

# Jashore University of Science and Technology

Bachelor of Science in Textile Engineering

1st semester of 1st year, 2025

Course no.: 053322 PHY 1125

Course title: Physics – I

Class test no.: 01

Date: 25 October 2025

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1. State Hooke's law and explain its significance in understanding elastic behavior. [5]
2. Define Poisson's ratio. What is its significance and typical range for common materials? [5]
3. A steel wire of original length 2 m and diameter 1 mm is stretched by a load of 2 N. Find the extension. (Take  $Y = 2 \times 10^{11} \text{ N/m}^2$ ) [5]
4. What is meant by the rate of flow of a fluid? Distinguish between streamline and turbulent flow. [5]
5. State and explain Bernoulli's theorem. Write down the mathematical form of Bernoulli's equation. [5]
6. Water flows through a horizontal pipe of varying cross-section. The pressure at a point where the velocity is 2 m/s is  $1.5 \times 10^5 \text{ Pa}$ . Find the pressure where the velocity is 3 m/s. (Density of water =  $1000 \text{ kg/m}^3$ ) [5]