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.Mathematics - END SEMESTER EXAMINATIONS - NOV'2024
SEMESTER - II
20UMAAT2D02 - Allied Physics - II

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

Section B

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

1. Describe the air wedge method for determining the diameter of a thin wire.
2. Explain (i) L-S Coupling, and (ii) j-j Coupling schemes.
3. Illustrate the properties of Alpha, Beta, and Gamma rays.
4. Elaborate on the liquefaction of air using Linde's method.
5. Explain the verification of De-Morgan's theorem with the neat sketch and truth table.
6. Illustrate the Pauli's exclusion principle and its applications.
7. (i) List the truth tables of AND, OR, NOT gates, and
   (ii) Write a short note on Boolean algebra.
8. Describe in brief (i) The law of radioactive disintegration, and
   (ii) The exponential law.

Section C

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

9. Describe the combination of two prisms to produce dispersion without deviation and deviation without dispersion.
10. Elaborate on the quantum numbers associated with the vector atom model.
11. Explain the (i) Liquid drop model, and (ii) Semi-empirical mass formula.
12. Discuss the theory and Porous plug experiment in detail.
13. Show that NAND and NOR gates are universal building blocks with the neat sketch and truth table.

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