

**JOB SPECIFICATON  
AND  
SKILL TEST**

**JOB TITLE** : Metal Sculpture, L-3  
**SECTOR** : Art  
**SUB-SECTOR** : Visual Art (Traditional Nepali Art)

**COUNCIL FOR TECHNICAL EDUCATION AND VOCATIONAL TRAINING  
NATIONAL SKILL TESTING BOARD  
MADHYAPUR THIMI – 17, SANOTHIMI, BHAKTAPUR, NEPAL  
June, 2006 (2063 .02.23)**

## **The National Skill Standards and test was developed by**

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**Developed jointly by National Skill Testing Board  
And  
Handicraft Association of Nepal**

**Recommended by Handicraft Technical Sub-Committee**

**June, 2006 (2063 .02.23)**

## JOB SPECIFICATION

1	<b>JOB TITLE : Metal Sculpture</b> <b>LEVEL : 3</b>
2	<b>JOB DESCRIPTION</b> The Metal sculpture refines raw bee – wax, makes hollow sculpture by die, freehand mould, solid sculpture for casting, sculpture with assembling parts, wax die, plaster die, rubber die, casting mould by coating soft clay, casting mould by coating yellow clay, furnace for casting mould (Sāya – gah), coal and kerosene furnace for melting metal (Bhocā – gah), de-waxes the mould, casts the mould by coal and kerosene.
3	<b>LIST OF TASKS:</b> <ol style="list-style-type: none"><li>1. Refining raw bee – wax.</li><li>2. Making hollow sculpture by die.</li><li>3. Making freehand mould.</li><li>4. Making solid sculpture for casting.</li><li>5. Making big sculpture with assembling parts.</li><li>6. Making wax die.</li><li>7. Making plaster die.</li><li>8. Making rubber die.</li><li>9. Making casting mould by coating soft clay.</li><li>10. Making casting mould by coating yellow clay.</li><li>11. Making furnace for casting mould (Sāya – gah).</li><li>12. Making coal furnace for melting metal (Bhocā – gah).</li><li>13. Making kerosene furnace for melting metal (Bhocā – gah).</li><li>14. De-waxing the mould.</li><li>15. Casting the mould by coal.</li><li>16. Casting the mould by kerosene.</li></ol>
4	<b>QUALIFYING NOTES (entry requirement etc.)</b> <ul style="list-style-type: none"><li>- Physical requirement:-Normal health.</li><li>- Educational requirement:-Read and understand specification, Iconometry and Iconography.</li></ul>

## TASK SPECIFICATION

5	<b>TASK NO: 1</b> Refining raw bee-wax <p style="text-align: right;">JOB TITLE: METAL SCULPTURE, L - 3</p>
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6	<b>TASK ELEMENTS:</b> <ol style="list-style-type: none"><li>1. Wears safety apron.</li><li>2. Selects tools, equipments and materials.</li><li>3. Weights or measures materials.</li><li>4. Cuts bee-wax.</li><li>5. Makes shellac powder.</li><li>6. Cuts cheuri ghee.</li><li>7. Filters shellac powder.</li><li>8. Boils bee-wax.</li><li>9. Filters boiled bee-wax.</li><li>10. Mixes shellac powder.</li><li>11. Mixes cheuri ghee.</li><li>12. Prepares pots to pour wax by filtering.</li><li>13. Cools down the wax.</li><li>14. Heats the pot to extract wax sheet.</li></ol>
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## TASK SPECIFICATION

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### TASK PERFORMANCE REQUIREMENTS

Hammer 2 kg, Flat chisel (1 ft), Balance, Plastic sheet (1 meter), Chupi (big knife), Dekchi (pot for boiling wax and pouring), Grinding pot (Khal), Grinder, Table, Plates, Polythene bags, Filter for shellac powder, Filter for boiling bee-wax, Cotton cloth 2 meter, Flat wooden sticks 2"x1" ft = 3 piece, Wooden anvil (Twaka ), Pouring pot, Tapkya, Water pot, Stove, Scissors, Tongs (सनासो), Nokku kapa,, Mask, Cap, Goggles, Glove, Apron, Broom ( Kuco), Towel.

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### TASK PERFORMANCE STANDARDS

- Dressed in safety apron.
- Tools, equipment and materials selected as required.
- Materials balanced as required quantity.
- Bee-wax cut without wastage.
- Cuts wax dries in the open sun.
- Shellac powder grinded without wastage.
- Cheuri ghee cut without melting in hand.
- Shellac powder filtered by No. 100 filter.
- Bee wax boiled until the foam is settled.
- Boiled bee-wax filtered without spilling (or mix shellac powder during boiling).
- Shellac powder mixed in boiled bee-wax 1:3.
- Cheuri ghee mixed slowly (1:16).
- All around surface of the pot heated (without water cooling) to separate wax sheet.

9	10	<b>TASK TRAINING DATA</b>			
TASK NO:	T. E. No.	TECHNICAL KNOWLEDGE	APPLIED CALCULATION	GRAPHIC INFORMATION	SAFETY & HYGENE
1	1	Knowledge of different types of raw-wax, shellac powder and cheuri ghee.	Calculate in KG system, simple mathematics such as addition, subtraction, division multiplication, and ratio.		Hazards involve in handling of boiled bee-wax, filtering, mixing and pouring.
	2	Knowledge of identifying adequately boiled bee – wax.			
	3	Knowledge of mixing proportion bee – wax, shellac powder and cheuri ghee (considering the season).			
	4	Knowledge of filtering and pouring boiled bee-wax.			
	5	Knowledge of heating procedure of extracting wax sheet.			

**TASK PERFORMANCE TEST (SKILL ASSESSMENT)**

	<b>TASK PERFORMANCE TEST (SKILL ASSESSMENT)</b>		
11	TASK TITLE : Refining raw bee wax TASK NO : 1		LOCATION OF TEST : CANDIDATE'S NAME : EVALUATORS NAMES:
12	TEST FACTORS AND ITEMS	STANDARD MET	STANDARD NOT MET (Comments)
	<p><b>DID THE CANDIDATE?</b></p> <ol style="list-style-type: none"> <li>1. Wear safety clothing.</li> <li>2. Select tools, equipment and materials as required.</li> <li>3. Collect materials as required.</li> <li>4. Balance the materials as required quantity.</li> <li>5. Cut the bee-wax without wastage.</li> <li>6. Grind the shellac powder without wastage.</li> <li>7. Cut the cheuri ghee without melting in hand.</li> <li>8. Filter the shellac powder by No.100 filter.</li> <li>9. Boil the bee wax until the foam is settled.</li> <li>10. Filter the boiled bee-wax without spilling.</li> <li>11. Mix the shellac powder in boiled bee-wax (1:3).</li> <li>12. Mix the cheuri ghee slowly (1:16).</li> <li>13. Boil the bee wax until the foam is settled.</li> <li>14. Set / cool wax.</li> <li>15. Heat the all around surface of pot to separate wax sheet.</li> <li>16. Clean used tools and working area.</li> <li>17. Store the wax as specified place.</li> <li>18. Complete the job within specified time.</li> </ol>		

## TASK SPECIFICATION

5	<b>TASK NO: 2</b> Making hollow sculpture by die ( different position, expression and size) <span style="float: right;"><b>JOB TITLE: METAL SCULPTURE, L - 3</b></span>
6	<b>TASK ELEMENTS:</b> <ol style="list-style-type: none"><li>1. Wears safety apron.</li><li>2. Identifies the sample (object).</li><li>3. Selects tools, equipments and materials.</li><li>4. Heats prepared wax.</li><li>5. Prepares wax sheet by pouring.</li><li>6. Prepares mould in the die.</li><li>7. Cuts the extra parts of the mould.</li><li>8. Cleans and adjusts the mould (Piyagu).</li><li>9. Levels the thickness of mould (Ti-tayagu).</li><li>10. Joins parts of mould into required portion.</li><li>11. Sets Ornaments in the mould.</li><li>12. Performs final check in the mould.</li><li>13. Fits main and sub channels in the mould.</li></ol>

## TASK SPECIFICATION

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### TASK PERFORMANCE REQUIREMENTS

Apron or towel, Clay oven or gas stove, Pincers (Chimtā), Metal bowl for melting wax (Tibātcā), Wooden rod (Tikathicā), Cotton cloth for Tikathicā, Iron rod (Kwancā), Flat stone for hammering wax-sheet (mā-lohan), Small stone for hitting wax-sheet (macā-lohan), Oil bowl with oil, Water bowl, Dies, Different types of silayakus ( made of buffalo horn), Steel scale, Compass ( Khoki ), Cutting knives ( Cayagu Chakku), Finishing knife ( Suigu karacā ), Nekucā, Reading table with glass, Plum bob ( Gancā ), Pots ( Bata ), Hammer, Prepared wax, Graph paper, Pencil and cutter, Level, Engineering scale.

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### TASK PERFORMANCE STANDARDS

- Dressed in appropriate safety clothing.
- Object identified according to demand or iconography or tradition.
- Required tools, equipment and materials selected.
- Prepare wax heated approximately 30-40 degree centigrade with the help of helper without wastage.
- Wax sheet prepared by pounding with level and smooth surface according to the required thickness and shape of die.
- Mould prepared in the die with heating wax sheet to maintaining the surface smoothness of the mould without any damage on shape and size.
- Extra parts of the mould cut without damage shape and size.
- Mould cleaned and adjusted (Piyagu) at necessary parts.
- Thickness of mould levelled by Ti- tayagu or scraping within  $\pm 5$  percent of the remaining portion of the mould.
- Parts of the mould joined and cleaned smoothly into required portion without damage shape and size.
- Ornaments in the mould set with clear and clean.
- Mould checked finally and adjusted and balanced, if necessary.
- Channels fitted in the mould without block and leakage.

