

B.Sc. (FS) Semester - 2 (NEP-2020) Examination**MARCH/APRIL-2025****General Concept of Spectroscopic Techniques (Major-3)****Time: 2 Hours****Marks:50****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

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- Que.1 Answer any one in details. (Any one) (10)**
- 1) Describe Polarization, Diffraction, Dispersion, Interference and Scattering with figure.
 - 2) What is spectroscopy? Give the principle of spectroscopy and write the types of waves and give the property and different parameters of EMR wave.
- Que.2 Answer any one in details. (Any one) (10)**
- 1) Write a note on theory of IR spectroscopy and degree of freedom.
 - 2) Describe the instrumentation of Raman spectroscopy with block diagram.
- Que.3 Answer any one in details. (Any one) (10)**
- 1) What are lamberts and beer's law? and describe theory of U.V. spectroscopy.
 - 2) Draw the block diagram of U.V. spectroscopy and elaborate the sample holder and detector of U.V. spectroscopy with figure.
- Que.4 Answer any one in details. (Any one) (10)**
- 1) What is X- ray? Write the range of X- Ray and production and working of X- Ray.
 - 2) Write a note on types of X-ray spectroscopy and instrumentation of X - Ray spectroscopy.
- Que.5 Answer any one in details. (Any one) (10)**
- 1) Write a note on source, monochromator and sample holder of IR spectroscopy
 - 2) Write a note on theory of Raman spectroscopy and difference between IR and Raman spectroscopy.
