

Third Semester Internal Examination, September 2025
Minor Course in Physics
PHY3MN202 Solid state Physics and spectroscopy

Time: 1 Hr

Max Marks: 35

Name:	Marks Scored	Section A		Total Marks
Class:		Section B		
		Section C		

Section A

(Each question carries 3 marks, Max marks for section – 7)

1. What is mean by natural line width
2. What are stokes and anti-stokes lines?
3. Define population inversion in laser.

Section B

(Each question carries 6 marks, Max marks for section – 18)

4. Distinguish between fluorescence and phosphorescence of molecules.
5. Explain Rotational Energy levels of molecules
6. The wavelength of mercury green light is 546. 1nm. Calculate (i)The frequency in Hz(ii)the wavenumber in cm^{-1} .
7. What are the characteristics of Laser radiation?

Section C

(Answer any one question, Each question carries 10 marks)

8. Explain Raman scattering on the basis on Classical and quantum theory.
9. What are Einstein's coefficients? Explain spontaneous emission rate and stimulated emission rate using it.