

Instruction Sheet for the Candidate

Qualification	National Vocational Certificate in Metal Forming & Processing Level 4
Competency Standard	Carryout Hardness Testing
Purpose of Assessment	Formative Assessment
Candidate Details	Name _____ Registration/Roll Number _____
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within 04 Hrs. time frame (for practical demonstration & assessment):</p> <ul style="list-style-type: none"> • CU1. Measure hardness of the specimen by Brinell Hardness Test • CU2. Measure hardness of the specimen by Rockwell Hardness Test • CU3. Measure hardness of the specimen by Vickers Hardness Test
Time: 04 Hrs.	During a practical assessment, under observation by an assessor, you are required to
Minimum Evidence Required	<p>CU1. Measure hardness of the specimen by Brinell Hardness Test</p> <p>P1. Prepare the surface of standard specimen as per requirement.</p> <p>P2. Inspect the working mode of the Brinell Hardness Testing Machine.</p> <p>P3. Select the indenter and Load as per standard.</p> <p>P4. Place the specimen on anvil with safety precautions.</p> <p>P5. Apply load on the specimen for standard time period.</p> <p>P6. Calculate the Brinell Hardness number with formula or directly note from the gauge according to design of the machine.</p> <p>CU2. Measure hardness of the specimen by Rockwell Hardness Test</p> <p>P1. Prepare the surface of standard specimen as per requirement.</p> <p>P2. Inspect the working mode of the Rockwell Hardness Testing Machine.</p> <p>P3. Select the Scale of the machine (A, B or C) depending upon the material.</p> <p>P4. Place the specimen on anvil with safety precautions and apply minor load.</p> <p>P5. Apply major load on the specimen according to the scale of</p>

	<p>the machine.</p> <p>P6.Note the Rockwell Hardness number from gauge.</p> <p>CU3. Measure hardness of the specimen by Vickers Hardness Test</p> <p>P1.Prepare the surface of standard specimen as per requirement.</p> <p>P2.Inspect the working mode of the Vickers Hardness Testing Machine.</p> <p>P3.Select the Load as per standard depending upon the material.</p> <p>P4.Place the specimen on anvil with safety precautions.</p> <p>P5.Apply load on the specimen for standard time period.</p> <p>P6.Note the Vickers Hardness number from the gauge.</p>
--	---

Self-Assessment Checklist

Candidate Name	
Registration No.	
Qualification	National Vocational Certificate in Metal Forming & Processing Level 4
Competency Standard	Carryout Hardness Testing
Purpose of Assessment	Formative Assessment
Assessment Task	<ul style="list-style-type: none"> • CU1. Measure hardness of the specimen by Brinell Hardness Test • CU2. Measure hardness of the specimen by Rockwell Hardness Test • CU3. Measure hardness of the specimen by Vickers Hardness Test

I can.....

Performance Criteria	Yes	No
P1. Prepare the surface of standard specimen as per requirement.	<input type="checkbox"/>	<input type="checkbox"/>
P2. Inspect the working mode of the Brinell Hardness Testing Machine.	<input type="checkbox"/>	<input type="checkbox"/>
P3. Select the indenter and Load as per standard.	<input type="checkbox"/>	<input type="checkbox"/>
P4. Place the specimen on anvil with safety precautions.	<input type="checkbox"/>	<input type="checkbox"/>
P5. Apply load on the specimen for standard time period.	<input type="checkbox"/>	<input type="checkbox"/>
P6. Calculate the Brinell Hardness number with formula or directly note from the gauge according to design of the machine.	<input type="checkbox"/>	<input type="checkbox"/>
P7. Prepare the surface of standard specimen as per requirement.	<input type="checkbox"/>	<input type="checkbox"/>
P8. Inspect the working mode of the Rockwell Hardness Testing Machine.	<input type="checkbox"/>	<input type="checkbox"/>
P9. Select the Scale of the machine (A, B or C) depending upon the material.	<input type="checkbox"/>	<input type="checkbox"/>
P10. Place the specimen on anvil with safety precautions and apply minor load.	<input type="checkbox"/>	<input type="checkbox"/>
P11. Apply major load on the specimen according to the scale of the machine.	<input type="checkbox"/>	<input type="checkbox"/>
P12. Note the Rockwell Hardness number from gauge.	<input type="checkbox"/>	<input type="checkbox"/>
P13. Prepare the surface of standard specimen as per requirement.	<input type="checkbox"/>	<input type="checkbox"/>
P14. Inspect the working mode of the Vickers Hardness Testing Machine.	<input type="checkbox"/>	<input type="checkbox"/>

P15. Select the Load as per standard depending upon the material.	<input type="text"/>	<input type="text"/>
P16. Place the specimen on anvil with safety precautions.	<input type="text"/>	<input type="text"/>
P17. Apply load on the specimen for standard time period.	<input type="text"/>	<input type="text"/>
P18. Note the Vickers Hardness number from the gauge.	<input type="text"/>	<input type="text"/>

Candidate's Signature_____ Assessor's Signature_____

Date: _____

Assessors Judgment Guide

Qualification	National Vocational Certificate in Metal Forming & Processing Level 4
Competency Standard	Carryout Hardness Testing
Purpose of Assessment	Formative Assessment
Candidate Details	Name: _____ Registration/Roll Number: _____ Signature: _____
Assessment Outcome	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

Assessment Task		<ul style="list-style-type: none"> • CU1. Measure hardness of the specimen by Brinell Hardness Test • CU2. Measure hardness of the specimen by Rockwell Hardness Test • CU3. Measure hardness of the specimen by Vickers Hardness Test 		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Prepare the surface of standard specimen as per requirement.			
2.	Inspect the working mode of the Brinell Hardness Testing Machine.			
3.	Select the indenter and Load as per standard.			
4.	Place the specimen on anvil with safety precautions.			
5.	Apply load on the specimen for standard time period.			
6.	Calculate the Brinell Hardness number with formula or directly note from the gauge according to design of the machine.			
7.	Prepare the surface of standard specimen as per requirement.			
8.	Inspect the working mode of the Rockwell Hardness Testing Machine.			
9.	Select the Scale of the machine (A, B or C) depending upon the material.			
10.	Place the specimen on anvil with safety precautions and apply minor load.			
11.	Apply major load on the specimen according to the scale of the machine.			
12.	Note the Rockwell Hardness number from gauge.			
13.	Prepare the surface of standard specimen as per requirement.			
14.	Inspect the working mode of the Vickers Hardness Testing Machine.			
15.	Select the Load as per standard depending upon the material.			
16.	Place the specimen on anvil with safety precautions.			
17.	Apply load on the specimen for standard time period.			
18.	Note the Vickers Hardness number from the gauge.			

Competent

☐

Not Yet Competent

☐

Knowledge Assessment

Qualification	National Vocational Certificate in Metal Forming & Processing Level 4
Competency Standard	Carryout Hardness Testing
Purpose of Assessment	Formative Assessment
Candidate Details	Name: _____ Registration/Roll Number: _____ Candidate Signature: _____
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> 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.	What are the four types of hardness tests?		
2.	What is the purpose of the hardness test?		
3.	What is Brinell hardness test used for?		

4.	Which indenter is used in Brinell hardness test?		
5.	What is the difference between hardness and toughness?		
6.	Why is the Vickers hardness test used?		

Feedback to the Candidate	
Candidate's Signature_____ Assessor's Signature _____	