(FOR THE CANDIDATES ADMITTED   SUB CODE [22UCY509]

DURING THE ACADEMIC YEAR 2022   ONLY)   REG.NO. [ ]

N.G.M.COLLEGE (AUTONOMOUS): POLLACHI

END-OF-SEMESTER EXAMINATIONS: NOVEMBER2024

B.Sc. CHEMISTRY   **MAXIMUM MARKS: 50**

SEMESTER: V   **TIME: 3 HOURS**

PART – III
22UCY509–Core Paper – VII ELECTRO CHEMISTRY
SECTION - A   (10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS K1

1. Ionic mobility is independent of_____

  a) size of ion   b) charge on ion

  c) concentration of electrolyte   d) distance of separation between the electrodes

2. The electrode potential of standard hydrogen electrode is

  a) 0 V b) +0.2422 V c) +0.34 V d)–0.76 V

3. Liquid junction potential can be eliminated by using _____in salt bridge.

  a)Hg_2Cl_2 b) KCl   c) NaCl   d) NH_4OH

4. Indicator used in the titration of a strong acid and a weak base is

  a) methyl orange   b) phenolphthalein   c)eriochromeblack-T   d) starch

5. _____is used as a cathode in lead storage battery.

  a)Pb   b)PbO   c)PbO_2 d)$PbSO_4$

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES   **K2**

6. Define transport number.

7.What is meant by electrochemical cell?

8. Give the principle of polarography.

9. What is pH scale?

10. What are the metal alloys used in the prevention of corrosion?

SECTION – B   (5 X 3 = 15 MARKS)

ANSWER EITHER (A) OR (B) IN EACH OF THE FOLLOWING QUESTIONS   K3

11. a) Determine transport number by Hittorf's method.

           (OR)

  b) Describe Oswalt's dilution law.

12. a)Explain conductometric titration of weak acid vs strong base.

(OR)

b)Derive Nernst equation.

13. a)Write short notes on liquid junction potential.

(OR)

b)How will you determine the solubility of sparingly soluble salts.

14. a) Write a note on common ion effect.

(OR)

b)Describe the construction and advantages of glass electrode.

15. a)Justify about lithium-ion battery.

(OR)

b)Summarize hydrogen-oxygen fuel cell.

SECTION – C   (5 X 5 = 25 MARKS)

ANSWER EITHER (A) OR (B) IN EACH OF THE FOLLOWING QUESTIONS   K4

16. a)Illustrate the Kohlrausch'slaw.

(OR)

b) Explain Debye-Huckel theory of strong electrolytes.

17. a)Discuss the determination of degree of dissociation of weak electrolytes.

(OR)

b) Describe about redox electrodes.

18. a)Discuss working of concentration cells with transference.

(OR)

b) Analyze the techniques and instrumentation of cyclic voltammetry.

19. a) Discuss Arrhenius theory of acid-base indicators with limitations.

(OR)

b) Determine the degree of hydrolysis by electrical conductance method.

20. a) Explain the measurement of hydrogen over voltage.

(OR)

b)Analyze about galvanic corrosion.