Roll.No. | 22UPHCT1001

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 2025
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 Boy's method and write the merits.
2. Obtain the relationship between elastic moduli.
3. Derive an expression for the work done in twisting a wire.
4. Obtain an expression for the excess pressure over a curved surface.
5. Derive Poisuille's formula for the flow of liquid through a capillary tube.
6. When a beam is subjected to uniform bending. Obtain the expression for the elevation produced in it.
7. Explain in brief about variation of surface tension with temperature and its experiment study.
8. How does the viscosity of a liquid vary with temperature and pressure Explain it.

Section C

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

9. Derive an expression for the gravitational potential and gravitational field due to (a) uniform solid sphere and (b) hollow sphere.
10. (a) Describe an experiment to determine Young's modulus by Koenig's method.
    (b) A copper wire of redius 1.5mm is subjected to a stress of $4 \times 10^7\ N/m^2$. Find the strain produced and the elongation in 1m length of the wire (Given : $Y = 1.1 \times 10^{11}\ N/m^2$).
11. Explain an experiment to determine the rigidity modulus of a material using torsion pendulum with theory.
12. Elaborate Quinke's method to determine the surface tension.
13. Describe Poisuille's method for determining the coefficient of viscosity of a liquid.

*****