

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 - APRIL 2025

SEMESTER - I

22UMAAT1D01 - Allied Physics - I

Total Duration : 2 Hrs.30 Mins.

Total Marks : 60

Section B

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

1. Define Lissajous figures. Mention it's uses.
2. Describe an experiment to determine the rigidity modulus of the material of a thin rod using static torsion apparatus.
3. Solve Poiseuille's formula for the flow of liquid through a horizontal capillary tube.
4. Explain how the A.C. frequency is measured using sonometer.
5. State and explain Biot - Savart law.
6. State and Predict the laws of transverse vibration of strings.
7. Explain the three moduli of elasticity.
8. Distinguish between electric field and electric potential.

Section C

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

9. Explain, with necessary theory, the composition of two simple harmonic motions of equal time periods at right angles to each other. Discuss the different important cases.
10. Describe an experiment to compute the rigidity modulus of wire using Torsional pendulum. Derive the formula used in the experiment.
11. Examine and write in brief about an experiment to compare the coefficient of viscosity of two given liquids.
12. Apply the concept and explain how ultrasonic waves are produced by piezoelectric method.
13. Deduce an expression for the magnetic induction at a point on the axis of a circular coil.
