B.Sc. DEGREE EXAMINATION,APRIL 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 Newtons law of gravitation.
2. What is the use of Keplers law of planetary motion?
3. Define Poissons ratio.
4. State Hookes law.
5. What do you mean by twisting couple?
6. Define moment of inertia.
7. Write down dimensions of surface tension.
8. What is mean by molecular forces?
9. Distinguish between streamline and turbulent flow.
10. Write down Poiseuilles formula.
11. What are the different types of elastic moduli?
12. Define the terms: Friction and Lubrication.

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

Answer any **FIVE** questions

13. Deduce the Newtons law of gravitation from Keplers law.
14. Obtain an expression for bending moment.
15. Derive an expression of work done in stretching and twisting a wire.
16. Write the notes on: (i) Pressure difference across a liquid surface, and (ii) Excess of pressure over curved surfaces.
17. (i) Distinguish between streamline and turbulent flows. (ii) Outline applications of viscosity.
18. Define and explain the gravitational potential and gravitational field due to solid sphere.
19. Determine the rate of flow of liquid in a capillary tube.

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

Answer any **THREE** questions

20. (i)Discuss determination of G by using Boys method.
    (ii) Explain variation of the acceleration due to gravity with depth.
21. (i)Deriver expression for Poissons ratio in terms of elastic constants.
    (ii) Obtain expression for depression of the loaded end of a cantilever.
22. Explain how torsion pendulum can be used to determine moment of inertia of an irregular body and torsional rigidity.
23. (i)Describe determination of surface tension by Jaegers method.
    (ii)Give effect of temperature on surface tension.
24. Describe experiment to determine coefficient of viscosity of a liquid by Poiseuilles method.

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