9	10	<b>TASK TRAINING DATA</b>			
TASK NO:	T. E. No.	TECHNICAL KNOWLEDGE	APPLIED CALCULATION	GRAPHIC INFORMATION	SAFETY & HYGENE
2	1	Knowledge of types of moulds	Calculation of simple mathematical and geometrical.	Read and interpret iconography and iconometry.	Hazards involved in handling of boiled wax.
	2	Knowledge of use and care of tools/ equipment			
	3	Knowledge of function, properties and types of wax			
	4	Knowledge of pounding procedure of wax sheet			
	5	Knowledge of preparing mould in the die			
	6	Knowledge of cutting procedure of wax sheet			
	7	Knowledge of refining by silāyaku (Piyagu)			
	8	Knowledge of making ti-kathicā, checking level, scraping wax, draping and painting the wax (ti-tayagu)			
	9	Knowledge of joining methods of mould parts with clay filling			
	10	Knowledge of Setting ornaments in the mould			
	11	Knowledge of final checking, adjusting and balancing of the mould and storing mould.			
	12	Knowledge of fitting channels.			

**TASK PERFORMANCE TEST (SKILL ASSESSMENT)**

	<b>TASK PERFORMANCE TEST (SKILL ASSESSMENT)</b>		
11	<p>TASK TITLE : Making hollow sculpture by die ( different position, expression and size)</p> <p>TASK NO : 2</p>	<p>LOCATION OF TEST :</p> <p>CANDIDATE'S NAME :</p> <p>EVALUATORS NAMES:</p>	
12	TEST FACTORS AND ITEMS	STANDARD MET	STANDARD NOT MET (Comments)
	<p><b>DID THE CANDIDATE?</b></p> <ol style="list-style-type: none"> <li>1. Dress in appropriate clothing.</li> <li>2. Identify the object according to demand / iconography/ tradition.</li> <li>3. Select tools / equipment and materials as required.</li> <li>4. Heat the prepared wax approximately 30-40 degree centigrade without wastage.</li> <li>5. Prepare wax sheet by pounding with level and smooth surface according to the required thickness and shape of die.</li> <li>6. Press wax sheet in the die with heating.</li> <li>7. Cut extra parts of mould.</li> <li>8. Clean and adjust mould (Piyagu) at necessary parts.</li> <li>9. Level the thickness of mould by Ti- tayagu or scraping within <math>\pm 5\%</math> of the remaining portion of the mould.</li> <li>10. Join the parts of the mould and clean smoothly into required portion.</li> <li>11. Set ornaments in the mould with clear and clean.</li> <li>12. Fit the channels into the mould as required.</li> <li>13. Check mould finally, adjust and balance, if necessary.</li> <li>14. Clean used tools and return to specified place.</li> <li>15. Store used tools and mould as specified place.</li> <li>16. Complete the job within specified time.</li> </ol>		

### TASK SPECIFICATION

5

TASK NO: 3

Making free hand mould (different position, expression and size)

JOB TITTLE: METAL SCULPTURE, L - 3

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**TASK ELEMENTS:**

1. Wears safety apron.
2. Selects tools, equipments and materials.
3. Selects the item, sample or photo.
4. Heats the prepared wax.
5. Makes rough mould.
6. Measures the parts of the sculpture.
7. Cleans and adjusts the icon.
8. Sets ornaments and drapery in the mould.
9. Performs final check in the mould.

### TASK SPECIFICATION

7	<p><b>TASK PERFORMANCE REQUIREMENTS</b></p> <p>Apron/towel, Clay oven or gas stove, Pincers (Chimta), Metal bowl (Tibatcā), Wooden stick (Tikathicā), Cotton cloth , Iron rod ( Kwancā ), Flat stone for hammering wax-sheet and roing wax rods (malohan), Small stone (macālohan), Oil bowl with oil, Water bowl with water, Different types of moulding tools (silayakus), Steel scale, Set square, Compass ( Khoki ), Try square ( Batam ), Cutting knives ( Cāyagu Chakku), Finishing knife ( Suigu Karacā ), Nekucā (Kespaucā), Reading table with glass, Plum bob (Gancā), Pots ( Bata ), Hammer, Prepared wax, Graph paper, Pencil, cutter and eraser, Level, Engineering scale, Scissors, Metal dies (Kayanpalan), Weight (Balance), Heat gun.</p>
8	<p><b>TASK PERFORMANCE STANDARDS</b></p> <ul style="list-style-type: none"><li>- Dressed in appropriate safety clothing.</li><li>- Required tools / equipment and materials selected.</li><li>- Object identified by sample or photo.</li><li>- Prepared wax and wax sheet heated approximately 30-40 degree centigrade without wastage.</li><li>- Rough mould made according to the sampler or photos.</li><li>- Sculpture parts or photos measured according to the proportion, iconography and iconometry.</li><li>- Icon cleaned and adjusted ( Piyagu ) at necessary parts.</li><li>- Ornaments and drapery set with clear and clean.</li><li>- Finished mould checked finally, adjusted and balanced, if necessary.</li></ul>

9	10	<b>TASK TRAINING DATA</b>			
TASK NO:	T. E. No.	TECHNICAL KNOWLEDGE	APPLIED CALCULATION	GRAPHIC INFORMATION	SAFETY & HYGENE
3	1	Knowledge of use and care of tools/ equipment.	Ratio and proportion of sample and photos.  Read and interpret engineering scale (Ratio).	Read and interpret iconography, iconometry, sample, sketch and photos.	Hazards involved in handling boiled wax.
	2	Knowledge of function and types of wax.			
	3	Knowledge of types of moulds.			
	4	Knowledge of heating wax and wax sheet.			
	5	Knowledge of making procedure of master mould.			
	6	Knowledge of measuring procedure of sculpture.			
	7	Knowledge of shrinkage of sculpture.			
	8	Knowledge of refining by silayaku ( Piyaguya).			
	9	Knowledge of types of ornaments and draperies and its preparing and setting in the sculpture.			
	10	Knowledge of final checking, adjusting, balancing and storing of the finished mould.			

**TASK PERFORMANCE TEST (SKILL ASSESSMENT)**

	<b>TASK PERFORMANCE TEST (SKILL ASSESSMENT)</b>		
11	TASK TITLE : Making free hand mould (different position, expression and size) TASK NO : 3	LOCATION OF TEST : CANDIDATE'S NAME : EVALUATORS NAMES:	
12	TEST FACTORS AND ITEMS	STANDARD MET	STANDARD NOT MET (Comments)
	<p><b><u>DID THE CANDIDATE?</u></b></p> <ol style="list-style-type: none"> <li>1. Dress in appropriate safety clothing.</li> <li>2. Select tools / equipment and materials as required.</li> <li>3. Identify the object by sample or photos or sketch.</li> <li>4. Heat the prepared wax and wax-sheet approximately 30-40 degree centigrade without wastage.</li> <li>5. Make master mould according to the sample or photos.</li> <li>6. Measure the sculpture parts of the sample/photos accurately.</li> <li>7. Clean and adjust the icon at necessary parts.</li> <li>8. Prepare and set ornaments and drapery with clear and clean.</li> <li>9. Check finished mould finally, adjust and balance, if necessary.</li> <li>10. Clean used tools and working area.</li> <li>11. Store the used tools and object as specified place.</li> <li>12. Complete the job with in specified time.</li> </ol>		

**TASK SPECIFICATION**

5	TASK NO: 4 Making Solid Sculpture for casting JOB TITLE: METAL SCULPTURE, L - 3
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| 6 | <p><b>TASK ELEMENTS:</b></p> <ol style="list-style-type: none"><li>1. Wears safety apron.</li><li>2. Identifies the object.</li><li>3. Selects tools, equipments and materials.</li><li>4. Heat the prepared wax.</li><li>5. Makes the icon as required solidly or prepare wax sheet by pounding.</li><li>6. Prepares the mould in the die with heating wax sheets.</li><li>7. Cuts the extra parts of the mould.</li><li>8. Cleans and adjusts the mould.</li><li>9. Levels the thickness.</li><li>10. Joints the parts of mould.</li><li>11. Sets ornaments.</li><li>12. Fills the holes with supports and wax sheets.</li><li>13. Performs final check in the mould.</li></ol> |
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## TASK SPECIFICATION

7

### TASK PERFORMANCE REQUIREMENTS

Apron/towel, Clay oven or gas stove, Pincers (Chimta), Metal bowl (Tibatcā), Wooden stick (Tikathicā), Cotton cloth , Iron rod ( Kwancā ), Flat stone for hammering wax-sheet and rooing wax rods (malohan), Small stone (macālohan), Oil bowl with oil, Water bowl with water, Different types of moulding tools (silayakus), Steel scale, Set square, Compass ( Khoki ), Try square ( Batam ), Cutting knives ( Cāyagu Chakku), Finishing knife ( Suigu Karacā ), Nekucā (Kespaucā), Reading table with glass, Plum bob (Gancā), Pots ( Bata ), Hammer, Prepared wax, Graph paper, Pencil, cutter and eraser, Level, Engineering scale, Scissors, Metal dies (Kayanpalan), Weight (Balance), Heat gun.

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### TASK PERFORMANCE STANDARDS

- Dressed in appropriate safety clothing.
- Required tools / equipment and materials selected.
- Object identified by sample or photo.
- Prepared wax and wax sheet heated approximately 30-40 degree centigrade without wastage.
- Master mould made according to sampler or photos.
- Mould prepared in the die with heating wax sheet.
- The extra parts of the mould cut.
- Mould cleaned and adjusted at necessary parts.
- Thickness levelled as required.
- Mould parts jointed.
- Ornaments and drapery set with clear and clean.
- Holes filled with supports and wax sheets without crack the mould.
- Finished mould checked finally, adjusted and balanced, if necessary.

