Glossary:

Spectroscopy: Spectroscopy is the analysis of the electromagnetic radiation emitted, absorbed or scattered by atoms or molecules as they undergo transitions between two energy levels.

Acoustic waves: These are a type of longitudinal waves that propagate by means of adiabatic compression and decompression.

Compton scattering: It is the inelastic scattering of a photon by a quasi-free charged particle, usually an electron. It results in a decrease in energy (increase in wavelength) of the photon (which may be an X-ray or gamma ray photon), called the Compton effect.

Fluorescence: The phenomenon whereby a molecule, after absorbing radiations, emits radiation of a longer wavelength is known as fluorescence.

Phosphorescence: Phosphorescence is a specific type of photoluminescence related to fluorescence. Unlike fluorescence, a phosphorescent material does not immediately re-emit the radiation it absorbs. The slower time scales of the re-emission are associated with «forbidden» energy state transitions in quantum mechanics.

Rayleigh scatter: It is the scattering by molecules or aggregates of molecules with dimensions significantly smaller than the wavelength of the radiation.

Frequency: The number of waves passing through a fixed point on the time axis per second is known as the frequency, 'v', of the radiation (usually expressed in Hertz or cycles per second.

Quantum yield: The quantum yield is defined as the number of emitted photons relative to the number of absorbed photons. Together with the molar absorptivity, it is a measure of the effectiveness of the fluorophore.

Polarimetry: Polarimetry is a sensitive nondestructive technique for measuring the optical activity exhibited by inorganic and organic compounds.

Optical activity: It is the ability of the compounds to rotate plane polarized light.

Polarimeter: The optical instrument used for determining the polarization properties of light beam and samples.