TB146180A **Reg. No…….**

Name……....

B. Sc. DEGREE (C.B.C.S.S.) EXAMINATION, MARCH 2017

SEMESTER VI - CHEMISTRY

CHE6SC - SOLUTION CHEMISTRY

Time: Three Hours **Maximum Marks: 60**

PART A

I. Answer all questions. Each question carries 1 mark.

1. The unit of equivalent conductance is .....
2. Conjugate acid of H_2O is .....
3. .....is an example for acidic buffer.
4. Salt bridge is used to eliminate .....
5. Ideal solutions obey ..... law over the entire range of concentration.
6. Define ionic mobility.
7. Colligative properties depend on .....
8. The electrode at which reduction occurs is called .....

(8x1=8)

PART B

II. Answer any six questions. Each question carries 2 marks.

9. What do you mean by overvoltage?
10. State and explain Nernst distribution law.
11. What is meant by a reference electrode? Give one example.
12. Discuss any two applications of E M F measurements.
13. Explain Pearson's HSAB concept.
14. How do the molar conductance and specific conductance of strong electrolytes vary with dilution?
15. What is meant by standard electrode potential?
16. State and explain Kohlrausch's law.
17. What is meant by reverse osmosis?
18. State Faraday's first law of electrolysis.

(6x2=12)

PART C

III. Answer any four questions. Each question carries 4 marks.

19. Explain how the pH of a solution is determined by the glass electrode.
20. Write a note on conductometric titration.
21. Explain the terms osmosis and osmotic pressure. How is the osmotic pressure determined experimentally?
22. What are fuel cells? Discuss the H_2-O_2 fuel cell.

23. Discuss the term common ion effect with suitable examples.
24. Derive the relationship between molar ionic conductivity and ionic mobility.

(4x4=16)

PART C

IV. Answer any two questions. Each question carries 12 marks.

25. What is meant by the term transport number ? Explain the Hittorf's method of determining transport number.
26. (a) What do you mean by hydrolysis of salt ? Derive an expression for degree of hydrolysis for a salt of strong acid and weak base.
    (b) Discuss the theory of acid-base indicators.
27. What is meant by corrosion? How is it monitored? Explain the methods used to prevent corrosion.
28. Define the term freezing point.What is the reason for the depression in freezing point. Give the thermodynamic derivation of the relation between depression in freezing point and the molecular mass.

(2x12=24)