B.Sc. DEGREE EXAMINATION,NOVEMBER 2019
I Year I Semester
Properties of Matter

Time : 3 Hours **Max.marks :60**

Section A $(10 \times 1 = 10)$ Marks

Answer any **TEN** questions

1. State Kepler's law of planetary motion.
2. Distinguish between gravitational field and gravitational potential.
3. Name the different types of modulii of elasticity.
4. What is meant by bending moment?
5. What do you mean by moment of inertia?
6. Define twisting couple.
7. Define surface tension.
8. Mention the application of surface tension.
9. Define coefficient of viscosity.
10. What are the applications of viscosity?
11. Define Poisson's ratio.
12. Give an example for friction and lubrication.

Section B $(5 \times 4 = 20)$ Marks

Answer any **FIVE** questions

13. Explain the gravitational potential and gravitational field due to Solid Sphere.
14. Obtain expression for depression of the loaded end of a cantilever.
15. Explain twisting couple on a cylinder.
16. Describe determination of surface tension by Jaeger's method.
17. Explain experimental determination of viscosity of a liquid by Poiseuille's method.
18. Obtain an expression for bending moment.
19. Discuss the Variation of 'g' with attitude.

Section C $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. Describe the determination of G using Boy's method. Mention its advantages and disadvantages.
21. Obtain an expression for the Poisson's ratio in terms of elastic constants.
22. Describe the experiment to determine the rigidity modulus using Torsional pendulum.
23. Give brief outline on: (i) Pressure difference across a liquid surface, (3)
    (ii) Excess of pressure over curved surfaces, and (4)
    (iii) Effect of temperature on surface tension.(3)
24. (i) Derive the Poiseuille's equation for the flow of liquid through a tube.

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