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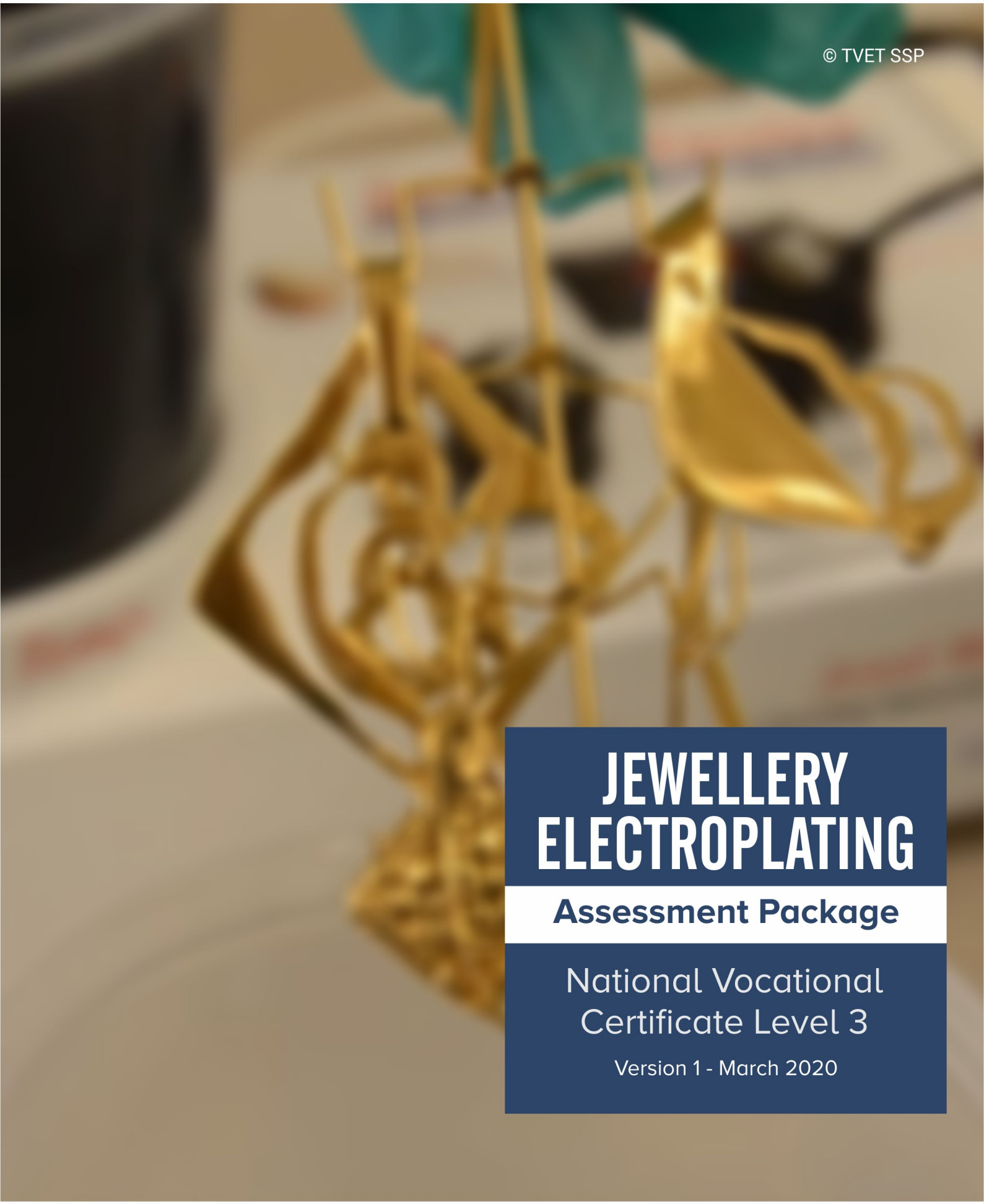



