Basc.1103   **Engineering Physics (2+1)**

Marks:50
Time: 2 hours

(10x1=10)

I   **Fill in the blanks:**

1. In Newton's rings experiment, the diameter of bright rings is proportional to_____
2. When there are no external forces, the shape of a liquid drop is determined by_____
3. _____ property measures the resistance of a liquid to flow
4. The presence of parallel alignment of magnetic dipole moment is given by _____materials
5. Splitting of spectral lines due to magnetic effect is called_____
6. The transition zone for Raman spectra is between _____ and _____ levels
7. The temperature at which conductivity of a material becomes infinite is called_____
8. _____ laser is an example of optical pumping
9. In Holography, _____ of light coming from an object are recorded.
10. _____ _____ is the wavelength of red light emitted by a helium-neon laser

II   **Write Short notes on ANY FIVE of the following**   (5x2=10)

1. How is the central spot in your Newton's ring experiment, bright or dark?
2. Surface tension.
3. Streamline and Turbulent flow
4. Ferromagnetism.
5. Zeeman Effect
6. Applications of Raman spectroscopy.
7. Population Inversion.

III   **Answer ANY FIVE of the following**   (5x4=20)

1. Derive an expression for terminal velocity of a small sphere falling through a viscous liquid.
2. Determine the Coefficient of viscosity for a liquid by capillary flow method.
3. Langevins theory of Diamagnetism
4. Distinguish between semiconductor & Insulator
5. Meissner effect.
6. Different types of lasers.
7. Discuss the propagation characteristics of light through optical fiber and hence derive expression for numerical aperture and acceptance angle.

IV   **Answer ANY ONE of the following.**   (1x10=10)

1. How to determine the wavelength of different colours using diffraction grating with white light with neat diagram
2. Construction and working of CO_2 laser and its applications

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