9	10	<b>TASK TRAINING DATA</b>			
TASK NO:	T. E. No.	TECHNICAL KNOWLEDGE	APPLIED CALCULATION	GRAPHIC INFORMATION	SAFETY & HYGENE
4	1	Knowledge of types of moulds			
	2	Knowledge of use and care of tools/ equipment			
	3	Knowledge of function, properties and types of wax			
	4	Knowledge of pounding procedure of wax sheet			
	5	Knowledge of preparing mould in the die			
	6	Knowledge of cutting procedure of wax sheet			
	7	Knowledge of refining by silāyaku (Piyagu)			
	8	Knowledge of making ti-kathicā, checking level, scraping wax, draping and painting the wax (ti-tayagu)			
	9	Knowledge of joining methods of mould parts with clay filling			
	10	Knowledge of setting ornaments in the mould			
	11	Knowledge of filling procedure of holes with supports and wax sheets.			
	12	Knowledge of final checking, adjusting and balancing of the mould and storing mould.			

**TASK PERFORMANCE TEST (SKILL ASSESSMENT)**

	<b>TASK PERFORMANCE TEST (SKILL ASSESSMENT)</b>		
11	TASK TITLE : Making Solid Sculpture for casting TASK NO : 4	LOCATION OF TEST : CANDIDATE'S NAME : EVALUATORS NAMES:	
12	TEST FACTORS AND ITEMS	STANDARD MET	STANDARD NOT MET (Comments)
	DID THE CANDIDATE?  1. Dress in appropriate clothing. 2. Select tools / equipment and materials as required. 3. Identify the object by sample or photos or sketch. 4. Heat the prepared wax and wax-sheet approximately 30-40 degree centigrade without wastage. 5. Prepare mould in the die with heating wax sheet. 6. Cut the extra parts of the mould. 7. Clean and adjust icon at necessary parts. 8. Level the thickness as required. 9. Joint the mould parts 10. Set ornament and drapery with clear and clean. 11. Fill the hole with supports and wax sheets without crack the mould. 12. Check finished mould finally, adjust and balance, if necessary. 13. Clean used tools and working area. 14. Store the used tools and object as specified place. 15. Complete the job within specified time.		

## TASK SPECIFICATION

5	TASK NO: 5 Making big sculpture with assembling parts	JOB TITLE: METAL SCULPTURE, L - 3
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| 6 | Task Elements: <ol style="list-style-type: none"><li>1. Wears safety apron.</li><li>2. Identifies the object.</li><li>3. Selects tools, equipments and materials.</li><li>4. Heats the prepared wax.</li><li>5. Prepares the wax sheet by pouring or pounding.</li><li>6. Prepares the mould in the die with heating wax sheets.</li><li>7. Cuts the extra parts of the mould.</li><li>8. Cleans and adjusts the mould.</li><li>9. Levels the thickness of mould.</li><li>10. Joints the parts of mould with key and key hole ( Sā Tayagu ).</li><li>11. Sets ornaments in the mould.</li><li>12. Performs final check in the mould.</li></ol> |
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## TASK SPECIFICATION

7	<p><b>TASK PERFORMANCE REQUIREMENTS</b></p> <p>Apron/towel, Clay oven or gas stove, Pincers (Chimta), Metal bowl (Tibatcā), Wooden stick (Tikathicā), Cotton cloth , Iron rod ( Kwancā ), Flat stone for hammering wax-sheet and rooing wax rods (malohan), Small stone (macālohan), Oil bowl with oil, Water bowl with water, Different types of moulding tools (silayakus), Steel scale, Set square, Compass ( Khoki ), Try square ( Batam ), Cutting knives ( Cāyagu Chakku), Finishing knife ( Suigu Karacā ), Nekucā (Kespaucā), Reading table with glass, Plum bob (Gancā),Pots ( Bata ), Hammer, Prepared wax, Graph paper, Pencil, cutter and eraser, Level, Engineering scale, Scissors, Metal dies (Kayanpalan), Weight (Balance), Heat gun.</p>
8	<p><b>TASK PERFORMANCE STANDARDS</b></p> <ol style="list-style-type: none"><li>1. Dressed in appropriate safety clothing.</li><li>2. Object identified according to demand or iconography or tradition.</li><li>3. Required tools, equipment and materials selected.</li><li>4. Prepare wax heated approximately 30-40 degree centigrade with the help of helper without wastage.</li><li>5. Wax sheet prepared by pounding or pouring with level and smooth surface according to the required thickness and shape of die.</li><li>6. Mould prepared in the die with heating wax sheet to maintaining the surface smoothness of the mould without any damage on shape and size.</li><li>7. Extra parts of the mould cut without damage shape and size.</li><li>8. Mould cleaned and adjusted (Piyagu) at necessary parts.</li><li>9. Thickness of mould levelled by ( Ti - tayagu ) or scraping within <math>\pm 5</math> percent of the remaining portion of the mould.</li><li>10. Mould parts jointed as required with key and key hole ( Sā - Tayagu ) within <math>\pm 10\%</math> of joints.</li><li>11. Ornaments set in the mould with clear and clean.</li><li>12. Finished mould checked finally, adjusted and balanced, if necessary.</li></ol>

9	10	<b>TASK TRAINING DATA</b>			
TASK NO:	T. E. No.	TECHNICAL KNOWLEDGE	APPLIED CALCULATION	GRAPHIC INFORMATION	SAFETY & HYGENE
5	1	Knowledge of types of moulds.			
	2	Knowledge of use and care of tools/ equipment.			
	3	Knowledge of function, properties and types of wax.			
	4	Knowledge of pounding or pouring procedure of wax sheet.			
	5	Knowledge of preparing mould in the die.			
	6	Knowledge of cutting procedure of wax sheet.			
	7	Knowledge of refining by silayaku (Piyagu).			
	8	Knowledge of making tikathicā, checking level, scraping wax, draping and pasting the wax (Ti - tayagu).			
	9	Knowledge of types of joints.			
	10	Knowledge of fitting ornaments in the mould.			
	11	Knowledge of final checking, adjusting and balancing of the finished mould and storing mould safely.			

**TASK PERFORMANCE TEST (SKILL ASSESSMENT)**

	<b>TASK PERFORMANCE TEST (SKILL ASSESSMENT)</b>		
11	TASK TITLE : Making big sculpture with assembling parts TASK NO : 5		LOCATION OF TEST : CANDIDATE'S NAME : EVALUATORS NAMES:
12	TEST FACTORS AND ITEMS	STANDARD MET	STANDARD NOT MET (Comments)
	<p><b>DID THE CANDIDATE ?</b></p> <ol style="list-style-type: none"> <li>1. Dress in appropriate clothing.</li> <li>2. Identify the object according to demand / iconography/ tradition.</li> <li>3. Select tools, equipment and materials as required.</li> <li>4. Heat the prepared wax approximately 30-40 degree centigrade without wastage.</li> <li>5. Prepare the wax sheet by pounding or pouring with level and smooth surface according to the required thickness and shape of die.</li> <li>6. Prepare the mould in the die with heating wax sheet to maintaining the surface smoothness of the mould.</li> <li>7. Cut the extra parts of mould.</li> <li>8. Clean and adjust mould (Piyagu) at necessary parts.</li> <li>9. Level thickness of mould by Ti- tayagu or scraping with in (±) 5% of the remaining portion of the mould.</li> <li>10. Joint moulded parts as required with key and key hole within ± 10% of joints.</li> <li>11. Set ornaments in the mould with clear and clean.</li> <li>12. Check finished mould finally, adjust, level and balance, if necessary.</li> <li>13. Clean used tools and working area.</li> <li>14. Store the used tools and object as specified place.</li> <li>15. Complete the job within specified time.</li> </ol>		

### TASK SPECIFICATION

5	TASK NO: 6 Making wax die JOB TITLE: METAL SCULPTURE, L - 3
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| 6 | Task Elements: <ol style="list-style-type: none"><li>1. Wears safety apron.</li><li>2. Selects tools, equipments and materials.</li><li>3. Selects the object.</li><li>4. Makes the partition lines on the mould.</li><li>5. Heats the wax and adds shellac powder.</li><li>6. Makes the wax sheet by pounding or free hand.</li><li>7. Paints the oil on the object and fills the wax in the necessary inner holes of the object.</li><li>8. Heats the wax sheet and pastes on the object.</li><li>9. Pastes the wax.</li><li>10. Separates the sheet from the object.</li><li>11. Cuts unnecessary parts or edges of the die and cools down.</li><li>12. Store the die in surface level.</li></ol> |
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## TASK SPECIFICATION

7

### TASK PERFORMANCE REQUIREMENTS

Apron/towel, Clay oven or gas stove, Pincers (Chimta), Metal bowl (Tibatcā), Wooden stick (Tikathicā), Cotton cloth , Iron rod ( Kwancā ), Flat stone for hammering wax-sheet and rooing wax rods (malohan), Small stone (macālohan), Oil bowl with oil, Water bowl with water, Different types of moulding tools (silayakus), Steel scale, Set square, Compass ( Khoki ), Try square ( Batam ), Cutting knives ( Cāyagu Chakku), Finishing knife ( Suigu Karacā ), Nekucā (Kespaucā), Reading table with glass, Plum bob (Gancā), Pots ( Bata ), Hammer, Prepared wax, Graph paper, Pencil, cutter and eraser, Level, Engineering scale, Scissors, Metal dies (Kayanpalan), Weight (Balance), Heat gun, Shellac powder.

