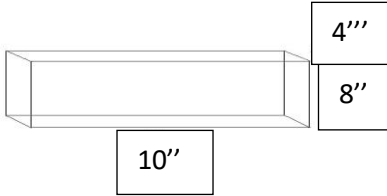
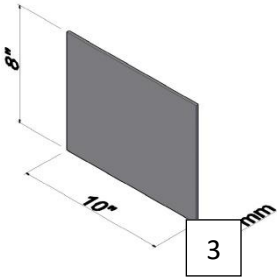
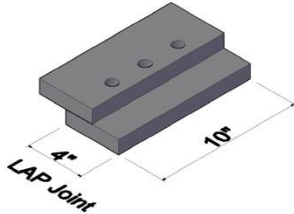


Instruction Sheet for the Candidate

Qualification	National Vocational Certificate in Metal Forming & Processing Level 3
Competency Standards	<ul style="list-style-type: none"> • CS 14 Install/Use system software • CS 15 Install / Use Application Software • CS 16 Draft office documents • CS 17 Perform web browsing and manage emails • CS 18 Manage graphic user interface • CS 19 Develop 2D drawings • CS 20 Develop 3D drawings • CS 21 Perform Drilling Operation • CS 22 Perform Basic Grinding Operations • CS 23 Perform Assembly Operations • CS 24 Carry out Gas Welding Operations • CS 25 Perform Brazing & Soldering Operation • CS 26 Perform Green Sand Mold Casting • CS 27 Perform CO2 Sand Mold Casting • CS 28 Perform Shearing, Bending and Punching Operations • CS 29 Perform Forging Operations • CS 30 Perform Extrusion Process • CS 31 Perform Deep drawing operations
Purpose of Assessment	Summative Assessment
Candidate Details	Name _____ Registration/Roll Number _____
Guidance for Candidate	<p>To meet this standard, you are required to complete one of the following as given by the assessor, within 04 Hrs. time frame (for practical demonstration & assessment):</p> <div style="text-align: center;">  </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div>

	<ol style="list-style-type: none"> 1- According to given drawing Make a cross lap joint 2- Perform casting with the help of given pattern and perform cleaning of casted product 3- Build a hanger of given sketch with the help of forging
Time: 04 Hrs.	<p>During a practical assessment, under observation by an assessor, you are required to</p> <ol style="list-style-type: none"> 1- According to given drawing Make a cross lap joint OR 2- Perform casting with the help of given pattern and perform cleaning of casted product OR 3- Build a hanger of given sketch with the help of forging
Minimum Evidence Required	<ol style="list-style-type: none"> 1. Arrange PPEs as per requirement 2. Interpret from given drawings or prints and check against customer requirements. 3. Select various casting parameters like temperature, pouring speed before starting the process 4. Check the melting equipment availability as per requirement 5. Set casting parameters as per SOPs 6. Arrange raw material for melting operations 7. Carryout tilting and pouring with the defined work standards and specifications 8. Maintain maximum limit of melt in down sprue during pouring as per the process mentioned in the work instructions/ SOPs 9. Remove the sand moulds with metal cast 10. Inspect the conformance of final metal casting as per specification given in work order 11. Determine the dimensions of the Forging product according to given drawing. 12. Arrange forging tool as per requirement of open and closed die forging. 13. Set and operate the heating equipment in accordance with company procedures. 14. Apply forging technique according to the requirements of the job. 15. Keep allowances for material shrinkage and oxidation 16. Apply the force multiple times to get the desire shape. 17. Inspect the finish product as per given specification 18. Shearing process is in accordance with job instructions or standard operating procedures. 19. Carry out grinding as per standard procedure

	<ul style="list-style-type: none"> 20. Adjust pressure of both gas cylinders with the help of regulator 21. Make neutral flame by adjusting both gases at same quantity 22. Select relevant welding consumables as per job requirements/WPS 23. Tack and/or weld material using standard welding process as per requirement 24. Clean the edges of the base materials as per job requirements 25. Select required drill bits according to hole size. 26. Set up the drilling machine for making holes according to a job requirement. 27. Handle the machine tool controls safely and correctly in line with the operational procedures. 28. Select required tools for riveting. 29. Select the type and size of rivet. 30. Aligned the work pieces. 31. Clamp the work pieces firmly. 32. Insert/ set the rivet in to the bore hole using required tools 33. Select required tools for fastening the nut bolt. 34. Insert the bolt in the holes. 35. Screw the nut on the bolts using required tools.
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Self-Assessment Checklist

