

## Instruction Sheet for the Candidate

<b>Qualification</b>	<b>National Vocational Certificate in Metal Forming &amp; Processing Level 4</b>
<b>Competency Standard</b>	Perform Torsion Test and Fatigue test
<b>Purpose of Assessment</b>	<b>Formative Assessment</b>
<b>Candidate Details</b>	Name _____ Registration/Roll Number _____
<b>Guidance for Candidate</b>	<p><b>To meet this standard, you are required to complete the following within 04 Hrs. time frame (for practical demonstration &amp; assessment):</b></p> <ul style="list-style-type: none"> <li>• CU1. Measure torsion strength of specimen</li> <li>• CU2. Measure fatigue strength of specimen</li> </ul>
<b>Time: 04 Hrs.</b>	During a practical assessment, under observation by an assessor, you are required to
<b>Minimum Evidence Required</b>	<p><b>CU1. Measure torsion strength of specimen</b></p> <p><b>P1.</b> Inspect the Prepared sample according to the requirements of machine and standard.</p> <p><b>P2.</b> Check the working mode of the machine.</p> <p><b>P3.</b> Fix the sample in the fixture.</p> <p><b>P4.</b> Adjust speed, torque angle and time of machine as per material requirement.</p> <p><b>P5.</b> Draw torque vs angle graph.</p> <p><b>P6.</b> Calculate torsion strength.</p> <p><b>P7.</b> Observe fractured surface of the specimen.</p> <p><b>P8.</b> Record the results.</p> <p><b>CU2. Measure fatigue strength of specimen</b></p> <p><b>P1.</b> Inspect the Prepared specimen according to standard.</p> <p><b>P2.</b> Check the working mode of the machine.</p> <p><b>P3.</b> Grip the samples in fixture.</p> <p><b>P4.</b> Apply load as per material requirement.</p> <p><b>P5.</b> Re-zero rotation counter.</p> <p><b>P6.</b> Turn on the machine and start the test.</p> <p><b>P7.</b> Observe number of rotation once the material breaks.</p> <p><b>P8.</b> Calculate fatigue strength by using formula.</p>

### Self-Assessment Checklist

<b>Candidate Name</b>	
<b>Registration No.</b>	
<b>Qualification</b>	<b>National Vocational Certificate in Metal Forming &amp; Processing Level 4</b>
<b>Competency Standard</b>	Perform Torsion Test and Fatigue test
<b>Purpose of Assessment</b>	<b>Formative Assessment</b>
<b>Assessment Task</b>	<ul style="list-style-type: none"> <li>• CU1. Measure torsion strength of specimen</li> <li>• CU2. Measure fatigue strength of specimen</li> </ul>

I can.....

<b>Performance Criteria</b>	<b>Yes</b>	<b>No</b>
<b>P1.</b> Inspect the Prepared sample according to the requirements of machine and standard.	<input type="checkbox"/>	<input type="checkbox"/>
<b>P2.</b> Check the working mode of the machine.	<input type="checkbox"/>	<input type="checkbox"/>
<b>P3.</b> Fix the sample in the fixture.	<input type="checkbox"/>	<input type="checkbox"/>
<b>P4.</b> Adjust speed, torque angle and time of machine as per material requirement.	<input type="checkbox"/>	<input type="checkbox"/>
<b>P5.</b> Draw torque vs angle graph.	<input type="checkbox"/>	<input type="checkbox"/>
<b>P6.</b> Calculate torsion strength.	<input type="checkbox"/>	<input type="checkbox"/>
<b>P7.</b> Observe fractured surface of the specimen.	<input type="checkbox"/>	<input type="checkbox"/>
<b>P8.</b> Record the results.	<input type="checkbox"/>	<input type="checkbox"/>
<b>P9.</b> Inspect the Prepared specimen according to standard.	<input type="checkbox"/>	<input type="checkbox"/>
<b>P10.</b> Check the working mode of the machine.	<input type="checkbox"/>	<input type="checkbox"/>
<b>P11.</b> Grip the samples in fixture.	<input type="checkbox"/>	<input type="checkbox"/>
<b>P12.</b> Apply load as per material requirement.	<input type="checkbox"/>	<input type="checkbox"/>
<b>P13.</b> Re-zero rotation counter.	<input type="checkbox"/>	<input type="checkbox"/>
<b>P14.</b> Turn on the machine and start the test.	<input type="checkbox"/>	<input type="checkbox"/>
<b>P15.</b> Observe number of rotation once the material breaks.	<input type="checkbox"/>	<input type="checkbox"/>
<b>P16.</b> Calculate fatigue strength by using formula.	<input type="checkbox"/>	<input type="checkbox"/>

Candidate's Signature\_\_\_\_\_ Assessor's Signature\_\_\_\_\_

Date: \_\_\_\_\_

## Assessors Judgment Guide

<b>Qualification</b>	<b>National Vocational Certificate in Metal Forming &amp; Processing Level 4</b>
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<b>Purpose of Assessment</b>	<b>Formative Assessment</b>
<b>Candidate Details</b>	Name: _____ Registration/Roll Number: _____ Signature: _____
<b>Assessment Outcome</b>	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor _____ Assessor's code: _____ Signature: _____

Assessment Summary (to be filled by the assessor)							
Activity	Method					Result	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment		✓					
Other Requirement							

## Observation Checklist

<b>Assessment Task</b>	<ul style="list-style-type: none"> <li>CU1. Measure torsion strength of specimen</li> <li>CU2. Measure fatigue strength of specimen</li> </ul>			
<b>During the practical assessment, candidate demonstrated the following:</b>		<b>Yes</b>	<b>No</b>	<b>Remarks</b>
1.	Inspect the Prepared sample according to the requirements of machine and standard.			
2.	Check the working mode of the machine.			
3.	Fix the sample in the fixture.			
4.	Adjust speed, torque angle and time of machine as per material requirement.			
5.	Draw torque vs angle graph.			
6.	Calculate torsion strength.			
7.	Observe fractured surface of the specimen.			
8.	Record the results.			
9.	Inspect the Prepared specimen according to standard.			
10.	Check the working mode of the machine.			
11.	Grip the samples in fixture.			
12.	Apply load as per material requirement.			
13.	Re-zero rotation counter.			
14.	Turn on the machine and start the test.			
15.	Observe number of rotation once the material breaks.			
16.	Calculate fatigue strength by using formula.			
<b>Competent</b> <input type="checkbox"/>		<b>Not Yet Competent</b> <input type="checkbox"/>		



## Knowledge Assessment

<b>Qualification</b>	<b>National Vocational Certificate in Metal Forming &amp; Processing Level 4</b>
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<b>Candidate Details</b>	Name: _____ Registration/Roll Number: _____ Candidate Signature: _____
<b>Assessment Outcome</b>	<b>COMPETENT</b> <input type="checkbox"/> <span style="margin-left: 100px;"><b>NOT YET COMPETENT</b> <input type="checkbox"/></span> Name of the Assessor: _____ Assessor's code: _____ Signature of the Assessor: _____

Candidate's response is not required to be identical, but similar concepts and/or keywords must be used. Oral questioning may be used to clarify candidate understanding of topic and its application.

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)		Satisfactory	Not Satisfactory
1.	Define torque.		
2.	Define moment of inertia.		

3.	Define Fatigue load.		
4.	Define Fatigue Strength.		
5.	What is difference between torsion test and tension test?		
6.	What is the importance of fatigue test?		

<b>Feedback to the Candidate</b>
<b>Candidate's Signature</b> _____ <b>Assessor's Signature</b> _____