Batch B_1

MANIPAL
ACADEMY of HIGHER EDUCATION
(Deemed to be University under Section 3 of the UGC Act, 1956)

DEPARTMENT OF SCIENCES, I SEMESTER M.Sc (CHEMISTRY)
END SEMESTER EXAMINATIONS, Feb 2021

Physical Chemistry Lab-I [CHM 5157]

(Choice-Based Credit System, 2020)

Time: 4 Hours | Date: 02-02-2021 | MAX. MARKS: 40

I. **Answer the following questions** **[½ x 10 =5]**

1. Explain the variation of specific conductance an electrolyte with dilution. decreases with dilution
2. While using Abbe's refractometer to determine the solution of unknown composition what is the significance of calibration curve? It is reference curve with the help of which % of unknown determined.
3. Give the schematic representation of cell in the determination of formal redox potential of Fe^{+2}/Fe^{+3} system. What is the role of platinum foil in it? $Fe^{+2} / Fe^{+3} // SCE$. Pick Potential.
4. Why it is preferred to express concentration of hydrogen ion and dissociation constant of weak acid in logarithmic scale? Value of $[H^+]$ and K_a is very small.
5. Why KCl salt bridge should not be used during the titration of halide mixture with silver nitrate? $KCl + AgNO_3 \longrightarrow AgCl\downarrow + KNO_3$.
6. What is the significance of infinite reading during acid catalyzed hydrolysis of ester? completion of reaction.
7. Derive Nernst equation for copper electrode immersed in solution of copper sulfate. $E = E^0 - \frac{2.303}{2} \log \frac{1}{[Cu^{+2}]}$.
8. Draw any two types of graphs used to locate end point in potentiometric titration
9. State Nernst distribution low. — When a salt is added to two ~~sp~~ immisible liquid it will distribute b/w them dep on solubility.
10. During the kinetic study of saponification of ethyl acetate by conductometric method, how to determine conductance of sodium acetate? $CH_3COOH + NaOH \longrightarrow CH_3COONa + H_2O$ (Titration) Phenol ↓ Made up the ~~mark~~ (100mL)

II Perform the given experiment. **[30]**

III Submission of Record Book [5]