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.(Physics) END SEMESTER EXAMINATIONS NOVEMBER -2023
SEMESTER - I
22UPHCT1001 - Properties of Matter

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

Section B

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

1. Explain the Newton's law of gravitation.
2. Find out the relation between elastic moduli.
3. Explain the drop weight experiment to determine the surface tension of a liquid.
4. Explain the Poiseuille's method for determining coefficient of viscosity of a liquid.
5. Calculate the work done in twisting a wire.
6. Derive an expression for bending moment.
7. Obtain the expressions for excess pressure inside (i) a liquid drop and (ii) a soap bubble.
8. Illustrate the working of Ostwald's viscometer.

Section C

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

9. Determine the gravitational constant 'G' using Boy's method.
10. Describe the torsion pendulum method of finding the rigidity modulus of a wire. Deduce the formula employed.
11. Deduce an expression for young's modulus by non-uniform bending of a beam of rectangular cross-section using Koenig's method.
12. Describe Quincke's method of finding surface tension and derive the formula employed.
13. Derive Poiseuille's formula for the flow of a liquid through a capillary tube.

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