CITY COLLEGE

Internal Assessment 2021

Physics (Hons.) CBCS Semester 2

Paper: CC4

Time: 1 Hour; Full Marks: 20

Answer any _ten_ questions from the following: **10×2 = 20**

1. What are Lissajous figures?
2. State the principle of superposition.
3. If ω_1 and ω_2 are the half power frequencies and ω_0 is the resonant frequency of a forced system, show that $\omega_0^2 = \omega_1 \omega_2$.
4. What are beats?
5. Define 'decibel' and 'phon'.
6. Define eigenfunctions and eigenvalues for the transverse vibration of a stretched string.
7. A stretched string of length l, fixed at its ends, is plucked by a distance 'b' at a point distant 'a' from one of its ends. Find the energy of the sth harmonic.
8. A wave group is formed by the superposition of two waves of equal amplitudes but of slightly different frequencies and wavelengths. Show that $v_g = v - \lambda \frac{dv}{d\lambda}$, if v_g is the group velocity and v is the phase velocity.
9. What is meant by a plane progressive wave?
10. What are Temporal and Spatial coherences?
11. State Huygens' principle of wave propagation.
12. What do you mean by fringes of equal width and fringes of equal inclination?
13. Why is it necessary to use narrow source for Fresnel's biprism and extended source for Newton's ring experiments?
14. What is the difference between the fringes produced by Michelson interferometer and Newton's ring?
15. How do you determine the difference between two close wavelengths by Michelson's interferometer?

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Answer scripts must be emailed to **sem2hcityphysics@gmail.com** within 15 minutes of the end of the examination.