



( 2 )

**Unit-II**

2. (a) Classify rotating molecules on the basis of moment of inertia.
- (b) Explain interaction of microwave radiation with linear, symmetric top, assymmetric top and spherical top molecules.

**OR**

- (a) Show that microwave spectra are observed at constant spacing.
- (b) Rotational constant of  $\text{H}^{35}\text{Cl}$  is  $10.5909\text{ cm}^{-1}$ . Calculate rotational constants for  $\text{H}^{37}\text{Cl}$ .

**Unit-III**

3. Explain theory and application of electron diffraction spectroscopy.

**OR**

Describe principle and application of Turbidimetry.

**Unit-IV**

4. (a) How will you explain different lines of rotating molecules by colliding microwave radiations ?

( 3 )

- (b) Explain Raman activity of symmetric top and spherical top molecules.

*OR*

- (a) How will you explain rotational vibrational Raman spectroscopy ?
- (b) Explain Raman activity of  $H_2$  and  $H_2O$  molecules.
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