- 1. Application of NMR spectroscopy
- 2. Applications of electron spectroscopy
- 3. Applications of IR spectroscopy
- 4. Applications of microwave spectroscopy
- 5. Characterization of physical methods
- 6. Common types of spectroscopy. Spectra.
- 7. Electromagnetic radiation and its basic characteristics
- 8. Electronic oscillatory transitions
- 9. Electronic transition probability. Emission of light
- 10. EPR condition. G-factor and its significance
- 11. Equilibrium and non-equilibrium distribution
- 12. Filling rate of energy levels. Degenerate levels
- 13. Fundamentals of combinational scattering, Polarization.
- 14. Harmonic and anharmonic oscillator
- 15. Infrared spectroscopy
- 16. Intensity of rotational spectral lines, Degeneracy
- 17. Introduction to spectroscopy, types of spectra
- 18. Linear, angular, nonlinear rotations and angular speed formula
- 19. Luminescence (Fluorescence, Phosphorescence)
- 20. Microwave spectroscopy
- 21. Molecular spectroscopy. BLB law
- 22. Molecular spectrum types
- 23. NMR spectroscopy. The chemical shifting
- 24. Nuclear magnetic resonance spectroscopy
- 25. Oscillations of molecules: symmetric and asymmetric rotations
- 26. Overtones and combined bands
- 27. Physical basics of NMR spectroscopy. NMR condition
- 28. Polarization. Rayleigh scattering
- 29. Principles of magnetic resonance spectroscopy
- 30. Raman spectroscopy
- 31. Rotational and vibrational spectroscopy of diatomic
- 32. Rotational spectra of polyatomic molecules

- 33. Spectroscopic and diffraction methods
- 34. Spectroscopy. Common types of spectroscopy
- 35. Spectroscopy. Types of spectra
- 36. Spin-resonance spectroscopy
- 37. Stokes and antistokes parameters
- 38. The chemical shifting
- 39. The components of electromagnetic radiation
- 40. The concept of physical Investigation methods
- 41. The Doppler effect in electromagnetic radiation
- 42. The energy level and their classification, quantum of energy
- 43. The Frank Condon principle
- 44. The rotational energy levels of molecules
- 45. Vibrational Raman spectra of polyatomic molecules
- 46. Vibrational spectra of Polyatomics
- 47. Vibrational-rotational transitions in diatomic molecules
- 48. Diffraction methods