B.Sc. DEGREE EXAMINATION,NOVEMBER 2018
I Year I Semester
Allied - Paper I
ALLIED PHYSICS - I

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

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

Answer any **TEN** questions

1. What are damped vibrations?
2. Lissajous figures are useful in comparing ____
3. State Hooke's law.
4. Define Young's modulus.
5. Define co-efficient of viscority.
6. The shear stress at a point in a liquid is found to be 0.03 N/m2. The velocity gradient at the point is 0.15 s-1. What will be it's viscosity?
7. Define the term Mean free path.
8. What is Ultrasonics?
9. Why do we prefer a potentiometer to measure e.m.f of a cell rather than a voltmeter?
10. What is the trajectory of charged particle moving perpendicular to the direction of uniform magnetic field?
11. Write van der Waal's equation of state.
12. A ship sends ultrasound that returns from seabed and is detected after 3.42 s. If speed of ultrasound through seawater is 1300 ms-1,then distance of seabed from ship would be. . .

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

Answer any **FIVE** questions

13. Discuss the composition of two SHMs along a straight line.
14. Derive the relation between the three elastic moduli.
15. Define the term viscosity and derive the expression for coefficient of viscosity.
16. List out the postulates of kinetic theory of gases
17. Explain the principle of potentiometer.
18. Write a note on medical applications of ultrasound.
19. Describe the method of determining young's modulus of the material of a bar by non-uniform bending.

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

Answer any **THREE** questions

20. Discuss the composition of two SHM's at right angles to each other. Explain the different Cases.

21. Derive an expression for rigidity modulus of material of a wire subjected to torsional oscillations.

22. Define the term surface Tension. Explain how you can determine the surface tension of a solution with the help of drop weight method.

23. Explain the principle, construction and working of piezoelectric oscillator for the production of ultrasonic waves.

24. Derive an expression for magnetic field due to straight current carrying conductor, using Biot-Sabart's law.

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