Candidate Name	
Registration No.	
Qualification	National Vocational Certificate in Metal Forming & Processing Level 3
Competency Standards	<ul style="list-style-type: none"> CS 14 Install/Use system software CS 15 Install / Use Application Software CS 16 Draft office documents CS 17 Perform web browsing and manage emails CS 18 Manage graphic user interface CS 19 Develop 2D drawings CS 20 Develop 3D drawings CS 21 Perform Drilling Operation CS 22 Perform Basic Grinding Operations CS 23 Perform Assembly Operations CS 24 Carry out Gas Welding Operations CS 25 Perform Brazing & Soldering Operation CS 26 Perform Green Sand Mold Casting CS 27 Perform CO2 Sand Mold Casting CS 28 Perform Shearing, Bending and Punching Operations CS 29 Perform Forging Operations CS 30 Perform Extrusion Process CS 31 Perform Deep drawing operations
Purpose of Assessment	Summative Assessment
Assessment Task	1- According to given drawing Make a cross lap joint OR 2- Perform casting with the help of given pattern and perform cleaning of casted product OR 3- Build a hanger of given sketch with the help of forging

I can.....

Performance Criteria	Yes	No
1. Arrange PPEs as per requirement	<input type="checkbox"/>	<input type="checkbox"/>
2. Interpret from given drawings or prints and check against customer requirements.	<input type="checkbox"/>	<input type="checkbox"/>
3. Select various casting parameters like temperature, pouring speed before starting the process	<input type="checkbox"/>	<input type="checkbox"/>
4. Check the melting equipment availability as per requirement	<input type="checkbox"/>	<input type="checkbox"/>
5. Set casting parameters as per SOPs	<input type="checkbox"/>	<input type="checkbox"/>

6. Arrange raw material for melting operations	<input type="checkbox"/>	<input type="checkbox"/>
7. Carryout tilting and pouring with the defined work standards and specifications	<input type="checkbox"/>	<input type="checkbox"/>
8. Maintain maximum limit of melt in down sprue during pouring as per the process mentioned in the work instructions/ SOPs	<input type="checkbox"/>	<input type="checkbox"/>
9. Remove the sand moulds with metal cast	<input type="checkbox"/>	<input type="checkbox"/>
10. Inspect the conformance of final metal casting as per specification given in work order	<input type="checkbox"/>	<input type="checkbox"/>
11. Determine the dimensions of the Forging product according to given drawing.	<input type="checkbox"/>	<input type="checkbox"/>
12. Arrange forging tool as per requirement of open and closed die forging.	<input type="checkbox"/>	<input type="checkbox"/>
13. Set and operate the heating equipment in accordance with company procedures.	<input type="checkbox"/>	<input type="checkbox"/>
14. Apply forging technique according to the requirements of the job.	<input type="checkbox"/>	<input type="checkbox"/>
15. Keep allowances for material shrinkage and oxidation	<input type="checkbox"/>	<input type="checkbox"/>
16. Apply the force multiple times to get the desire shape.	<input type="checkbox"/>	<input type="checkbox"/>
17. Inspect the finish product as per given specification	<input type="checkbox"/>	<input type="checkbox"/>
18. Shearing process is in accordance with job instructions or standard operating procedures.	<input type="checkbox"/>	<input type="checkbox"/>
19. Carry out grinding as per standard procedure	<input type="checkbox"/>	<input type="checkbox"/>
20. Adjust pressure of both gas cylinders with the help of regulator	<input type="checkbox"/>	<input type="checkbox"/>
21. Make neutral flame by adjusting both gases at same quantity	<input type="checkbox"/>	<input type="checkbox"/>
22. Select relevant welding consumables as per job requirements/WPS	<input type="checkbox"/>	<input type="checkbox"/>
23. Tack and/or weld material using standard welding process as per requirement	<input type="checkbox"/>	<input type="checkbox"/>
24. Clean the edges of the base materials as per job requirements	<input type="checkbox"/>	<input type="checkbox"/>
25. Select required drill bits according to hole size.	<input type="checkbox"/>	<input type="checkbox"/>
26. Set up the drilling machine for making holes according to a job requirement.	<input type="checkbox"/>	<input type="checkbox"/>
27. Handle the machine tool controls safely and correctly in line with the operational procedures.	<input type="checkbox"/>	<input type="checkbox"/>
28. Select required tools for riveting.	<input type="checkbox"/>	<input type="checkbox"/>
29. Select the type and size of rivet.	<input type="checkbox"/>	<input type="checkbox"/>
30. Aligned the work pieces.	<input type="checkbox"/>	<input type="checkbox"/>
31. Clamp the work pieces firmly.	<input type="checkbox"/>	<input type="checkbox"/>
32. Insert/ set the rivet in to the bore hole using required tools	<input type="checkbox"/>	<input type="checkbox"/>
33. Select required tools for fastening the nut bolt.	<input type="checkbox"/>	<input type="checkbox"/>
34. Insert the bolt in the holes.	<input type="checkbox"/>	<input type="checkbox"/>
35. Screw the nut on the bolts using required tools.	<input type="checkbox"/>	<input type="checkbox"/>

