Reg.No : | | | | | | | | | | | |

D. K. M. COLLEGE FOR WOMEN (AUTONOMOUS), VELLORE-1

SEMESTER EXAMINATIONS

JUNE - 2022 19CCH6C

ELECTIVE - III: ELECTROCHEMISTRY

Time: 3 Hours **Max. Marks: 75**

SECTION – A (10 x 2 = 20)

Answer ALL the questions.

1. Define specific conductance.
2. Define transport number.
3. What do you know about ionic product of water?
4. What is buffer solution? Give two examples.
5. Write the two merits of standard hydrogen electrode.
6. Write the cell representation of Daniel cell.
7. What is meant by electrochemical series?
8. How will you eliminate liquid junction potential?
9. Write the applications of H_2-O_2 fuel cell.
10. Write the examples for primary and secondary cells.

SECTION – B (5 x 5 = 25)

Answer ALL the questions.

11. (a) i) What is equivalent conductance?
    ii) Explain the effect of dilution on specific conductance and equivalent conductance.

    (Or)

    (b) Define Kohlrausch's law. Explain the applications of Kohlrausch's law.
12. (a) Explain Ostwald dilution law and write its limitations.

    (Or)

    (b) Write notes on Debye-Huckel Onsager equation.
13. (a) Explain standard Weston cadmium cell.

    (Or)

    (b) Explain the functioning of Daniel cell.
14. (a) Derive the Nernst equation for electrode potential and cell emf.

    (Or)

    (b) Explain liquid junction potential
15. (a) How will you determine pH using quinhydrone electrode? Explain.

    (Or)

    (b) Explain the mechanism of discharging and recharging of lead acid battery.

SECTION – C (3 x 10 = 30)

Answer any THREE of the following questions.

16. Explain the determination of transport number by
    (i) Hittorf's method (ii) Moving boundary method
17. Derive the pH of a salt solution of weak acid and weak base.
18. Explain all types of electrodes.
19. Explain the derivation of emf of electrolyte concentration cells with transference.
20. (a) How will you calculate ΔG, ΔH and ΔS using EMF measurement?

    (b) Explain acid –base titrations and oxidation-reduction titrations by potentiometry.

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