K25FY3326 Pages: 2 Reg No:.....
Name:.....

Third Semester FYUGP Degree (Reg) Examination NOVEMBER 2025
KU3DSCCHE211 - PROPERTIES OF MATTER & ELECTROCHEMISTRY

2024 Admission onwards

Time : 1.5 hours Maximum Marks : 50

Section A

Answer any 6 questions. Each carry 2 marks.

1. Write Maxwell's law of distribution of velocities equation.
2. Give the relation between Average Velocity RMS Velocity and Most Probable Velocity
3. How Faraday's divided metal is related to nano technology?
4. What are zero dimensional nano materials? Give two examples.
5. What is meant by electrolysis? What are the product of electrolysis of aqueous NaCl solution.
6. How does concentration affect the electrode potential?
7. For a cubic crystal the (111) plane reflects at 22°with $\lambda = 1.54$Å. Calculate the lattice parameter 'a'.
8. What is meant by zero point energy?

SIR SYED COLLEGE CENTRAL LIBRARY

Section B

Answer any 4 questions. Each carry 6 marks.

9. What is meant by conductometric titrations? What are its advantages?
10. State and explain Faraday's laws of electrolysis
11. Describe the construction of a Daniell cell.
12. What are the characteristics of cholesteric liquid crystals?
13. How can bond length of a diatomic molecule be calculated using rotational spectroscopy?
14. Discuss the vibrational energy levels of an anharmonic oscillator. How is the selection rule for vibrational transitions modified for an anharmonic oscillator?

Section C

Answer any 1 questions. Each carry 14 marks.

15. a)Describe Maxwell's distribution of molecular velocities. Draw and explain the change in the curve with temperature.
    b)Explain the postulates of kinetic molecular theory and explain why real gases deviate from ideal behavior

16. a)Discuss the usage of nano particles in ancient times.
    b)Discuss Raman effect and explain Stokes and anti Stokes lines.

قل ربّ زدني علما
SIR SYED COLLEGE
CENTRAL LIBRARY