8

### TASK PERFORMANCE STANDARDS

- Dressed in appropriate safety clothing.
- Required tools, equipment and materials selected.
- Object identified as specified.
- Partition lines made on the mould as specified.
- Wax heated approximately 30-40 degree centigrade with the help of helper and shellac mixed in prepared wax as required.
- Wax sheet made by pounding or free hand as required size and shape with smooth surface.
- Oil painted on the object and wax filled in the necessary inner holes of the object by hand pressing or silayaku without damaging the object.
- Wax added as required thickness of the object.
- Sheet separated from the object without damaging the object and die.
- Unnecessary parts/ edges of the die cut and cooled down as required.
- Die checked finally, cleaned and adjusted, if necessary.

9	10	<b>TASK TRAINING DATA</b>			
<b>TASK NO:</b>	<b>T. E. No.</b>	<b>TECHNICAL KNOWLEDGE</b>	<b>APPLIED CALCULATION</b>	<b>GRAPHIC INFORMATION</b>	<b>SAFETY &amp; HYGENE</b>
6	1	Knowledge of use and care of tools/equipment			
	2	Knowledge of types of dies.			
	3	Knowledge of making procedure of partition lines.			
	4	Knowledge of heating technique of wax and adding shellac percent.			
	5	Knowledge of making wax sheet with smooth surface.			
	6	Knowledge of pasting and adding wax as per specified object.			
	7	Knowledge of separating procedure of sheet from the object.			
	8	Knowledge of checking, cleaning and adjusting methods of die.			

**TASK PERFORMANCE TEST (SKILL ASSESSMENT)**

	<b>TASK PERFORMANCE TEST (SKILL ASSESSMENT)</b>		
11	TASK TITLE : Making wax die TASK NO : 6	LOCATION OF TEST : CANDIDATE'S NAME : EVALUATORS NAMES:	
12	TEST FACTORS AND ITEMS	STANDARD MET	STANDARD NOT MET (Comments)
	<p><b>DID THE CANDIDATE ?</b></p> <ol style="list-style-type: none"> <li>1. Wear appropriate safety clothing.</li> <li>2. Select tools, equipment and materials as required.</li> <li>3. Identify object as specified.</li> <li>4. Make the partition lines on the mould as specified.</li> <li>5. Heat the wax approximately 30-40 degree centigrade and add shellac in prepared wax as required.</li> <li>6. Make the wax sheet with smooth surface.</li> <li>7. Fill wax as required quantity.</li> <li>8. Deep the object into the water as required and spits the object or paints the oil.</li> <li>9. Heat the wax sheet and paste on the object by hand pressing by silayaku.</li> <li>10. Add the wax according to the object.</li> <li>11. Separate the die sheet from the object securely.</li> <li>12. Cut unnecessary parts/ edge of the die as required.</li> <li>13. Check the die finally, Clean and adjust, if necessary.</li> <li>14. Clean used tools and working area.</li> <li>15. Store the object safely.</li> <li>16. Complete the job within specified time.</li> </ol>		

**TASK SPECIFICATION**

5	TASK NO: 7 Making plaster die <span style="float: right;">JOB TITLE: METAL SCULPTURE, L - 3</span>
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|---|---|
| 6 | Task Elements: <ol style="list-style-type: none"><li>1. Wears safety apron.</li><li>2. Selects tools, equipments and materials.</li><li>3. Selects the object.</li><li>4. Makes the partition of the object.</li><li>5. Makes the boundary wall enshrining the object.</li><li>6. Prepares the plaster.</li><li>7. Paints oil on the object.</li><li>8. Pants clay on plaster joints.</li><li>9. Pours the liquid plaster into the boundary wall.</li><li>10. Breaks out boundary wall when plaster set.</li><li>11. Separates the objects from the die.</li><li>12. Cuts unnecessary parts of the die, if necessary.</li></ol> |
|---|---|

**TASK SPECIFICATION**

7

**TASK PERFORMANCE REQUIREMENTS**

Apron, Wooden slabs, Wooden saw, Nails or screw, Hammer, Try square, Yellow clay, Water with pot, Plaster and cement, Cups, bowls, Plastering tools, Cutting knife and Bricks.

8

**TASK PERFORMANCE STANDARDS**

- Dressed in appropriate safety clothing.
- Required tools, equipment and materials selected.
- Object identified as specified.
- Partition of the object made as required pieces to easy to removing parts.
- Boundary wall enshrining the object made according to the shape and size of the object.
- Liquid plaster prepared.
- Oil painted on the object without spot.
- Clay panted on plaster joints as required.
- Liquid plaster poured into boundary wall slowly as required quantity.
- Boundary wall broken out when plaster set.
- Object separated from the die without cracking the plaster and object.
- Unwanted parts cut, if necessary.

9	10	<b>TASK TRAINING DATA</b>			
TASK NO:	T. E. No.	TECHNICAL KNOWLEDGE	APPLIED CALCULATION	GRAPHIC INFORMATION	SAFETY & HYGENE
7	1	Knowledge of use and care of tools/equipment and materials.			
	2	Knowledge of identification of object.			
	3	Knowledge of making pieces partition of the object.			
	4	Knowledge of making boundary wall enshrining the object.			
	5	Knowledge of function and preparing procedure of plaster.			
	6	Knowledge of pouring process of liquid plaster into boundary wall.			
	7	Knowledge of breaking procedure of boundary wall.			
	8	Knowledge of separating die and object.			
	9	Knowledge of identification of unwanted parts.			

**TASK PERFORMANCE TEST (SKILL ASSESSMENT)**

	<b>TASK PERFORMANCE TEST (SKILL ASSESSMENT)</b>		
11	TASK TITLE : Making plaster die. TASK NO : 7	LOCATION OF TEST : CANDIDATE'S NAME : EVALUATORS NAMES:	
12	TEST FACTORS AND ITEMS	STANDARD MET	STANDARD NOT MET (Comments)
	<p><b>DID THE CANDIDATE ?</b></p> <ol style="list-style-type: none"> <li>1. Wear appropriate safety apron.</li> <li>2. Select required tools, equipment and materials.</li> <li>3. Select object as specified.</li> <li>4. Make the partition of the object as required pieces.</li> <li>5. Make the boundary wall to enshrining the object.</li> <li>6. Prepare the liquid plaster for pouring.</li> <li>7. Paint the oil on the object without spots.</li> <li>8. Paint the clay on plaster joints as required.</li> <li>9. Pour the liquid plaster into the boundary wall slowly as required quantity.</li> <li>10. Break the boundary wall when plaster set.</li> <li>11. Separate the object without cracking the plaster or object.</li> <li>12. Clean used tools, objects and working area.</li> <li>13. Store the object safely or as specified place.</li> <li>14. Complete the job within specified time.</li> </ol>		

## TASK SPECIFICATION

5	TASK NO: 8 Making rubber die  JOB TITLE: METAL SCULPTURE, L – 3
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|---|--|
| 6 | Task Elements:<br><ol style="list-style-type: none"><li>1. Wears safety apron.</li><li>2. Selects tools, equipments and materials.</li><li>3. Selects the object.</li><li>4. Makes the partition of the object.</li><li>5. Makes the wax box enshrining the object.</li><li>6. Weights the liquid rubber.</li><li>7. Mixes cat 'a' lyst into the rubber.</li><li>8. Pours the rubber into the box.</li><li>9. Breaks out the box.</li><li>10. Makes partition for cutting.</li><li>11. Makes boundary wall or case.</li><li>12. Prepares plaster.</li><li>13. Pours plaster in to boundary wall.</li><li>14. Makes lock</li><li>15. Changes opposite direction of mould.</li><li>16. Fixes the mould into boundary wall</li><li>17. Paints the oil in the joints.</li><li>18. Pours prepared plaster.</li><li>19. Separates the object.</li><li>20. Cuts the rubber.</li><li>21. Separates the object.</li></ol> |
|---|--|

## TASK SPECIFICATION

7

### TASK PERFORMANCE REQUIREMENTS

Apron, Silayaku, Neku, Mālohan, Macālohan, Cutting knife, Steel scale, Working table, Gas stove, Tibatcā, Kwancā, Tikathicā, Clean cotton cloth, Wooden rod, Cup, Balance, Syringe or measuring small jar to measure millilitre, Rubber , Cat 'a' lyst, Scissors, Razor blade, Rubber band, Plaster, Water, Yellow clay, Bricks and Wooden slabs.

8

### TASK PERFORMANCE STANDARDS

- Dressed in appropriate safety clothing.
- Required tools, equipment and materials selected.
- Object identified as specified.
- Partition of the object made to easy to removing of parts.
- Wax box enshrining the object made according to the shape and size of the object.
- Liquid rubber measures as required quantity.
- Cat 'a' Lyst 3-5% of rubber mixed into the rubber.
- Rubber poured into the box slowly and systematically without spilling.
- Box broken out when rubber set without damaging the object.
- Partition for cutting and boundary wall case made as required.
- Plaster prepared and poured into boundary wall.
- Lock made and mould changed to opposite direction.
- Mould fixed into boundary wall safely.
- Oil painted in joints without spots.
- Prepared plaster poured.
- Object separated by cutting rubber die one side and without cracks in the object.

