

Maulana Azad National Institute of Technology, Bhopal
Department of Physics

Mid Term Examination, May-June 2023

B.Tech. II Sem. (Session 2022-23)

Sections: F, G, H, I, J

Subject: Physics

Time: 1 Hr. 30 Mins.

Subject code: PHY-102

Max. Marks: 20

Note: Answer all questions

Q. No.	Questions	Marks
Q.1	What is a grating? Explain the spectra, with theory, formed by a plane transmission diffraction grating. Show that the intensity is not uniformly distributed over all the maxima.	06
Q.2	What is Fermi Level? Prove that in intrinsic semiconductor Fermi level lies in the middle of forbidden band.	04
Q.3	What is wave function? Derive Schrödinger's time independent wave equation.	05
Q.4.	Distinguish between circular fringes produced in Newton's ring apparatuses and the Michelson interferometer.	02
Q.5.	The mobility of holes is $\mu_h = 0.025 \text{ m}^2/\text{Vs}$. what would be the resistivity of p-type silicon if the hall coefficient of the sample is $2.25 \times 10^{-5} \text{ m}^3/\text{C}$?	03

Physics...

