

Roll.No.

25UMAGT1001

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 - NOVEMBER 2025

SEMESTER - I

**25UMAGT1001 - Physics for Mathematics I**

Total Duration : 2 Hrs.30 Mins.

Total Marks : 60

### Section B

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

1. What are free, damped and forced vibrations. Give examples.
2. Show that the composition of two SHMs in a straight line is a SHM.
3. Obtain the relation between elastic constants.
4. Describe how the elasticity of materials is used in various applications.
5. Briefly describe the drop weight method to determine the surface tension of a liquid.
6. List down the applications of ultrasonics.
7. Explain the laws of transverse vibrations of string.
8. Briefly explain the method of comparing emf using potentiometer.

### Section C

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

9. Explain an experimental method to obtain Lissajous figures. Also explain the interpretation of the various figures.
10. With necessary diagrams, explain how the Young's modulus of a given beam be determined using non – uniform bending method.
11. Derive the Poiseuille's formula to find the coefficient of viscosity of a given liquid.
12. Arrive at an expression to find the velocity of transverse waves in a stretched string.
13. Obtain an expression for the magnetic induction at a point on the axis of a circular coil.

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