \text{RI} + \text{NaBr}$?
 What type of reaction it is.
 (a) Nucleophilic addition **(b) Nucleophilic substitution**
 (c) Electrophilic addition (d) Electrophilic substitution
29. Nucleophilic substitution reaction, which are completed in two steps are called as.
(a) SN_1 (b) SN_2 (c) E_2 (d) E_1

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30. SN_1 reaction usually occurs in
 (a) Primary alkyl halides (b) Secondary alkyl halides
(c) Tertiary alkyl halides (d) All of these
31. SN_2 mechanism involves.
 (a) 1st order kinetic (b) 2nd order kinetic (c) 3rd order kinetic (d) Zero order kinetic
32. Which one of the following species is a nucleophile?
 (a) CH_3^+ (b) $(\text{CH}_3)_3\text{C}^+$ (c) BF_3 (d) OH^-
33. In unimolecular reactions, the reaction completes in.
 (a) One step (b) Two steps (c) Three steps (d) None of these
34. Which one of the following species is not an electrophile?
(a) HN_3 (b) Br^+ (c) H^+ (d) BF_3
35. An alkyl halide may be converted to alcohol by.
 (a) Addition (b) Substitution (c) Dehydrohalogenating (d) Elimination
36. The reactions of alkyl halides with sodium metal in the presence of ether to form alkane is known as.
(a) Wurtz reaction (b) Frankland reaction (c) Sabatier Sendron (d) Kolbe's synthesis
37. Which one of the following products will be formed in Wurtz reaction when sodium metal reacts with ethyl chloride in anhydrous ether.
 (a) Methane (b) Butane (c) Ethane (d) Propane
38. Which one of the following reactants will be required to form ethyl alcohol from ethyl bromide?
 (a) Alcoholic KOH (b) Aqueous KOH (c) Alkaline KMnO_4 (d) Sodium metal in ether
39. Which one of the following reactants will be required to form ethane from ethyl chloride?
(a) Alcoholic KOH (b) Aqueous KOH (c) Alkaline KMnO_4 (d) Bromine
40. Which alkyl halide does not form Grignard's Reagent?
 (a) CH_3-Br (b) CH_3-Cl (c) CH_3-F (d) CH_3-I
41. The general representation for Grignard reagent is.
(a) RMgX (b) R_2MgX (c) RXMg (d) RMgM_2

42. Acetic acid can be obtained from CH_3MgI by treatment with.
 (a) H_2O (b) CINH_2 **(c) CO_2** (d) HCHO
43. Which one of the following alkanes will be formed by the hydrolysis of ethyl magnesium bromide?
 (a) Methane **(b) Ethane** (c) Butane (d) Do not hydrolyzed
44. Which one of the following alcohols will be formed when ethyl magnesium bromide reacts with acetone?
 (a) Primary alcohol (b) Secondary alcohol **(c) Tertiary alcohol** (d) Dihydric alcohol
45. Which one of the following molecules does not form alcohol when reacts with a Grignard reagent.
 (a) Formaldehyde (b) Acetaldehyde (c) Propanene **(d) CO_2**
46. Which substances is used to convert Grignard reagent to alkane.
 (a) H_2O (b) NH_3 (c) Ethyl alcohol **(d) All of these**
47. What products is formed when ethyl bromide reacts with magnesium to form Grignard's reagent.
 (a) Pyridine **(b) Anhydrous ether** (c) Ethyl alcohol (d) Carbon tetrachloride
48. The most reactive alkyl halide is.
(a) Alkyl Iodide (b) Alkyl Bromide (c) Alkyl fluoride (d) Alkyl chloride
49. When CO_2 is made to react with ethyl magnesium iodide followed by acid hydrolysis, the products formed is.
 (a) Propane **(b) Propanoic acid** (c) Propanal (d) Propanol
50. Cyanogen chloride reacts with ethyl magnesium bromide to give.
 (a) $\text{CH}_3\text{CH}_2\text{Cl}$ (b) $\text{CH}_3\text{CH}_2\text{Br}$ (c) C_4H_{10} (d) $\text{CH}_3\text{CH}_2\text{CN}$
51. Which compound is formed, when CH_3OH react with $\text{CH}_3\text{-Mg-Br}$.
(a) Ethane (b) Methane (c) Ethanol (d) Acetone
52. The reactivity order of alkyl halides for a particular alkyl group is.
 (a) Fluoride > Chloride > Bromide > Iodide (b) Chloride > Bromide > Fluoride > Iodide
 (c) Bromide > Iodide > Chloride > Fluoride **(d) Iodide > Bromide > Chloride > Fluoride**

53. Alkyl halides are considered to be very reactive compounds towards nucleophile because.

- (a) They have an electrophilic carbon
(b) They have an electrophilic carbon a good leaving group
 (c) They have an electrophilic carbon and a bad leaving group
 (d) They have a Nucleophilic carbon and a good leaving group.

54. Which one of following is best nucleophile?

- (a) H_2O (b) NH_3 **(c) $\text{C}_2\text{H}_5\text{O}$** (d) NO

55. Which one is the best leaving group?

- (a) I^-** (b) Br^- (c) Cl^- (d) F^-

56. Ethyl bromide reacts with aqueous KOH to produce is.

- (a) Ethene (b) Ethane **(c) Ethanol** (d) Ethanoic acid

57. Which one of the following with Grignard's reagent can give alcohol?

- (a) Epoxide** (b) Peroxide (c) Super oxide (d) Hydrogen oxide

58. In $\text{S}_\text{N}2$ mechanism, the rate of bond formation is _____ rate of bond breakage.

- (a) Less than **(b) Equal to** (c) Greater than (d) Cannot be predicted

59. Order ad molecularity of $\text{S}_\text{N}2$ reaction of alkyl halide is.

- (a) 1,2 (b) 2,1 **(c) 2,2** (d) 0,1

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