9	10	<b>TASK TRAINING DATA</b>			
TASK NO:	T. E. No.	TECHNICAL KNOWLEDGE	APPLIED CALCULATIONS	GRAPHIC INFORMATION	SAFETY & HYGENE
8	1	Knowledge of use and care of tools/equipment and materials.	Calculation of kg, litre		Hazards involved in handling liquid rubber
	2	Knowledge of types of moulds.			
	3	Knowledge of parting procedure of object.			
	4	Knowledge of making wax box enshrining.			
	5	Knowledge of measuring procedure of rubber.			
	6	Knowledge of cat 'a' Lyst and its mixing procedure into rubber.			
	7	Knowledge of pouring technique of rubber into the box.			
	8	Knowledge of breaking box.			
	9	Knowledge of making plaster support case.			
	10	Knowledge of making plaster die.			
	11	Knowledge of cutting procedure of rubber die to separate the object.			

**TASK PERFORMANCE TEST (SKILL ASSESSMENT)**

	<b>TASK PERFORMANCE TEST (SKILL ASSESSMENT)</b>		
11	TASK TITLE : Making rubber die TASK NO : 8	LOCATION OF TEST : CANDIDATE'S NAME : EVALUATORS NAMES:	
12	TEST FACTORS AND ITEMS	STANDARD MET	STANDARD NOT MET (Comments)
	DID THE CANDIDATE?  1. Wear appropriate safety clothing. 2. Select required tools, equipment and materials. 3. Select the object as specified. 4. Perform the partition of the object to easy removal of the parts. 5. Make the wax box enshrining the object as per object. 6. Measure the liquid rubber as required quantity. 7. Mix the cat 'a' Lyst 3-5% of the rubber. 8. Pour the rubber into the box slowly and systematically. 9. Break the box when rubber set. 10. Make partition for cutting and boundary wall or case. 11. Prepare and pour plaster in to boundary wall. 12. Makes lock 13. Change mould into opposite direction. 14. Fix the mould into boundary wall 15. Paint the oil in the joints. 16. Pour prepared plaster. 17. Separate the object. 18. Cut the rubber. 19. Cut the rubber die to separate the object. 20. Clean used tools, object and working area. 21. Store the object safely. 22. Complete the job within specified time.		

### TASK SPECIFICATION

5	TASK NO: 9 Making the casting mould by coating soft clay (Mesipayagu)	JOB TITLE: METAL SCULPTURE, L - 3
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|---|--|--|
| 6 | Task Elements: <ol style="list-style-type: none"><li>1. Wears safety apron/glove.</li><li>2. Selects tools, equipments and materials.</li><li>3. Selects the object.</li><li>4. Cleans the object.</li><li>5. Breaks the soft clay.</li><li>6. Soaks the soft clay (mesica).</li><li>7. Filters cow dung.</li><li>8. Mixes filtered cow dung into liquid soft clay.</li><li>9. Deeps the mould into mixture and shakes mould.</li><li>10. Dries the mould then repeats the process once again.</li><li>11. Dries the figure into fresh year without sun light.</li></ol> |  |
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### TASK SPECIFICATION

7

#### TASK PERFORMANCE REQUIREMENTS

Safety apron and plastic glove, Washing vessel (Atha), Wooden sticks, Filter, Wooden anvil, Hammer , Broom (kucho), Dust pan, Water pot with water, Plastic cup, Hanging sticks and slates, Wooden slabs, Cow dung, Soft clay (Mesica) and Clean cotton cloth.

8

#### TASK PERFORMANCE STANDARDS

- Dressed in appropriate safety clothing.
- Required tools, equipment and materials selected.
- Object identified as specified.
- Dust/ dirt cleaned by cotton cloth
- Soft clay broken into small particles.
- Soft clay (Mesica) soaked about 1 hour.
- Cow dung filtered by No. 100 steel filter.
- Filtered cow dung mixed into liquid soft clay for 1<sup>st</sup> coated 1: ½ to ¾ of clay and 2<sup>nd</sup> or 3<sup>rd</sup> coated 1:1.
- Wax figure deepen out into mixture and figures shacked or mixture painted into wax figured.
- Figure dried into fresh year.
- The same process repeated from No. 8 to 11 For 2<sup>nd</sup> coated 1:1

9	10	<b>TASK TRAINING DATA</b>			
TASK NO:	T. E. No.	TECHNICAL KNOWLEDGE	APPLIED CALCULATION	GRAPHIC INFORMATION	SAFETY & HYGENE
9	1 2 3 4 5	Knowledge of use and care of tools, equipment and materials.  Knowledge of filtering cow dung.  Knowledge of mixing ratio of cow dung.  Knowledge of Deepings and painting procedure of wax mould into mixture.  Knowledge of drying figure.			

**TASK PERFORMANCE TEST (SKILL ASSESSMENT)**

	<b>TASK PERFORMANCE TEST (SKILL ASSESSMENT)</b>		
11	TASK TITLE : Making the casting mould by coating soft clay (Mesipayagu) TASK NO : 9	LOCATION OF TEST : CANDIDATE'S NAME : EVALUATORS NAMES:	
12	TEST FACTORS AND ITEMS	STANDARD MET	STANDARD NOT MET (Comments)
	<p><b>DID THE CANDIDATE ?</b></p> <ol style="list-style-type: none"> <li>1. Wear appropriate safety clothing.</li> <li>2. Select required tools, equipment and materials.</li> <li>3. Filter the cow dung.</li> <li>4. Mix filtered cow dung into liquid soft clay for 1<sup>st</sup> and 2<sup>nd</sup> or 3rd coats.</li> <li>5. Deep wax mould into mixture.</li> <li>6. Dry mould into fresh year.</li> </ol>		

### TASK SPECIFICATION

5 TASK NO: 10  
Making the casting mould by coating yellow clay ( Mhasucā bhunegu) JOB TITLE: METAL SCULPTURE, L - 3

- 6 Task Elements:
1. Wears safety apron.
  2. Selects tools, equipments and materials.
  3. Selects the soft clay coated mould.
  4. Paste the unfilled parts of the mould, if necessary.
  5. Soaks the dry pieces of yellow clay.
  6. Filters the liquid yellow clay.
  7. Mixes the winnowed paddy husk.
  8. Coats the clay into outer parts of the mould.
  9. Dries the mould to the sun.
  10. Coats the clay into inner parts of the mould.
  11. Coats the clay in outer and inner parts of the mould for 2nd and 3rd coat.
  12. Fixes the wax try- channel, if necessary.
  13. Coats the clay in the edge of the mould (Si – mulegu).
  14. Clamps mould by iron wire.

## TASK SPECIFICATION

7

### TASK PERFORMANCE REQUIREMENTS

Safety apron, Simugacā (wooden stick with round and bulb pick), Flat sticks, Wooden stands, Water vessel (Lapacā), Washing vessel (Atha), Polythene sacks, Filter, Clean cotton cloth, Thick liquid soft clay, Yellow clay, Paddy husk Broom (Kucho), Winnowing fan (Nanglo), Wax channels and Iron wire.

8

### TASK PERFORMANCE STANDARDS

- Dressed in appropriate safety clothing.
- Required tools, equipment and materials selected.
- Soft clay coated mould identified as specified.
- Unfilled parts of mould pasted by thick liquid soft clay smoothly without spot.
- Yellow clay broken into small particles.
- Small particles of yellow clay soaked about 1 hour.
- Thick liquid yellow clay filtered.
- Winnowed paddy husk mixed into clay.
  - For 1<sup>st</sup> coated 1:1 ½ to 2 paddy husk
  - For 2<sup>nd</sup> coated 1:1 paddy husk
- Clay coated on object without crack mould.
- Mould dried into the sun.
- Clay coated into inner parts of the mould after its outer part dried.
- Wax try- channel fixed as specified.

9	10	<b>TASK TRAINING DATA</b>			
TASK NO:	T. E. No.	TECHNICAL KNOWLEDGE	APPLIED CALCULATION	GRAPHIC INFORMATION	SAFETY & HYGENE
10	1	Knowledge of use and care of tools, equipment and materials.	Calculate the ratio of winnowed paddy husk and clay.		
	2	Knowledge of importance of pasting liquid soft clay on unfilled parts of mould.			
	3	Knowledge of breaking yellow clay into small particles.			
	4	Knowledge of soaking yellow clay with water.			
	5	Knowledge of filtering thick liquid yellow clay.			
	6	Knowledge of mixing ratio of paddy husk and clay.			
	7	Knowledge of types of coats and coating procedure of clay.			
	8	Knowledge of drying mould.			
	9	Knowledge of importance of wax try channel and its fixing procedures.			

