

Jashore University of Science and Technology

Bachelor of Science Electrical and Electronic Engineering

1st semester of 1st year, Session: 2024 – 2025

Course no.: 053311 PHY 1101

Course title: Physics

Assignment no.: 01

Date: 04 November 2025

Deadline for submission: 20 November 2025, 12:30 PM

1. What is interference of light? Under what conditions interference of light take place?
2. In case of Young's double slit experiment, show that $I = 4I_0 \cos^2 \frac{\delta}{2}$, where the symbols carry usual meaning.
3. Define diffraction of light. What is Fresnel and Fraunhofer class of diffraction?
4. For single slit diffraction show that $I = I_0 \left(\frac{\sin \beta}{\beta} \right)^2$, where the symbols carry usual meaning.
5. What are the thermodynamic functions? Find the differential equations of the thermodynamic functions.
6. Write down important features of the Carnot cycle. Prove that the efficiency of a Carnot cycle is temperature dependent.