K25U 0814

Reg. No. : .....

Name : .....

IV Semester B.Sc. Degree (C.B.C.S.S.-OBE – Regular/Supplementary/ Improvement) Examination, April 2025
(2019 to 2023 Admissions)
COMPLEMENTARY ELECTIVE COURSE IN CHEMISTRY/POLYMER CHEMISTRY
4C04 CHE/PCH(PS) : Chemistry (For Physical Science)

Time : 3 Hours Max. Marks : 32

SECTION – A

Very short answer type. **Each** carries **1** mark. Answer **all 5** questions.

1. Write the equation of Average Velocity.
2. What is the unit of coefficient of viscosity ?
3. Define Ohm's law.
4. Define isotropy.
5. What is meant by electrode potential ? **(5×1=5)**

SECTION – B

Short answer type. **Each** carries **2** marks. Answer **4** questions out of 6.

6. What is vapour pressure ? How does it change with temperature ?
7. What is specific conductance ? How does it vary with dilution ?
8. Define Charles Law. Write equation.
9. Determine Miller Indices for a plane when the intercepts along the axes are 2a, 3b and 2c.

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10. Write electrode reactions of Daniel cell.
11. Draw Maxwells distribution of molecular velocities graph at two different temperatures. **(4×2=8)**

SECTION – C

Short essay/problem type. **Each** carries **3** marks. Answer **3** questions out of 5.

12. Calculate wavelength of X-ray used for the analysis of the crystal having Diffraction angle 16.8°, interplanar distance 0.400nm at the second order diffraction.
13. State Kohlrausch's law. State any three of its applications.
14. Explain Calomel electrode in details.
15. What is TGA ? Write principle of TGA.
16. What are nano particles ? Write its optical properties. **(3×3=9)**

SECTION – D

Long essay type. **Each** carries **5** marks. Answer **2** questions out of 4.

17. a) What are ideal gases ?
    b) Write any four postulates of kinetic theory of gases.
18. a) Define osmosis.
    b) Calculate the osmotic pressure of an aqueous solution of sucrose containing 100 g sucrose in 500 ml solution at 298 K.
19. Discuss Potentiometric titrations.
20. a) State Faraday's laws of electrolysis.
    b) Define equivalent and molar conductance of an electrolytes. Give the equations. **(2×5=10)**
