Class 12th

CHEMISTRY PAPER

BOARDS MOCK 1

(Marks 70)

Q1). Phenol is less acidic then.

a) Enthanol
b) 0-nitrophenol
c) 0-methylphenol
d) 0-methoxyphenol

Q2). Which of the statements about solutions of electrolytes is not correct?

a) **Conductivity of solutions depends upon size of ions.**
b) **Conductivity depends upon viscosiy of solution.**
c) **Conductivity does not depend upon solvation of ions present in solution.**
d) **Conductivity of solution increases with temperature.** Q3). Lucas reagent is :

a) Anhydrous $CaCI_2$ and conc. HCI.
b) Anhydrous $ZnCI_2$ and conc. HCI.
c) Anhydrous $AICI_3$ and conc. HCI.
d) Anhydrous $PdCI_2$ and conc. HCI.

Q4).The cell constant of a conductivity cell

a) Changes with change of electrolyte.
b) Changes with change of concentration of electrolyte.
c) Changes with temperature of electrolyte.
d) Remains constant for a cell.

Q5). Which of the following compounds will read with sodium hydroxide solution in water?

a) C_6H_5OH
b) $C_6H_5CH_2OH$
c) $(Ch_3)_3COH$
d) C_2H_5OH

Q6). What is meant by the term of infinite solution?

Q7). How do you convert :

a) Phenol to toluene
b) Formaldehyde to Ethanol.

Q8). Calculate the degree of dissociation (α) of acetic acid if its molar conductivity (Λ_m) is 39.05 S cm^2mol^{-1}. Given $\Lambda^\circ H_+$ = 349.6 cm^2mol^{-1} and $\Lambda^{\circ CH3COO}$ = 40.9 S cm^2mol^{-1}.

Q9). (a) Write Reimer-Tiemann reaction.

(b) Write the mechanism of acid dehydration of ethanol to yield ethene.

$$CH_3CH_2OH \xrightarrow[443K]{H+} CH_2 = CH_2 + H_2O$$

Q10). The resistivity of a 0.8M solution of electrolyte is 5 x $10^{-3}\Omega cm$. Calculate its molar conductivity.

Q11). Give reason for the following.

a) Protonation of Phenols is difficult whereas ethanol easily undergoes protonation.
b) Boiling point of ethanol is higher than that of dimethyl ether.

c) Anisole on reaction with HI gives phenol and $CH_3 - I$ as main products and not iodobenzene and CH_3OH.

Q12). (a) State the law which helps to determine the limiting molar conductivity of weak electrolyte.,

(b) Calculating limiting molar conductivity of $CaSO_4$(limiting molar conductivity of calcium and sulphate ions are 119.0 and 160.0 S cm^2mol^{-1}respectively)

Q13). Complete the following reaction and suggest a suitable mechanism for the reaction:

$$CH_3CH_2OH \quad H^+, 443K$$

(b) Why ortho-Nitrophenol is steam volatile while paraNitrophenol is less volatile?

Q14). An electrochemical cell behaves like an electrolytic cell when

a) $E_{cell} = E_{external}$

b) $E_{cell} = 0$

c) $E_{external} > E_{cell}$

d) $E_{external} < E_{cell}$

$Q15). 0 - nitrophenol\ has\ lower\ boiling\ point\ (is\ more$ volatile) than p-nitrophenol.

Q16). In an electrochemical process, a salt bridge is used

a) As a reducing agent

b) As an oxidizing agent

c) To complete the circuit so that current can flow

d) None of these

Q17). Alcohols have higher boiling points than isomeric ethers.

Q18). Calculate the emf of the following cell at 298 K :

Mg(s) I Mg^{2+}(0.1M) I I Cu^{2+}(1.0 x 10^{-3}M) I Cu(s)

[Given $E°_{cell}$ = 2.71 V]

a) 1.426 V
b) 2.503 V
c) 2.651 V
d) 1.8 V

Q19). During preparation of ester from alcohol and a id, water has to be removed as soon as it is formed.

Q20). Can we store copper sulphate in a iron vessel?

Q21). **An organic compound X when dissolved in ether and treated with magnesium metal forms a compound Y on name of Y treatment with acetaldehyde and the product on acid hydrolysis gives isopropyl alcohol. Identify X. What is general name of the compounds of the type Y.**

Q22). When a cell reaction attains equilibrium, what will be the emf of the cell?

Q23). Compound A of molecular formula C_5H_{11}Br gives compound B of molecular formula C_5H_{12}O when treated with aq.NaOH .On oxidation compound yields a mixture of acetic acid and propionic acid. Deduce the structure of A,B,C.

Q24). What is the direction of the flow of electrons?

a) **First from silver to zinc, then the direction reverses**
b) **Silver to zinc**
c) **First from zinc to silver, then the direction reverses**
d) **Zinc to silver**

Q25). Write the reactions of Williamson synthesis of 2-ethoxy-3-methylpentane starting from ethanol and 3-methylpentan-2-ol.

Q26). Name the cell which is generally used in inverters?

a) **Mercury cell**

b) **Leclanche cell**

c) **Lead storage battery**

d) **Lithium ion battery**

Q27). Write the mechanism of hydration of ethene to tield ethanol.

Q28). How will concentration of Zn^{2+} ions and Ag^{+} ions be affected when the cell functions?

a) Concentration of Zn^{2+} will increase and Ag^{+} ions will decrease.

b) Concentration of both Zn^{2+} and Ag^{+} ions will decrease.

c) Concentration of both Zn^{2+} and Ag^{+} ions will increases.

d) Concentration of Zn^{2+} will decrease and Ag^{+} ions will decrease.

Q29). Explain the following with an example.

a) Kolbe's reaction.

b) Remier-Tiemann reaction.

c) Williamson either synthesis.

d) Unsymmetrical reaction.

Q30). From the given cells ;

Lead storage cell, Mercury cell, Fuel cell and Dry cell.

Answer the following

a) Which cell is used in hearing aids?

b) Which cell was used in Apollo Space Programme?

c) Which cell is used in automobiles and inverters?

d) Which cell does not having long life?