**TASK PERFORMANCE TEST (SKILL ASSESSMENT)**

	<b>TASK PERFORMANCE TEST (SKILL ASSESSMENT)</b>		
11	TASK TITLE : Making the casting mould by coating yellow clay ( Mhasucā bhunegu) TASK NO : 10	LOCATION OF TEST : CANDIDATE'S NAME : EVALUATORS NAMES:	
12	TEST FACTORS AND ITEMS	STANDARD MET	STANDARD NOT MET (Comments)
	<p><b>DID THE CANDIDATE ?</b></p> <ol style="list-style-type: none"> <li>1. Wear appropriate safety clothing.</li> <li>2. Select required tools, equipment and materials.</li> <li>3. Identify the liquid coated mould by thick liquid soft clay.</li> <li>4. Paste the unfilled parts of the mould by thick soft light clay.</li> <li>5. Break the yellow clay into small particles.</li> <li>6. Filter the thick liquid yellow clay.</li> <li>7. Mix winnowed the paddy husk into clay for 1<sup>st</sup> coated 1:1 ½ to 2 and 2<sup>nd</sup> coated 1:1 paddy.</li> <li>8. Coat the clay on object without crack mould.</li> <li>9. Dry the mould into the sun.</li> <li>10. Coat the clay into outer and inner parts of the mould.</li> <li>11. Coat the clay into inner parts of the mould.</li> <li>12. Fix the wax try- channel as specified.</li> <li>13. Clamp the mould by iron wire.</li> <li>14. Clean used tools, mould and working area.</li> <li>15. Store the used tools and mould as specified place.</li> <li>16. Complete the job within specified time</li> </ol>		

### TASK SPECIFICATION

5	TASK NO: 11 Making furnace for casting mould (Sāya –gah)	JOB TITTLE: METAL SCULPTURE, L - 3
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|---|---|--|
| 6 | Task Elements: <ol style="list-style-type: none"><li>1. Wears safety apron.</li><li>2. Selects tools, equipments and materials.</li><li>3. Marks for making furnace.</li><li>4. Performs foundation works.</li><li>5. Kneads the clay.</li><li>6. Performs brick laying works.</li><li>7. Makes the fire wood channel holes.</li><li>8. Fits the iron rods or angles or strips on the inner parts of fire hole wall surface.</li><li>9. Covers the furnace.</li><li>10. Makes gate/ shutter for keeping casting mould.</li><li>11. Fits/ covers the shutter plates (Dhāpu – tayagu), if necessary.</li><li>12. Pastes the layer of yellow clay with paddy husk.</li></ol> |  |
|---|---|--|

**TASK SPECIFICATION**

7

**TASK PERFORMANCE REQUIREMENTS**

Safety apron, Brick cutting knife (Dakami Chupi), Plum bob (Gancā), Plastering tool, Hack saw, Hammer, Thread, Measuring tape, Try-square, Brick, Clay (Yellow and dark), Paddy husk, Polythene sacks, Water pots with water, Iron angle, Iron rods, Iron strips, Covers, Pots, Spade (Kodali) and Sabel.

8

**TASK PERFORMANCE STANDARDS**

- Dressed in appropriate safety clothing.
- Required tools, equipment and material selected.
- Marked and deepen for making furnace as specified place and size.
- Foundation works performed by pasting 2 or 3 layers of bricks.
- Clay kneaded for brick laying works.
- Brick laying works performed as specified shape and sizes.
- Channel holes made for lightening the fire woods as required size.
- Iron rod/ strips/ angle fitted on inner parts of fire hole wall surface as specified.
- Furnace covered by making clay cover or iron cover.
- Gate / shutter made for keeping and removing casting.
- Clay gate/ shutter plates fitted / covered as per specified gate / shutter.
- Yellow clay pasted into inner and outer parts of the furnace by hand.

9	10	<b>TASK TRAINING DATA</b>			
TASK NO:	T. E. No.	TECHNICAL KNOWLEDGE	APPLIED CALCULATION	GRAPHIC INFORMATION	SAFETY & HYGENE
11		<p>1 Knowledge of use and care of tools, equipment and materials.</p> <p>2 Knowledge of marking and deepings for making furnace.</p> <p>3 Knowledge of pasting brick for foundation.</p> <p>4 Knowledge of brick laying works.</p> <p>5 Knowledge of making procedure of channel hole for fire woods.</p> <p>6 Knowledge of fitting procedure of iron rod/ strip/ angle in the fire hole wall surface.</p> <p>7 Knowledge of making furnace cover.</p> <p>8 Knowledge of making gate/ shutter and cover plate.</p> <p>9 Knowledge of pasting procedure of yellow clay in inner and outer parts of the furnace.</p>			

<b>TASK PERFORMANCE TEST (SKILL ASSESSMENT)</b>			
11	TASK TITLE : Making furnace for casting mould (Sāya –gah) TASK NO : 11		LOCATION OF TEST : CANDIDATE'S NAME : EVALUATORS NAMES:
12	TEST FACTORS AND ITEMS	STANDARD MET	STANDARD NOT MET (Comments)
	<b>DID THE CANDIDATE ?</b>  1. Wear appropriate safety clothing. 2. Select required tools, equipment and materials. 3. Mark and deep for making furnace. 4. Paste the brick 2-3 layers for foundation. 5. Layer the brick as specified size and shape. 6. Make the channel hole for fire wood. 7. Fit / fix the iron rod/ strips/ angle in fire wood. 8. Make the furnace cover by clay cover or iron cover as required size. 9. Make the gate/ shutter and plate for keeping/ removing the casting mould. 10. Fit/ cover shutter plate. 11. Paste yellow clay smoothly in inner and outer of the furnace by hand. 12. Clean used tools and working area. 13. Complete the job within specified time		

### TASK SPECIFICATION

5	TASK NO: 12 Making coal furnace for melting metal (Bhocā – gah)	JOB TITLE: METAL SCULPTURE, L - 3
6	Task Elements: <ol style="list-style-type: none"><li>1. Wears safety apron.</li><li>2. Selects tools, equipments and materials.</li><li>3. Marks and deeps for moulding furnace.</li><li>4. Paste the brick (2 or 3 layers).</li><li>5. Kneads the yellow, dark clay and fire clay.</li><li>6. Performs brick laying work for making furnace.</li><li>7. Makes the hole for blowing air.</li><li>8. Fixes the iron rods to put the coal.</li><li>9. Performs fire bricks laying.</li><li>10. Fixes crucibles.</li><li>11. Clamps the furnace by iron angle.</li><li>12. Pastes inner and outer surface of furnace by clay.</li></ol>	

## TASK SPECIFICATION

7

### TASK PERFORMANCE REQUIREMENTS

Safety apron, Brick cutting knife (Dakami Chupi), Plum bob (Gancā), Plaster tool, Hack saw, Hammer, Thread, Measuring tape, Try-square, Brick, Fire brick, Yellow clay, Fire clay, Paddy husk, Polythene sacks, Water, Iron rods/angle, Iron plate cover, Pots and Spade (Kodali)

8

### TASK PERFORMANCE STANDARDS

- Dressed in appropriate safety clothing.
- Required tools, equipment and material selected.
- Marked and deepened for making furnace as specified place and size.
- 2 or 3 layers of bricks pasted for foundation.
- Yellow dark clay and fire clay kneaded for brick laying and plastering the walls.
- Brick laying works performed as specified shape and size.
- Hole made for blowing air about 8-12 inches.
- Iron rod fixed to put the coal as specified distance.
- Fire bricks layered on inner sides with fire clay and ordinary bricks on outer sides with yellow and dark clay as specified bonds and joints.
- Crucibles fixed as required size and shape.
- The furnace clamped by iron angle safely.
- Inner surface and outer surface pasted with fire clay and yellow clay with paddy husk smoothly.

9	10	<b>TASK TRAINING DATA</b>			
TASK NO:	T. E. No.	TECHNICAL KNOWLEDGE	APPLIED CALCULATION	GRAPHIC INFORMATION	SAFETY & HYGENE
12	1	Knowledge of use and care of tools, equipment and materials.			
	2	Knowledge of function and types of furnace.			
	3	Knowledge of making foundation of furnace.			
	4	Knowledge of bonds used in brick laying works.			
	5	Knowledge of making hole for blowing air.			
	6	Knowledge of fixing procedure of iron rods.			
	7	Knowledge of types and function of fire bricks and ordinary bricks laying procedure.			
	8	Knowledge of fixing crucibles.			
	9	Knowledge of clamping technique of furnace.			
	10	Knowledge of function and types of clay and pasting fire clay and yellow clay in inner and outer surface of furnace.			

**TASK PERFORMANCE TEST (SKILL ASSESSMENT)**

11	TASK TITLE : Making coal furnace for melting metal (Bhocā – gah) TASK NO : 12	LOCATION OF TEST : CANDIDATE'S NAME : EVALUATORS NAMES:	
12	TEST FACTORS AND ITEMS	STANDARD MET	STANDARD NOT MET (Comments)
	<p><b>DID THE CANDIDATE ?</b></p> <ol style="list-style-type: none"> <li>1. Wear appropriate safety clothing.</li> <li>2. Select required tools, equipment and materials.</li> <li>3. Mark &amp; deep for making furnace as specified place &amp; size.</li> <li>4. Paste the bricks (2-3 layers) for foundation.</li> <li>5. Knead the dark clay &amp; fire clay for brick laying &amp; plastering.</li> <li>6. Perform the brick laying works as specified shape and size.</li> <li>7. Make the hole about 8-12 inches for blowing air.</li> <li>8. Fix the iron rod to put the coal as specified distance.</li> <li>9. Perform the fire brick laying and ordinary brick laying works as specified bonds and joints.</li> <li>10. Fix the crucible as required sizes and shapes.</li> <li>11. Clamp the furnace safely.</li> <li>12. Paste the fire clay and yellow clay into inner and outer surface of furnace smoothly.</li> <li>13. Clean used tools and working area.</li> <li>14. Complete the job within specified time.</li> </ol>		

## TASK SPECIFICATION

5	<p>TASK NO: 13</p> <p>Making kerosene furnace for melting metal (Bhocā – gah)</p> <p>JOB TITTLE: METAL SCULPTURE, L - 3</p>
6	<p>Task Elements:</p> <ol style="list-style-type: none"><li>1. Wears safety apron.</li><li>2. Selects tools, equipments and materials.</li><li>3. Selects iron drum about 3 feet height.</li><li>4. Paste the fire brick (one layer) with fire clay.</li><li>5. Performs brick laying work for making furnace.</li><li>6. Makes the hole for blowing air (over 2 layers of bricks).</li><li>7. Fixes the iron pipes to pass the oil and air.</li><li>8. Performs fire bricks laying.</li><li>9. Fixes crucible in the centre of the furnace (over 2 layers of bricks).</li><li>10. Clamps the crucible by fire brick.</li><li>11. Makes lead of the furnace</li><li>12. Fixes the kerosene tank.</li><li>13. Fixes the kerosene pipe from tank to the furnace with gate valve.</li><li>14. Fixes electrical blower connection with kerosene pipe and furnace.</li></ol>

## TASK SPECIFICATION

7

### TASK PERFORMANCE REQUIREMENTS

Safety apron, Brick cutting knife (Dakami Chupi), Plum bob (Gancā), Plaster tool, Hack saw, Hammer, Measuring tape, Brick, Fire brick IS 8, Yellow clay, Fire clay, Paddy husk, Polythene sacks, Water pot, Iron drum, Iron rods/strip/angle, Iron plate cover, Pots, Jute sacks, Kerosene tank with tap (30 to 50 lit. capacity), Transparent gas pipe about 10 meters, 6mm Iron or copper pipe about 1/2 meter, Gate valve, Pipe clamp, Blower pipe 1meter, Electrical blower 50 to 60 number, Cotton cloth for firing the furnace.

