19U613 (Pages: 2) Name: .....

Reg.No: .....

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2022

(CBCSS - UG)

CC19U CHE6 B11 - PHYSICAL CHEMISTRY-III

(Chemistry - Core Course)

(2019 Admission - Regular)

Time : 2.00 Hours Maximum : 60 Marks

Credit : 3

Part A (Short answer questions)

Answer ***all*** questions. Each question carries 2 marks.

1. State ostwald's dilution law.
2. What is transport number? Give the equation.
3. Give the equation for solubility and solubility product of AgCl.
4. How would you estimate KOH using standard oxalic acid solution conductometrically?
5. Depict the standard galvanic cell by combining Cu,Cu2+ electrode (E0 = + 0.34 V) and Au, Au3+ electrode (E0= + 1.50 V).
6. What are ion-ion electrodes? Give an example.
7. State and explain Henry's law.
8. Mention two factors that affect surface tension.
9. What is meany by solubility product? Give the expression for solubility product of calcium phosphate.
10. What are crystal planes?
11. Explain the term lattice planes.
12. Distinguish between solidification point and transperancy temperature in the case of liquid crystals.

(Ceiling: 20 Marks)

Part B (Short essay questions - Paragraph)

Answer ***all*** questions. Each question carries 5 marks.

13. What is meant by cell constant? How is it determined?
14. Explain the term electrophoretic effect implied in the Debye-Huckel theory of strong electrolytes.

15. Discuss the principle involved in the potentiometric titration of Fe2+ against Ce4+.

16. State and explain the laws of osmotic pressure.

17. Mention the applications of buffer solutions.

18. Briefly explain the powder method for the X-ray diffraction studies of crystals,

19. Distinguish between ntype and p type semiconductors.

(Ceiling: 30 Marks)

Part C (Essay questions)

Answer any ***one*** question. The question carries 10 marks.

20. What is corrosion? Discuss the electrochemical theory of corrosion. Briefly explain how corrosion can be prevented.

21. Explain the modes of three-dimensional close-packing of uniform spheres Discuss the structures of (a) sodium chloride and (b) cesium chloride. Discuss structures of two AB type compounds.

(1 × 10 = 10 Marks)

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