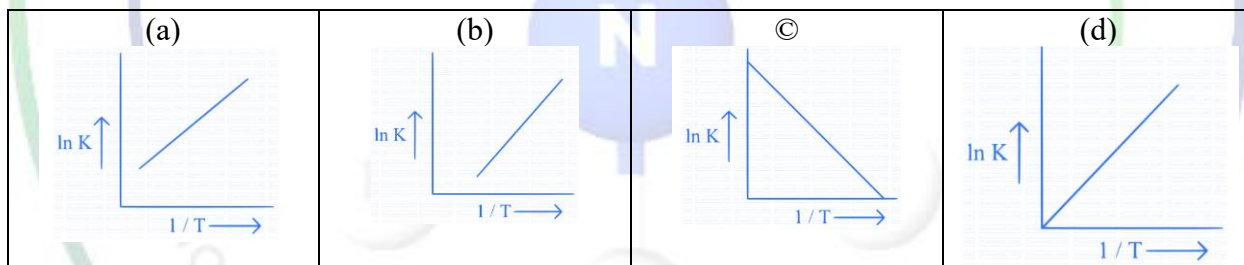


Worksheet-2: XII Chemistry

MCQ based questions on chemical kinetics, d and f block elements, Alkyl/aryl halide, Alcohol

- For a second-order reaction, what is the unit of the rate of the reaction?
(a) s^{-1} , (b) $\text{mol L}^{-1}\text{s}^{-1}$, (c) $\text{mol}^{-1}\text{L s}^{-1}$ (d) $\text{mol}^{-2}\text{L}^2\text{s}^{-1}$
- For a reaction $\text{A} + \text{B} \rightarrow \text{C}$, the experimental rate law is found to be $R = k[\text{A}]^1[\text{B}]^{1/2}$. Find the rate of the reaction when $[\text{A}] = 0.5\text{ M}$, $[\text{B}] = 0.1\text{ M}$ and $k = 0.03$.
(a) $4.74 \times 10^{-2} (\text{L/mol})^{1/2} \text{s}^{-1}$, (b) $5.38 \times 10^{-2} (\text{L/mol})^{1/2} \text{s}^{-1}$, (c) $5.748 \times 10^{-2} (\text{L/mol})^{1/2} \text{s}^{-1}$ (d) $4.86 \times 10^{-2} (\text{L/mol})^{1/2} \text{s}^{-1}$
- The rate of reaction depends on (a) volume, (b) force, (c) pressure, (d) concentration of reactants
- Which of the following plot represents the variation of $\ln K$ versus $\frac{1}{T}$ in accordance with Arrhenius equation?



- Activation energy of any chemical reaction can be calculated if one knows the value of (a) rate constant at standard temperature, (b) probability of collision, (c) orientation of reactant molecules during collision, (d) rate constant at two different temperatures
- Which of the following pairs of ions will have the same spin magnetic moment values within the pair? (a) Zn^{2+} , Ti^{2+} , (b) Cr^{2+} , Fe^{2+} , (c) Ti^{3+} , Cu^{2+} , (d) V^{2+} , Cu^{+}
- Which of the following set of ions act as oxidizing agents? (a) Ce^{+4} , Tb^{+4} , (b) La^{3+} , Lu^{3+} , (c) Eu^{2+} , Yb^{2+} , (d) Eu^{+2} , Tb^{+4}

8. Match List I and List II

	List I		List II
(A)	Lanthanoid	(i)	Ce
(B)	d block element	(ii)	As
(C)	p block element	(iii)	Cs
(D)	s block element	(iv)	Mn

9. Identify incorrect statement

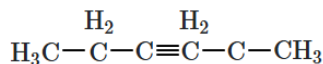
(a) PEt_3 and AsPh_3 as ligands can form $d\pi$ - $d\pi$ bond with transition metals, (b) The N-N single bond as strong as the P-P single bond (c) Nitrogen has unique ability to form $p\pi$ - $p\pi$ multiple bonds with nitrogen, carbon and oxygen, (d) Nitrogen cannot form $d\pi$ - $p\pi$ bond as other heavier elements of its group

10. E^0 value for the $\text{Mn}^{3+}/\text{Mn}^{+2}$ couple is more positive than that of $\text{Cr}^{+3}/\text{Cr}^{+2}$ or $\text{Fe}^{+3}/\text{Fe}^{+2}$ due to change of (a) d^5 to d^4 configuration, (b) d^5 to d^2 configuration, (c) d^4 to d^5 configuration, (d) d^3 to d^5 configuration

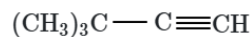
11. The stability of Cu^{+2} is more than Cu^+ salts in aqueous solution is due to (a) enthalpy of atomization, (b) Enthalpy of hydration, (c) first ionization enthalpy, (d) second ionization enthalpy

12. The correct structure of 3, 3-dimethyl butyne

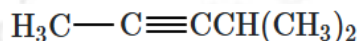
(a)



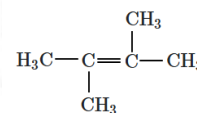
(b)



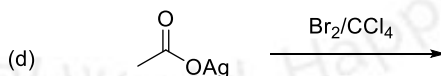
(c)



(d)



13. Which method will not yield alkyl halide



14. Which alkyl halide undergoes faster nucleophilic substitution?

(a) 2-chlorobutane, (b) 2-fluorobutane, (c) 2-iodobutane, (d) 2-bromobutane

15. When benzyl chloride is treated with ethanolic KCN the major product is (a) benzyl ethyl ether, (b) benzyl alcohol, (c) benzyl cyanide, (d) benzyl isocyanide

16. Grignard reagent does not undergo nucleophilic addition with (a) carbonyl functional group, (b) Nitrile functional group, (c) ester functional group (d) acid functional group

17. Pick up the correct statement (a) alkyl halides do not have any polar bond, (b) low molecular weight alcohols are water soluble, (c) alkyl halides are soluble in water, (d) formaldehyde undergoes Aldol condensation.

18. Which set of reactants among the following produces anisole?

(a) CH_3CHO and CH_3MgX , (b) Phenol, NaOH and CH_3I , (c) Phenol and neutral FeCl_3 , (d) Toluene, CH_3COCl , Anhydrous AlCl_3

19. The reaction of ethylformate with an excess of CH_3MgI followed by hydrolysis gives (a) n-propyl alcohol, (b) ethanol, (c) isopropyl alcohol, (d) propanal

20. 1-propanol is synthesized from propene by using which reagent

(a) B_2H_6 , NaOH , H_2O_2 , (b) $\text{Hg}(\text{OAc})_2$, H_2O , NaBH_4 , (c) Alkaline KMnO_4 , (d) O_3 , Zn

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All The Best