

**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 EXAMINATION APRIL/NOV - 2021

SEMESTER - III

20UCHAT3003 - Allied Physics - I

Total Duration : 3 Hrs	Total Marks : 75
MCQ : 30 Mins	MCQ : 15
Descriptive : 2 Hrs.30 Mins	Descriptive : 60

Section B

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

1. Describe the amplitude & phase of forced vibrations.
2. Derive the equation & solution of S.H.M.
3. Define the bulk modulus (K) and Young's modulus (Y) and explain their significance in elastic materials.
4. Classify the different types of beams and give clear explanation about them.
5. What is terminal velocity and derive an expression for it?
6. Mention the properties of ultrasonic waves.
7. Enunciate the merits and demerits of Magnetostriction method.
8. Briefly explain about Loss of energy due to sharing of charges.

Section C

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

9. What are damped oscillations? Derive the equation of motion and solution of damped oscillator.
10. Explain the terms (i) strain (ii) longitudinal strain, (iii) volume strain and (iv) shearing strain (v) stress.
11. What is Bernoulli's theorem? Show that sum of pressure, potential and kinetic energy in the streamline flow is constant.
12. Explain the principle, construction and working of Magnetostriction oscillator.
13. Derive an expression of rigidity modulus by torsional pendulum.