

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 - APRIL 2025

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. Explain the air-wedge method for determining the diameter of a thin wire.
2. Elaborate on the quantum numbers associated with the vector atom model.
3. Illustrate the liquid drop model.
4. Explain in brief
 - (i) Adiabatic Demagnetization and
 - (ii) Practical applications of low temperature physics.
5. With the neat sketch and truth table, explain the verification of De-Morgan's theorem.
6. Write short notes on Frigidaire and Electrolux refrigerator.
7. Explain the postulates and theorems of Boolean algebra.
8. Discuss in brief
 - (i) Refraction through a Thin prism
 - (ii) Radio activity.

Section C

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

9. Explain the combination of two prisms to produce deviation without dispersion and dispersion without deviation.
10. Write a note on:
 - (i) L-S coupling scheme,
 - (ii) j-j coupling scheme,
 - (ii) Magnetic dipole moment due to orbital motion of the electron.

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11. Explain
 - (i) Mass defect and Binding energy
 - (ii) Obtain the expressions for Half-life period and Mean life period.
12. Describe the theory, experiment and applications of Porous plug.
13. With the neat sketch and truth table, prove that NAND and NOR gates are universal building blocks.
