

Important! The Lab report should be solved individually, in case two reports are found similar, this will result in a zero mark for both reports.

Q1: Draw a sketch of the sample used in the experiment with the dimensions?

Q2: Based on the given data, Find the following? Please add the final answer with unit and a brief description of what these values represent. All calculations should be performed in excel. The excel file should be submitted along with the this file

- Modulus of Elasticity (E):
- Yield point (both Stress and Strain):
- Ultimate Tensile Strength (UTS):
- Stress at Fracture:
- Plot Engineering Stress vs Strain Diagram (Should be performed on Excel):
- Plot True Stress vs Strain Diagram (Should be performed on Excel):
- Toughness:

- Using an optical microscope, the area at fracture was measured and it was found to be 40 percent of the initial area. Find the true stress at fracture:

Q3: Describe how the tensile test is conducted, please include all the details related to the load cell size, strain rate, how the elongation is measured, and etc..

Q4: How can you explain the apparent change from strain hardening to strain softening in a metal undergoing tension at room temperature?

Q5: Discuss the importance of Tensile Test.

Q6: What are the advantages of a stress- strain curve over a load-elongation curve?