K25U 0120

Reg. No. : .....

Name : .....

Sixth Semester B.Sc. Degree (C.B.C.S.S. – OBE-Regular/Supplementary/ Improvement) Examination, April 2025
(2019 to 2022 Admissions)
CORE COURSE IN CHEMISTRY/POLYMER CHEMISTRY
6B15CHE/PCH : Physical Chemistry – III

Time : 3 Hours Max. Marks : 40

SECTION – A

Very short answer type. **Each** question carries **1** mark. Answer **all 4** questions. **(4×1=4)**

1. Define specific conductance.
2. Define pH.
3. Write the cell reaction for SCE.
4. What is Beer Lambert law ?

SECTION – B

Short answer type. **Each** question carries **2** marks. Answer **7** questions out of 10. **(7×2=14)**

5. Write the expression for ionic strength and explain the terms involved.
6. Define degree of hydrolysis.
7. Write the cell reaction for Zn, $Zn^{2+}//Fe^{2+}$, Fe.
8. What is salt bridge ? What is its use ?
9. What is meant by liquid junction potential ?
10. What is a fuel cell ?
11. Write the general rate equation for an n^{th} order reaction.
12. Write the Arrhenius rate equation and explain the terms.

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13. Differentiate between order and molecularity of a reaction.
14. Explain Grothus Draper law.

SECTION – C

Short essay/problem type. **Each** question carries **3** marks. Answer **4** questions out of 6. **(4×3=12)**

15. Explain the Hittorf method.
16. Explain the Debye Huckel Theory.
17. Discuss the application of Gibbs Hellmoltz equation to electrochemistry.
18. Derive the Nernst equation for the EMF of a cell.
19. Derive integrated rate law for a second order reaction.
20. Sketch and explain the Jablonskii diagram.

SECTION – D

Long essay type. **Each** question carries **5** marks. Answer **2** questions out of 4. **(2×5=10)**

21. Discuss the conductometric titrations.
22. What are acid base indicators ? Explain in detail the theories of acid base indicators.
23. Discuss the principle and applications of Polarography. What are the advantages of Dropping mercury electrode.
24. Explain (i) Lindemann theory of unimolecular reaction and (ii) Hinshelwood mechanism.

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