

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. END SEMESTER EXAMINATIONS NOVEMBER-2022

SEMESTER - I

22UMAAT1D01 - Allied Physics - I

Total Duration : 2 Hrs 30 Mins.

Total Marks : 60

Section A

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

1. What are Lissajous figures? How are they obtained?
2. Describe the free, damped and forced vibrations.
3. State Hooke's law. Give the relation between the elastic constants.
4. Describe how a torsional pendulum is used to determine the rigidity modulus of a given wire.
5. Describe an experiment to determine the surface tension of a given liquid.
6. State and describe the laws of transverse vibrations.
7. Describe how ultrasonic waves are produced by piezoelectric method. Also mention the applications of ultrasonics.
8. Describe how the emfs of two cells are compared using a potentiometer.

Section B

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

9. What is simple harmonic motion? Explain the composition of two simple harmonic motions in a straight line.
10. Explain the non-uniform bending method using a beam to determine the Young's modulus of the material.
11. Derive the Poiseuille's formula for finding the coefficient of viscosity of a liquid.
12. Arrive at an expression for the velocity of transverse waves in a stretched string.
13. State Biot – Savart law. Use it and arrive at an equation for the magnetic induction at a point on the axis of a circular coil.
