Differences Between Infra-red and Raman Spectra

	Infra-red Spectra	Raman Spectra
1	It is due to absorption of a radiation by the vibrating molecules	It is due to the scattering of radiation by vibrating molecules
2	The dipole moment of the molecule changes	The polarisability of the molecule changes
3	The intensity of IR absorption band depends upon the magnitude of the change in dipole moment of the molecule	The intensity of Raman line depends upon the magnitude of the change of polarisability of the molecule

	Infra-red Spectra	Raman Spectra
4	Water cannot be used as it is opaque to IR	Water can be used as solvent
5	Dilute solutions are generally used	Concentrated solutions are used to increase the intensity of Raman lines
6	Optical systems are made up of special crystals like NaBr, CaF_2, etc.	Optical systems are made up of glass or quartz

• Condition i.e. purity & impurity of the substance is not rigid.	• Substance must be pure & colourless.
• Homonuclear diatomic molecules are in non active mode.	• Homonuclear diatomic moleculs are in active mode.
• Method is accurate and sensitive.	• Method is le.

• Dipole moment of the molecule changes.	• Polarizability of the molecule change.
• water can not be used as a solvent.	• water can be used as a solvent.
• Dilute solutions are used.	• Concentrated solutions are used.