8

### TASK PERFORMANCE STANDARDS

- Dressed in appropriate safety clothing.
- Required tools, equipment and material selected.
- Iron drum selected with safety bar and movable wheel and iron pipes.
- Hole for air blowing and oil passing made from the black smith.
- One layer of brick pasted for foundation.
- Brick laying works performed as specified shape and size.
- Pipe and oil pipe fixed into the drum.
- Fire brick layered with clay into the inner side of the drum.
- Crucible fixed as required size and shape and height into the middle of the furnace.
- Hole made around the crucible for fire blowing and the crucible clamped by fire bricks.
- Cover of the furnace fixed for adding scraps and filling extra crucible..

9	10	<b>TASK TRAINING DATA</b>			
TASK NO:	T. E. No.	TECHNICAL KNOWLEDGE	APPLIED CALCULATION	GRAPHIC INFORMATION	SAFETY & HYGENE
13		<p>1 Knowledge of use and care of tools, equipment and materials.</p> <p>2 Knowledge of function and types of furnace.</p> <p>3 Knowledge of making hole for blowing air.</p> <p>4 Knowledge of fixing procedure of pipes for oil and air blowing.</p> <p>5 Knowledge of types and function of fire bricks and ordinary bricks laying procedure.</p> <p>6 Knowledge of fixing crucible.</p> <p>7 Knowledge of fixing the cover of furnace.</p> <p>8 Knowledge of fixing oil tank and electrical blower.</p> <p>9 Knowledge of firing the furnace.</p>			

**TASK PERFORMANCE TEST (SKILL ASSESSMENT)**

	<b>TASK PERFORMANCE TEST (SKILL ASSESSMENT)</b>		
11	TASK TITLE : Making kerosene furnace for melting metal (Bhocā – gah) TASK NO : 13	LOCATION OF TEST : CANDIDATE'S NAME : EVALUATORS NAMES:	
12	TEST FACTORS AND ITEMS	STANDARD MET	STANDARD NOT MET (Comments)
	<p><b>DID THE CANDIDATE ?</b></p> <ol style="list-style-type: none"> <li>1. Wear appropriate safety clothing.</li> <li>2. Select required tools, equipment and materials.</li> <li>3. Select iron drum, pipes, oil tank and pipes.</li> <li>4. Knead the dark clay &amp; fire clay for brick laying &amp; plastering.</li> <li>5. Perform the brick laying works as specified shape and size.</li> <li>6. Make the hole and fix pipes for blowing air and oil.</li> <li>7. Perform the fire brick laying as specified bonds and joints.</li> <li>8. Fix the crucible as required sizes and shapes.</li> <li>9. Clamp the crucible.</li> <li>10. Fixe the cover as required size and shape.</li> <li>11. Clean used tools and working area.</li> <li>12. Complete the job within specified time.</li> </ol>		

## TASK SPECIFICATION

5	TASK NO: 14 De-waxing the mould (See - Lhoyagu)	JOB TITLE: METAL SCULPTURE, L - 3
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| 6 | <p>Task Elements:</p> <ol style="list-style-type: none"><li>1. Wears safety apron and fire proof glove.</li><li>2. Selects tools, equipments and materials.</li><li>3. Selects the de-waxing mould.</li><li>4. Removes the clay from the spew hole.</li><li>5. Puts the opposite side of mould into the pot.</li><li>6. Drains the wax from mould by heating mould or using iron pipes.</li><li>7. Removes the mould from the pot and cleans the spew holes.</li></ol> |
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## TASK SPECIFICATION

7

### TASK PERFORMANCE REQUIREMENTS

Safety apron, Fire proof glove, Cutting knife, Pots , Iron rods, Iron frame for putting the mould into the pot, Clipper for support, Iron sheets, Pincers, Tongs, Gas or Gun stove, Jute sacks, Cotton cloth, Small iron rod (Natucā), Caps for covering temporary sprew holes, Yellow clay with paddy husk.

8

### TASK PERFORMANCE STANDARDS

- Dressed in appropriate safety clothing.
- Required tools, equipment and material selected.
- De-waxing moulds identified as specified.
- Clay removed from the sprew hole of the mould clearly.
- Mould put in opposite direction of the pot by supporting iron rods.
- Wax drained fully from mould by heating mould slowly and equally using gas or gun stove.
- Mould removed from the pot safely.
- Sprew holes cleaned by knife.
- Wax drained by heating the mould into the casting furnace using iron pipes, if big mould.

9	10	<b>TASK TRAINING DATA</b>			
TASK NO:	T. E. No.	TECHNICAL KNOWLEDGE	APPLIED CALCULATION	GRAPHIC INFORMATION	SAFETY & HYGENE
14		1 Knowledge of use and care of tools, equipment and materials. 2 Knowledge of identification of de-waxing moulds. 3 Knowledge of removing procedure of clay from sprew hole. 4 Knowledge of supporting procedure for putting in opposite direction of mould. 5 Knowledge of heating procedure of mould for de-waxing. 6 Knowledge of removing mould. 7 Knowledge of cleaning procedure of sprew holes. 8 Knowledge of de-waxing big mould.			

**TASK PERFORMANCE TEST (SKILL ASSESSMENT)**

	<b>TASK PERFORMANCE TEST (SKILL ASSESSMENT)</b>		
11	TASK TITLE : De-waxing the mould (See - Lhoyagu) TASK NO : 14	LOCATION OF TEST : CANDIDATE'S NAME : EVALUATORS NAMES:	
12	TEST FACTORS AND ITEMS	STANDARD MET	STANDARD NOT MET (Comments)
	<p><b>DID THE CANDIDATE ?</b></p> <ol style="list-style-type: none"> <li>1. Wear appropriate safety clothing.</li> <li>2. Select required tools, equipment and materials.</li> <li>3. Identify de-waxing mould as specified.</li> <li>4. Remove the clay from the sprew hole of the mould clearly.</li> <li>5. Put the mould in the opposite direction of the pot by supporting iron rods.</li> <li>6. Drain the wax fully from mould by heating mould slowly and equally using gas or gun stove.</li> <li>7. Remove the mould from the pot safely.</li> <li>8. Clean the sprew hole by knife.</li> <li>9. Drain the wax by heating the mould into the casting furnace using iron pipes, if big mould.</li> <li>10. Clean used tools and working area.</li> <li>11. Complete the job within specified time.</li> </ol>		

## TASK SPECIFICATION

5	<p>TASK NO:15</p> <p>Casting of mould by coal</p> <p>JOB TITTLE: METAL SCULPTURE, L - 3</p>
6	<p>Task Elements:</p> <ol style="list-style-type: none"><li>1. Wears safety clothing.</li><li>2. Selects tools, equipments and materials.</li><li>3. Puts the casting mould into the furnace.</li><li>4. Covers the furnace.</li><li>5. Heats the furnace by fire wood.</li><li>6. Selects and weights the scraps and alloy metals.</li><li>7. Breaks the big scraps and coal into small.</li><li>8. Fills the scraps into the crucibles.</li><li>9. Fills the coal (2 to 3 layers) into the coal furnace.</li><li>10. Fires the coal with burning charcoal.</li><li>11. Puts the scrap filled crucible into the oven and fills the coal around it.</li><li>12. Adds remaining scraps.</li><li>13. Adds alloy.</li><li>14. Removes oxidized particles and dusts from the mouth of the crucible.</li><li>15. Takes out the casting mould from the oven.</li><li>16. Takes out crucible from the oven and pours metal into the funnel opening of casting mould.</li><li>17. Cools the cast mould.</li><li>18. Breaks cooled layers of clay from cast mould.</li><li>19. Cuts the spread of cast object.</li></ol>

## TASK SPECIFICATION

7

### TASK PERFORMANCE REQUIREMENTS

Heat resistant dress, Fire proof glove, Goggles, Leather shoes, Mask, Cap, Head bands, Casting furnaces ( Sayagah and Bhocā- gah), Furnesh covers or shutters, Bricks, Iron rods for placing moulds into furnace, Jute sacks, Hammer, Flat and hard stone, Tongs different size, Pincers, Towel, Fire wood, Coal, Charcoal, Crucible, Electric blower, Iron plates, Iron rods, Yellow clay, Dark clay, Paddy husk, Dhavacā ( Pannu), Pots, Bucket, Jug with water, Iron lids (Kvapu), Iron scrapers (Han cā), Metal scraps and alloy metals, Balance, Flux powder, Wax bulbs, Cleaning brush.

