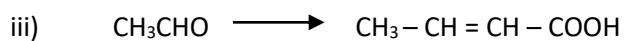
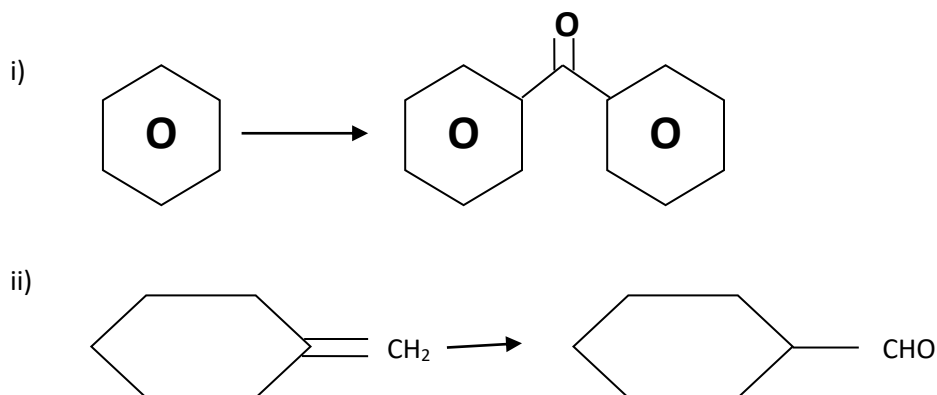


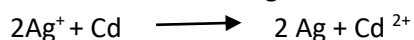
1. Give balanced chemical equations for the following name reactions:- (5*1=5)
 - a. Stephen Reduction
 - b. HVZ Reaction
 - c. Wolff Kishner Reduction
 - d. Cannizzaro Reaction
 - e. Clemenson's Reduction
2. Carry out the conversions:- (5*1=5)
 - a. Formaldehyde to Propanal
 - b. Acetic Acid to Acetone
 - c. Acetaldehyde to Lactic Acid
 - d. Formaldehyde to Urotropine
 - e. Acetic Acid to Formic acid
3. Distinguish by a good chemical test:- (3*1=3)
 - a. Formaldehyde and Benzaldehyde
 - b. Acetic Acid and Formic Acid
 - c. Ethanal and Propanal
4. When 9650 C of electricity is passed through a solution of copper sulphate, 3.175 g of copper is deposited on the cathode (at weight of Cu=63.5). Name the law to which the above observation confirms. (1)
5. State Kohlraush Law. (1)
6. What is fuel cell? (1)
7. For the cell –
 $\text{Zn} | \text{Zn}^{2+} (a=1) || \text{Cu}^{2+} (a=1) | \text{Cu}$
Given, $E_{\text{Zn} | \text{Zn}^{2+}} = 0.761\text{V}$ and $E_{\text{Cu}^{2+} | \text{Cu}} = 0.339\text{V}$
 - i) Write the cell reaction
 - ii) Calculate the emf and free energy change at 298 K involved in the cell. (3)
8. How much electricity is required to oxidize 1 mole of FeO to Fe₂O₃? (1)
9. The resistance of 0.5 (M) solution of an electrolyte in a cell was found to be 45 ohm. Calculate the molar conductivity of the solution if the electrodes in the cell are 2.2 cm apart and have an area of 3.8 cm². (3)
10. Calculate the pH of, Pt | H₂(1 atm) | H₂SO₄ half cell.
[Given :- $E_{\text{H} | \text{H}^+} = 0.3\text{V}$] at 25°C. (2)
11. For the molecule IF₇:- (3)
 - i) Draw the structure of the molecule
 - ii) State the hybridisation of the central atom
 - iii) State the geometry of the molecule
12. Give balanced equation:- (2)
 - i) Chlorine gas is passed through cold and dilute NaOH solution
 - ii) Chlorine gas is passed through hot and concentrated NaOH solution
13. Give reasons:- (2)
 - i) Xenon gives a series of fluorides, but helium and neon do not. Why ?
 - ii) Halogens are coloured and the colour deepens from fluorine to iodine.
14. An aliphatic hydrocarbon 'A' on treatment with sulphuric acid in the presence of Hg SO₄ yields a liquid 'B' with molecular formula C₂H₄O. 'B' on oxidation with acidified potassium dichromate yields 'C' which gives effervescence with sodium bicarbonate. 'C' when treated with SOCl₂ gives 'D'. When 'D' reacts with ethanol it gives sweet smelling liquids 'E'. 'E' is also formed when 'C' reacts with ethanol in the presence of concentrated H₂SO₄.
 - i) Identify A, B, C, D and E
 - ii) Draw the structure of the isomer of compound B.
 - iii) Write the balanced equation for the conversion of A to B.
 - iv) Show the reaction for C to D.

(2+1+1+1=5)

15. Carry out the conversions:- (3)



16. Consider the following cell reaction at 298K :- (3)



The standard reduction potential, E° ,

For $\text{Ag}^+|\text{Ag}$ and $\text{Cd}^{2+}|\text{Cd}$ are 0.8 V and -0.4V, respectively.

i) Write the cell representation

ii) What will be the emf of the cell if the concentration of Cd^{2+} is 0.1 (M) and that of Ag^+ is 0.2(M)?

iii) Will the cell work spontaneously for the condition given in (ii) ?

17. Define molar conductance of a solution. State its unit. How it is related to the specific conductance of solution?(2)

18. Give reactions and the conditions required for preparation of the following compounds:- (2)



19. Explain why interhalogen compounds are more reactive than constituent elements? (1)

20. Compare the acid strength of different oxoacids of halogens, HClO , HClO_2 , HClO_3 , HClO_4 . (1)

21. Give the structure and geometry of XeO_3 . (1)