Candidate's Signature_____ Assessor's Signature_____

Date: _____

Assessors Judgment Guide

Qualification	National Vocational Certificate in Metal Forming & Processing Level 3
Competency Standards	<ul style="list-style-type: none"> CS 14 Install/Use system software CS 15 Install / Use Application Software CS 16 Draft office documents CS 17 Perform web browsing and manage emails CS 18 Manage graphic user interface CS 19 Develop 2D drawings CS 20 Develop 3D drawings CS 21 Perform Drilling Operation CS 22 Perform Basic Grinding Operations CS 23 Perform Assembly Operations CS 24 Carry out Gas Welding Operations CS 25 Perform Brazing & Soldering Operation CS 26 Perform Green Sand Mold Casting CS 27 Perform CO2 Sand Mold Casting CS 28 Perform Shearing, Bending and Punching Operations CS 29 Perform Forging Operations CS 30 Perform Extrusion Process CS 31 Perform Deep drawing operations
Purpose of Assessment	Summative Assessment
Candidate Details	Name: _____ Registration/Roll Number: _____ Signature: _____
Assessment Outcome	<p> COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> </p> <p>Name of the Assessor _____</p> <p>Assessor's code: _____</p> <p>Signature: _____</p>

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		1- According to given drawing Make a cross lap joint OR 2- Perform casting with the help of given pattern and perform cleaning of casted product OR 3- Build a hanger of given sketch with the help of forging		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Arrange PPEs as per requirement			
2.	Interpret from given drawings or prints and check against customer requirements.			
3.	Select various casting parameters like temperature, pouring speed before starting the process			
4.	Check the melting equipment availability as per requirement			
5.	Set casting parameters as per SOPs			
6.	Arrange raw material for melting operations			
7.	Carryout tilting and pouring with the defined work standards and specifications			
8.	Maintain maximum limit of melt in down sprue during pouring as per the process mentioned in the work instructions/ SOPs			
9.	Remove the sand moulds with metal cast			
10.	Inspect the conformance of final metal casting as per specification given in work order			
11.	Determine the dimensions of the Forging product according to given drawing.			
12.	Arrange forging tool as per requirement of open and closed die forging.			
13.	Set and operate the heating equipment in accordance with company procedures.			
14.	Apply forging technique according to the requirements of the job.			
15.	Keep allowances for material shrinkage and oxidation			
16.	Apply the force multiple times to get the desire shape.			

17.	Inspect the finish product as per given specification			
18.	Shearing process is in accordance with job instructions or standard operating procedures.			
19.	Carry out grinding as per standard procedure			
20.	Adjust pressure of both gas cylinders with the help of regulator			
21.	Make neutral flame by adjusting both gases at same quantity			
22.	Select relevant welding consumables as per job requirements/WPS			
23.	Tack and/or weld material using standard welding process as per requirement			
24.	Clean the edges of the base materials as per job requirements			
25.	Select required drill bits according to hole size.			
26.	Set up the drilling machine for making holes according to a job requirement.			
27.	Handle the machine tool controls safely and correctly in line with the operational procedures.			
28.	Select required tools for riveting.			
29.	Select the type and size of rivet.			
30.	Aligned the work pieces.			
31.	Clamp the work pieces firmly.			
32.	Insert/ set the rivet in to the bore hole using required tools			
33.	Select required tools for fastening the nut bolt.			
34.	Insert the bolt in the holes.			
35.	Screw the nut on the bolts using required tools.			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Qualification	National Vocational Certificate in Metal Forming & Processing Level 3
Competency Standards	<ul style="list-style-type: none"> CS 14 Install/Use system software CS 15 Install / Use Application Software CS 16 Draft office documents CS 17 Perform web browsing and manage emails CS 18 Manage graphic user interface CS 19 Develop 2D drawings CS 20 Develop 3D drawings CS 21 Perform Drilling Operation CS 22 Perform Basic Grinding Operations CS 23 Perform Assembly Operations CS 24 Carry out Gas Welding Operations CS 25 Perform Brazing & Soldering Operation CS 26 Perform Green Sand Mold Casting CS 27 Perform CO2 Sand Mold Casting CS 28 Perform Shearing, Bending and Punching Operations CS 29 Perform Forging Operations CS 30 Perform Extrusion Process CS 31 Perform Deep drawing operations
Purpose of Assessment	Summative Assessment
Candidate Details	Name: _____ Registration/Roll Number: _____ Candidate Signature: _____
Assessment Outcome	<div style="display: flex; justify-content: space-around; align-items: center;"> COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> </div> 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.	Describe sand casting process		

2.	Explain Forging operation		
3.	Describe shearing and grinding operations		
4.	How to set the oxygen and acetylene gases for flame formation		
5.	What is the procedure of drilling		
6.	Describe different assembly operations		

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