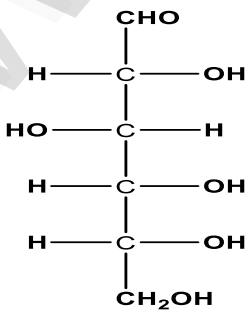
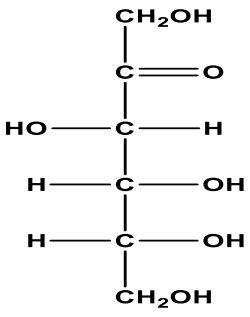
12th - Important Formulas and Equations Answers

Serial number	Lesson number	Question and answers
1	8	What is pH ? $pH = -\log_{10}[H_3O^+]$
2	8	Oswald Dilution Law: $K = \frac{\alpha^2 c}{(1-\alpha)}$
3	8	Henderson – Hasselbalch Equation: $pH = pKa + \log \frac{[\text{ salt }]}{[\text{ acid }]}$
4	8	Kohlrausch law: $(\Lambda_m^0)_{NaCl} = (\lambda_m^0)_{Na^+} + (\lambda_m^0)_{Cl^-}$
5	9	Nernst equation: $E_{cell} = E^o_{cell} - \frac{RT}{nF} \ln \frac{[C]^c[D]^d}{[A]^a[B]^b}$
6	9	Faraday's first law: m α Q m = ZIt Faraday's second law: m α Z m_{Ni} α Z_{Ni}, m_{Cu} α Z_{Cu} and m_{Co} α Z_{Co}
7	7	Arrhenius equation: $K = Ae^{-\left(\frac{Ea}{RT}\right)}$
8	7	The rate equation for a first-order reaction: $k = \frac{2.303}{t} \log\left(\frac{[A_o]}{[A]}\right)$ The rate equation for a zero-order reaction: $k = \frac{[A_o]-[A]}{t}$
9	6	Bragg equation: $n\lambda = 2d\sin\theta$
10	4	Chromyl chloride test: $K_2Cr_2O_7 + 4NaCl + 6H_2SO_4 \longrightarrow 2KHSO_4 + 4NaHSO_4 + \underset{\text{Chromyl chloride}}{2CrO_2Cl_2} \uparrow + 3H_2O$
11	10	What are **promoters**? Substance which **increases** the activity of a catalyst. Haber's process, Mo acts as a promoter to Fe catalyst.

12	10	Write a note on **catalytic poison?** Substance which **decreases** the activity of a catalyst. Haber's process, H_2S acts as a catalytic poison to Fe catalyst
13	10	What is Tyndall effect? The phenomenon of scattering of light by the solution particles is called Tyndall effect.
14	10	Brownian movement: A zigzag, random, continuous movement of colloidal sol particles is called Brownian movement.
15	14	Anomers: Anomer is a stereoisomer of a carbohydrate that differs from other stereoisomers in its configuration at the C_1 anomeric carbon. Examples: Alpha-D-Glucose and Beta-D-Glucose.
16	6	Schottky defect: Arises due to the missing of equal number of cations and anions from the crystal lattice. Ex: NaCl
17	6	Frenkel defect: Arises due to dislocation of ions from its crystal lattice. Ex: AgBr
18	4	Magnetic moment: $\mu = \sqrt{n(n+2}\ \ \mu_B$
19	1	Van-Arkel method – refining Titanium $Ti + 2I_2 \xrightarrow{850K} TiI_4 \xrightarrow{1800K} Ti + 2I_2$
20	1	Mond process - refining nickel: $Ni + 4CO \xrightarrow{350K} [Ni(CO)_4] \xrightarrow{460K} Ni + 4CO$
21	14	D-Glucose and D- fructose structures:   K. Ashokkumar MSc, MPhil, Bed,. PG Asst - Ananthapuram
