SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai — 600 044.
B.Sc.(Chemistry) END SEMESTER EXAMINATIONS NOVEMBER -2023
SEMESTER - IV
20UCHAT4004 - Allied Physics - II

Total Duration : 2 Hrs 30 Mins. Total Marks : 60

Section B

Answer any **SIX** questions $(6 \times 5 = 30$ Marks)

1. What is the dispersive power of the prism and its SI unit?
2. What is the combination of two prisms to produce deviation without dispersion?
3. Define Pauli's exclusion principle and why is it called exclusion principle?
4. What is the magnetic dipole moment due to orbital motion and spin of the electron?
5. What are the assumptions made in the liquid drop model?
6. State and prove Demorgan's theorem.
7. Explain Adiabatic Demagnetization.
8. Explain with figures how NAND gate and NOR gate can be used as Universal gate.

Section C

Answer any **THREE** questions $(3 \times 10 = 30$ Marks)

9. Determine the diameter of a thin wire or thickness of a thin strip of paper using air wedge method.
10. Obtain an expression for interaction energies by assuming LS coupling for two valence electron system.
11. (i) The mass of a nucleus in its ground state is always less than the total mass of its constituent's neutrons and protons, Explain.
    (ii) Plot a graph showing the variation of potential energy of a pair of nucleons as a function of their separation.
12. Describe Joule Thomson Porous plug experiment with a neat diagram.
13. Describe the basic postulates and theorem of Boolean Algebra.

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