Subject: Chemistry   Std- XII / Sec.:   Worksheet :1
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1.Which of the following is most reactive towards nucleophilic substitution reaction?

(a) C_6H_5Cl

(b) $CH_2=CHCl$

(c) $ClCH_2CH=CH_2$

(d) $CH_3CH=CHCl$

2.The most reactive nucleophile among the following is

(a) CH_3O^-

(b) $C_6H_5O^-$

(c) $(CH_3)_2CHO^-$

(d) $(CH_3)_3CO^-$

3.The main difference between C – X bond of a haloalkane and a haloarene is

(a) C – X bond in haloalkanes is shorter than haloarenes

(b) In haloalkanes the C attached to halogen in C – X bond is sp^3 hybridised while in haloarenes it is sp^2 hybridised.

(c) C – X bond in haloalkanes acquires a double bond character due to higher electronegativity of X than haloarenes.

(d) haloalkanes are less reactive than haloarenes due to difficulty in C – X cleavage in haloalkanes.

4. **Assertion :** SN^2 reaction of an optically active aryl halide with an aqueous solution of KOH always gives an alcohol with opposite sign of rotation.

   Reason : SN^2 reactions always proceed with inversion of configuration.

5. Haloalkanes react with KCN to give alkyl cyanide as main product while with AgCN they form isocyanides as main product. Give reason.

6. Which of the following two compounds would react faster by S_N^2 path way:

        1-Bromobutane or 1-Bromo-2-methylbutane and why?

7. What is meant by racemic mixture?

8. Out of $C_6H_5CH_2Cl$ and $C_6H_5CHClC_6H_5$, which is more easily hydrolysed by aqueous KOH?

9. Chlorobenzene on reaction with NaOH at 300K followed by acidic hydrolysis produces

(a) Phenol   (b) Sodium phenoxide

(c) Benzaldehyde   (d) Benzoic acid

10. Aryl halides are less reactive towards nucleophilic substitution reactions as compared to alkyl halides due to

(a) formation of a less stable carbonium ion in aryl halides

(b) resonance stabilization in aryl halides

(c) presence of double bonds in alkyl halides

(d) inductive effect in aryl halides

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2025-2026

Subject: Chemistry   **Std- XII / Sec.:**   **Worksheet :2**

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1. The term – dx/dt in a rate equation refers to :
    (a) the conc. of a reactant
    (b) the decrease in conc. of the reactant with time
    (c) the velocity constant of reaction
    (d) None of these

2. For a reaction $P + Q \rightarrow 2R + S$, the incorrect statement is
    (a) Rate of disappearance of P = Rate of appearance of S
    (b) Rate of disappearance of Q = 2 x Rate of appearance of R
    (c) Rate of disappearance of Q = Rate of disappearance of P
    (d) Rate of disappearance of Q = $1/2$ x Rate of appearance of R

3. In a reaction, $2X \rightarrow Y$, the concentration of X decreases from 0.50 M to 0.38 M in 10 min. Whatis the rate of reaction in Ms^{-1} during this interval?

    (a) 2×10^{-4} (b) 4×10^{-2} (c) 2×10^{-2} (d) 1×10^{-2}

4. Instantaneous rate of a chemical reaction is
    (a) rate of reaction in the beginning
    (b) rate of reaction at the end
    (c) rate of reaction at a given instant
    (d) rate of reaction between two specific time intervals

5. What do you understand by the term 'Rate of reaction'?

6. State two factors which affect rates of reaction. Explain the influence of one of them.

7. Why is it that instantaneous rate of reaction does not change when a part of the reacting solution is taken out?

8. What is the difference between Rate law and Law of Mass Action?

9. The rate of decomposition of a substance A becomes eight times when its concentration is doubled. What is the order of this reaction?

10. The reaction $A + B \rightarrow C$ has zero order, write its rate law equation.

11. Give one example of a pseudo first order reaction.

12. What is an elementary reaction?

13. In some chemical reactions, it is found that a large number of colliding molecules have energy more than threshold energy value, yet the reaction is quite slow. Why?

14. A reaction is second order with respect to a reactant. How is the rate of reaction affected if the concentration of the reactant is (i) doubled (ii) reduced to ½?

15. For a reaction: $A + H_2O \rightarrow B$, Rate α [A].

        What is its (i) Molecularity (ii) Order of reaction?