DATA SHEET:  Heat Treatment of Steel Lab  
Sample Steel: 4140  
Lab Partners:  

Rockwell Hardness:  (R_B or R_C)  
   a. as received  
   b. fully annealed  
   c. as quenched  
   d. quenched & tempered  

Heat Treatment:  hardening temperature  
                 tempering temperature  

Summary of Tensile Test Data:  

<table>
<thead>
<tr>
<th>TREATMENT</th>
<th>Annealed</th>
<th>Q &amp; T</th>
<th>As Received**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardness (R)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yield Strength, N/m²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(psi)*</td>
<td></td>
<td></td>
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<tr>
<td>Ultimate Tensile Strength, N/m²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(psi)*</td>
<td></td>
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<tr>
<td>Elastic Modulus, N/m²</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>(psi)*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Elongation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Reduction in Area</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* use S.I. values followed by English units in parenthesis  
** data from Plastic Deformation and Stress-Strain experiment  

Microstructures.  These should be neat sketches with clear, complete labeling of all phases and constituents.
TENSILE TEST DATA SHEET:

Specimen:______________________

Condition:______________________

Initial Gage Length:_______________ Final Gage Length:_______________
Initial Diameter:_________________ Final Diameter:_________________
Initial Cross-Sectional Area:_______ Final Cross-Sectional Area:_______
Maximum Load:_______________ Ultimate Tensile Strength:__________
Breaking Load:_______________ Breaking Strength:_______________
Yield Strength (specify method):____________________

Comments:

Specimen:______________________

Condition:______________________

Initial Gage Length:_______________ Final Gage Length:_______________
Initial Diameter:_________________ Final Diameter:_________________
Initial Cross-Sectional Area:_______ Final Cross-Sectional Area:_______
Maximum Load:_______________ Ultimate Tensile Strength:__________
Breaking Load:_______________ Breaking Strength:_______________
Yield Strength (specify method):____________________

Comments: