B.Sc. DEGREE EXAMINATION,NOVEMBER 2019
I Year I Semester
Allied Physics - I

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

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

Answer any **TEN** questions

1. Define Simple Harmonic Motion.
2. What are Lissajous figures?
3. Explain strain and give its units and dimensions.
4. Define Rigidity Modulus of elasticity of the wire.
5. Define coefficient of viscosity of a liquid. Give its units and its dimensions.
6. Define surface tension of a liquid.
7. What are the critical constants of a gas?
8. What are Ultrasonic waves?
9. State Biot Savart's law.
10. What is the principle of a potentiometer?
11. What are free vibrations?
12. Define Mean free path.

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

Answer any **FIVE** questions

13. Explain the terms (a.)damped vibration (b.) forced vibration.
14. Derive an expression for the torsional couple per unit twist.
15. Describe an experiment to compare the viscosities of a liquid.
16. Give the postulates of kinetic theory of gases.
17. Derive an expression for the field along the axis of a coil carrying current.
18. Explain the drop weight method to determine the surface tension of a liquid.
19. Describe with necessary theory to determine the rigidity modulus of the material of a thin rod using static torsion apparatus.

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

Answer any **THREE** questions

20. Discuss with necessary theory, the composition of two simple harmonic motions at right angles to each other. Discuss the different important cases.
21. With necessary theory, explain the method of finding the young's modulus of the material of a bar by non-uniform bending.
22. Derive Poiseuille's formula for the rate of flow of a liquid through a capillary tube. Describe a laboratory method for determining the coefficient of viscosity of a liquid at room temperature.
23. Describe the Piezoelectric method to produce Ultrasonic waves. Write down the merits and demerits of it.
24. Explain the theory of a Potentiometer. How will you use it to calibrate a low range voltmeter?

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