



K19U 0087

Reg. No. :

Name :

VI Semester B.Sc. Degree (CBCSS – Reg./Supple./Improv.)
Examination, April 2019
(2014 Admission Onwards)
CORE COURSE IN CHEMISTRY
6B15 CHE : Physical Chemistry – III

Time : 3 Hours

Max. Marks : 40

SECTION – A

Answer **all** questions. **Each** question carries **one** mark.

1. What is unit of k for a second order reaction ?
2. What are reversible cells ?
3. What is Lewis concept of acids and bases ?
4. What are photo sensitizers ?

(1×4=4)

SECTION – B

Answer **any seven** questions. **Each** question carries **2** marks.

5. Calculate the ionic strength of a 0.01M Na_2SO_4 solution.
6. Explain hard soft concept of acids and bases.
7. What is liquid junction potential ? How can it be eliminated ?
8. What are pseudounimolecular reactions ? Why do they behave like that ?
9. State and explain Beer Lamberts law of photochemistry.
10. Define electrochemical equivalent. How is it related to chemical equivalent ?
11. Why is quantum yield of $\text{H}_2 - \text{Cl}_2$ reaction very high ?

P.T.O.



12. What are the features of homogeneous catalysis ?

13. Give the electrode reaction of a calomel electrode.

14. Give any one application of Kohlrausch's law.

(7×2=14)

SECTION – C

Answer **any 4** questions. **Each** question carries **3** marks.

15. What are fuel cells ? Give the working of hydrocarbon-oxygen fuel cell.

16. What are the applications of buffer solution ?

17. Explain Debye Huckel limiting law.

18. Draw and discuss the Jablonsky diagram.

19. Explain the methods for order determination.

20. Rate constant for a second order reaction has a value of $5.7 \times 10^{-5} \text{ L mol}^{-1}$ at 298 K and a value of $1.64 \times 10^{-4} \text{ L mol}^{-1}$ at 313 K. Calculate Arrhenius parameters. (3×4=12)

SECTION – D

Answer **any 2** questions. **Each** question carries **5** marks.

21. Discuss the Hittorfs method for determination of transference number.

22. Give an account of theory of acid-base indicator. How can you choose an indicator for a titration ?

23. a) Describe the construction of a Weston cadmium cell.

2

b) Discuss the different types of concentration cells.

3

24. What are the assumptions of Langmuir theory ? Derive Langmuir adsorption isotherm.

(5×2=10)