8

### TASK PERFORMANCE STANDARDS

- Dressed in appropriate safety clothing.
- Required tools, equipment and material selected.
- Casting mould put into the furnace without crack and easy to take in and off.
- Furnace covered by shutter.
- All parts of the furnace heated equally by firing wood until the mould bake.
- Scraps and alloy metal identified and measured as required.
- Big scraps and coal broken by heating and hammering into small as required.
- Scraps filled into crucible without breaking and damage crucible.
- 2 to 3 layer of coal filled into the coal furnace as required.
- Coal fired with burning charcoal and blowing fresh air by electrical blower.
- Coal added as required.
- Scrap filled crucible put into the oven and coal filled around it.
- Remaining scrap and alloy heated and added into crucible.
- Oxidized particles and dusts removed from mouth of the crucible by heated removing pan (Dhavacā).
- Bake casting mould removed from oven carefully without crack.
- Crucible removed from the oven without breakage and spilling and metal poured into the funnel of casting mould.
- Cast mould cooled by water.
- Cooled layer of clay broken without scratch on the cast mould.
- Sprew cut by hacksaw.

9	10	TASK TRAINING DATA			
TASK NO:	T. E. No.	TECHNICAL KNOWLEDGE	APPLIED CALCULATION	GRAPHIC INFORMATION	SAFETY & HYGENE
15	1	Knowledge of use and care of tools, equipment and materials.			Hazards involved in handling of hot crucible and boiling metal.
	2	Knowledge of heating procedure of furnace and crucible.			
	3	Knowledge of baking mould.			
	4	Knowledge of function and types of scraps and alloy metal.			
	5	Knowledge of breaking procedure of scraps of coal.			
	6	Knowledge of function of crucible.			
	7	Knowledge of filling procedure of coal into furnace.			
	8	Knowledge of scrap and alloy heating.			
	9	Knowledge of removing procedure of oxidized particles and dusts of crucible.			
	10	Knowledge of checking the melted metal to ready for pouring.			
	11	Knowledge of removing procedure of costing mold and crucible from oven.			
	12	Knowledge of pouring procedure of metal into funnel of costing mould and cool down it.			
	13	Knowledge of breaking the cooled layer of clay and cutting sprew.			

**TASK PERFORMANCE TEST (SKILL ASSESSMENT)**

	<b>TASK PERFORMANCE TEST (SKILL ASSESSMENT)</b>		
11	TASK TITLE : Casting of mould by coal TASK NO : 15	LOCATION OF TEST : CANDIDATE'S NAME : EVALUATORS NAMES:	
12	<b>TEST FACTORS AND ITEMS</b>	<b>STANDARD MET</b>	<b>STANDARD NOT MET (Comments)</b>
	<p><b>DID THE CANDIDATE ?</b></p> <ol style="list-style-type: none"> <li>1. Wear appropriate safety clothing.</li> <li>2. Select required tools, equipment and materials.</li> <li>3. Put the casting mould into the furnace to easy take in and off without crack.</li> <li>4. Cover the furnace by shutter safely.</li> <li>5. Heat the furnace by fire wood.</li> <li>6. Identify &amp; measure the scraps and alloy metal as specified.</li> <li>7. Break the scraps and coal by heating and hammering.</li> <li>8. Fill the scraps into crucible as required.</li> <li>9. Fill the coals into coal furnace as required.</li> <li>10. Fire the coal with charcoal and add coal, if necessary.</li> <li>11. Put the crucible with scrap into the oven.</li> <li>12. Heat the scrap and alloy and add into crucible.</li> <li>13. Remove the oxidized particles and dust from crucible.</li> <li>14. Remove the casting mould from oven carefully without crack.</li> <li>15. Remove the crucible from the oven without breakage and spilling .</li> <li>16. Pour the metal in casting mould safely.</li> <li>17. Clean used tools and works area.</li> <li>18. Store the casting mould as specified place.</li> <li>19. Complete the job within specified time.</li> </ol>		

## TASK SPECIFICATION

5	<p>TASK NO:16</p> <p>Casting of mould by Kerosene</p> <p>JOB TITTLE: METAL SCULPTURE, L - 3</p>
6	<p>Task Elements:</p> <ol style="list-style-type: none"><li>1. Wears safety clothing.</li><li>2. Selects tools, equipments and materials.</li><li>3. Puts the casting mould into the furnace.</li><li>4. Covers the furnace.</li><li>5. Heats the furnace by fire wood.</li><li>6. Selects and weights the scraps and alloy metals.</li><li>7. Breaks the big scraps and coal into small.</li><li>8. Fills the scraps with zink, tin into the crucible.</li><li>9. Fills kerosene into the tank.</li><li>10. Fires the furnace.</li><li>11. Adds the remaining scraps when previous get melted.</li><li>12. Adds Zink, brass, if previously not added..</li><li>13. Adds copper phosphate, if necessary.</li><li>14. Removes oxidized particles and dusts form the mouth of the crucible.</li><li>15. Heats the small extra crucible for metal pouring</li><li>16. Takes out the casting mould from the oven.</li><li>17. Fills melted metal into the extra crucible and pours into the funnel opening of casting mould.</li><li>18. Spreads the flux powder and small wax bulbs.</li><li>19. Cools the cast mould by water.</li><li>20. Breaks cooled layers of clay from cast mould.</li><li>21. Cuts the spread of cast object.</li></ol>

## TASK SPECIFICATION

7

### TASK PERFORMANCE REQUIREMENTS

Heat resistant dress, Fire proof glove, Goggles, Leather shoes, Mask, Cap, Head bands, Casting furnaces ( Sayagah and Bhocā- gah), Kerosene furnace, Furnesh covers or shutters, Bricks, Iron rods for placing moulds into furnace, Jute sacks, Hammer, Flat and hard stone, Tongs different size, Pincers, Towel, Fire wood, Kerosene tank, Crucible, Electric blower, Iron plates, Iron rods, Yellow clay, Dark clay, Paddy husk, Dhavacā ( Pannu), Bi9g spoon, Pots and plates, Bucket, Jug with water, Iron lids (Kvapu), Metal scraps, zink, tin, cupper phosphers, Balance, Flux powder, Wax bulbs, Iron crade for standing casting mould..

8

### TASK PERFORMANCE STANDARDS

- Dressed in appropriate safety clothing.
- Required tools, equipment and material selected.
- Casting mould put into the furnace without crack and easy to take in and off.
- Furnace covered by shutter.
- All parts of the furnace heated equally by firr wood until the mould bake.
- Scraps and alloy metal identified and measured as required.
- Big scraps and coal broken by heating and hammering into small as required.
- Scraps filled into crucible without breaking and damage crucible.
- Furnace fired.
- Remaining scrap and alloy heated and added into crucible when previous metal melted.
- Oxidized particles and dusts removed from mouth of the crucible by heated removing pan (Dhavacā) big spoon
- Extra crucible heated for pouring.
- Bake casting mould removed from oven carefully without crack.
- Extra crucible filled with melted metal and poured into the funnel of casting mould.
- Cast mould cooled by water.
- Cooled layer of clay broken without scratch on the cast mould.
- Sprew cut by hacksaw.

9	10	TASK TRAINING DATA			
TASK NO:	T. E. No.	TECHNICAL KNOWLEDGE	APPLIED CALCULATION	GRAPHIC INFORMATION	SAFETY & HYGENE
16	1	Knowledge of use and care of tools, equipment and materials.			Hazards involved in handling of hot crucible, casting mould and boiling metal.
	2	Knowledge of heating procedure of furnace/crucible.			
	3	Knowledge of baking mould.			
	4	Knowledge of function and types of scraps and alloy metal.			
	5	Knowledge of breaking procedure of scraps of coal.			
	6	Knowledge of function of crucible.			
	7	Knowledge of scrap and alloy heating.			
	8	Knowledge of removing procedure of oxidized particles and dusts of crucible.			
	9	Knowledge of checking the melted metal to ready for pouring.			
	10	Knowledge of removing procedure of costing mold and crucible from oven.			
	11	Knowledge of pouring procedure of metal into funnel of costing mould and cool down it.			
	12	Knowledge of breaking the cooled layer of clay and cutting sprew.			
	13	Knowledge of checking the melted metal to ready for pouring.			
	14	Knowledge of firing the furnace.			

**TASK PERFORMANCE TEST (SKILL ASSESSMENT)**

	<b>TASK PERFORMANCE TEST (SKILL ASSESSMENT)</b>		
11	TASK TITLE : Casting of mould by kerosene TASK NO : 16	LOCATION OF TEST : CANDIDATE'S NAME : EVALUATORS NAMES:	
12	TEST FACTORS AND ITEMS	STANDARD MET	STANDARD NOT MET (Comments)
	<p><b>DID THE CANDIDATE ?</b></p> <ol style="list-style-type: none"> <li>1. Wear appropriate safety clothing.</li> <li>2. Select required tools, equipment and materials.</li> <li>3. Put the casting mould into the furnace to easy take in and off without crack.</li> <li>4. Cover the furnace by shutter safely.</li> <li>5. Heat the furnace by fire wood.</li> <li>6. Identify &amp; measure the scraps and alloy metal as specified.</li> <li>7. Fire the kerosene furnace.</li> <li>8. Break the scraps and coal by heating and hammering.</li> <li>9. Fill the scraps into crucible as required.</li> <li>10. Heat the scrap and alloy and add into crucible.</li> <li>11. Remove the oxidized particles and dust from crucible.</li> <li>12. Remove casting mould from oven carefully without crack.</li> <li>13. Remove the pouring crucible from the oven without breakage and spilling.</li> <li>14. Pour the metal in casting mould safely.</li> <li>15. Spread flux powder and wax bulbs into casting mould while pouring metal.</li> <li>16. Cool down the casting mould by pouring water or dipping into water.</li> <li>17. Clean used tools and works area.</li> <li>18. Store the casting mould as specified place.</li> <li>19. Complete the job within specified time.</li> </ol>		