# JEWELLERY ELECTROPLATING

## Assessment Package

National Vocational Certificate Level 3

Version 1 - March 2020

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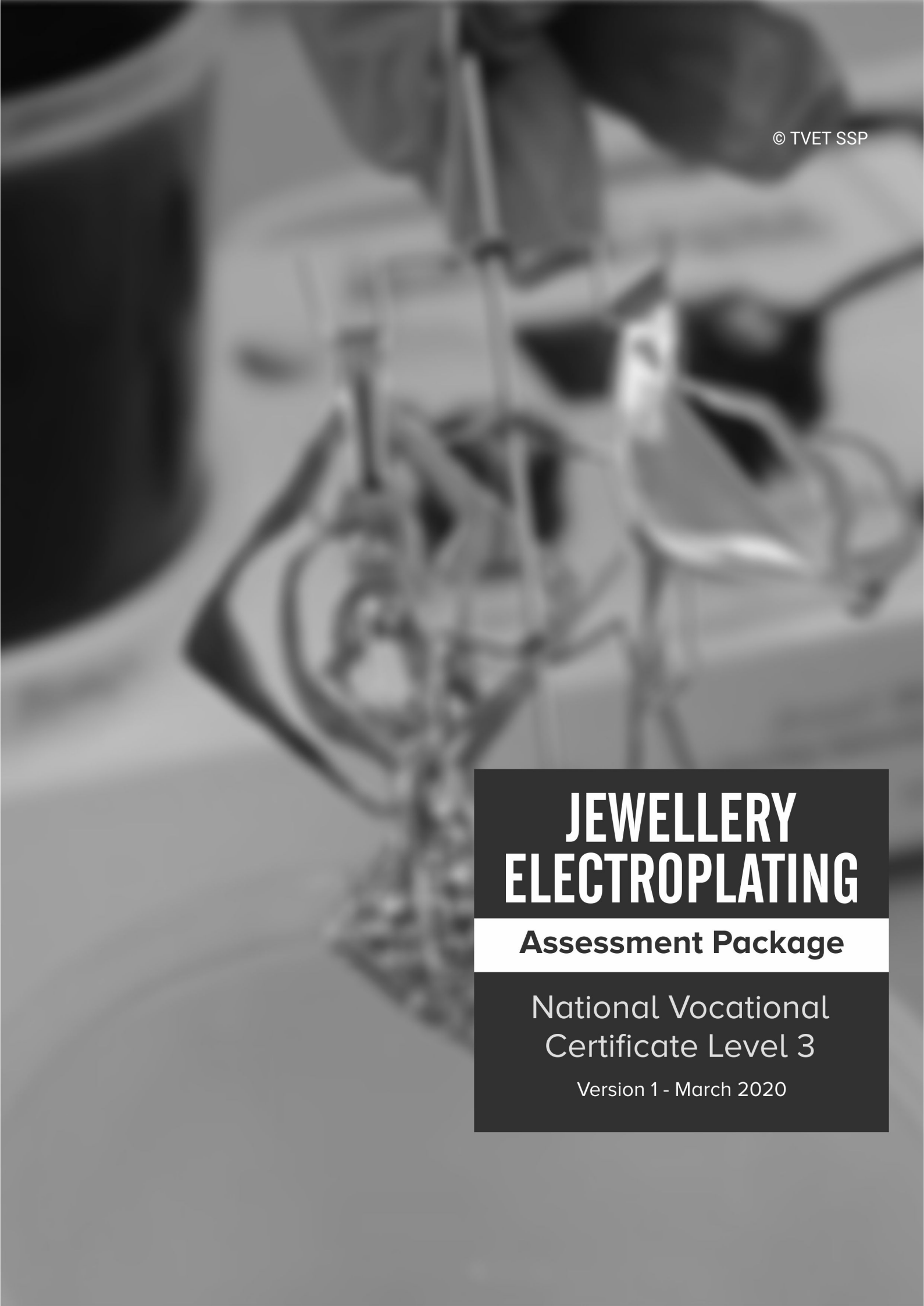



# JEWELLERY ELECTROPLATING

## Assessment Package

National Vocational Certificate Level 3

Version 1 - March 2020

| **Title of Qualification:**<br>National Vocational Qualification Level-3 in Jewellery Electroplating | CS Code: | Level: 03 | Version: 01 |
|---|---|---|---|
| **Competency Standard Title:**<br>PERFORM PRE-TREATMENT OF JEWELLERY ARTICLE<br>COMPLY WITH PERSONAL HEALTH AND SAFETY GUIDELINES | **Assessment Date (DD/MM/YY):** | | |

| | |
|---|---|
| Candidate Details | Name: .....<br><br>Registration/Roll Number: ..... |
| Guidance for Candidate | **To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):**<br>1. **Assessment Task 1:** Assess surface quality of the Jewellery article<br>2. **Assessment Task 2:** Perform steam cleaning of the Jewellery article<br>3. **Assessment Task 3:** Perform ultrasonic cleaning of the Jewellery article<br>4. **Assessment Task 4:** Perform alkali cleaning of the Jewellery article<br>5. **Assessment Task 5:** Perform acid cleaning of the Jewellery article<br>6. **Assessment Task 6:** Perform electrolytic cleaning of the Jewellery article<br>7. **Assessment Task 7:** Perform Electroless plating on complex jewellery article<br>8. **Assessment Task 8:** Perform masking for multi-tone plating<br>9. **Assessment Task 9:** Comply with Personal Health and Safety Guidelines during all tasks<br>And complete:<br>10. **Knowledge assessment test (Written or Oral)**<br>11. **Portfolios at the time of assessment (if any)** |
| Minimum Evidence Required | **During a practical assessment, under observation by an assessor, you will complete:**<br>**Assessment Task 1 Assess surface quality of the Jewellery article**<br>Performance Criteria 1: Identify surface defects of the jewellery article<br>Performance Criteria 2: Polish the jewellery article to remove identified surface defect (s)<br>Performance Criteria 3: Identify faulty hinges and soldered joints |
| | **Assessment Task 2 Perform steam cleaning of the Jewellery article**<br>Performance Criteria 1: Setup steamer for cleaning process<br>Performance Criteria 2: Clean jewellery article with steam |
| | **Assessment Task 3 Perform ultrasonic cleaning of the Jewellery article**<br>Performance Criteria 1: Prepare solution for ultrasonic cleaning<br>Performance Criteria 2: Adjust temperature and frequency parameters<br>Performance Criteria 3: Fix the article in jig and clean jewellery article using ultrasonic machine for required time<br>Performance Criteria 4: Rinse article with water to remove cleaning media |

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| | **Assessment Task 4 Perform alkali cleaning of the Jewellery article**<br>Performance Criteria 1: Prepare recipe of the alkali cleaning solution as per jewellery metal<br>Performance Criteria 2: Mix ingredients to make alkaline solution for cleaning<br>Performance Criteria 3: Label solution container mentioning the ingredients and hazards of the solution<br>Performance Criteria 4: Fix the article in jig and clean jewellery article using alkali cleaning bath for required time<br>Performance Criteria 5: Rinse article with distilled water to remove cleaning media. |

| | |
|---|---|
| | **Assessment Task 5 Perform acidic cleaning of the Jewellery article**<br>Performance Criteria 1: Prepare recipe of the acidic cleaning solution as per jewellery metal.<br>Performance Criteria 2: Mix ingredients to make acidic solution for cleaning<br>Performance Criteria 3: Label solution container mentioning the ingredients and hazards of the solution<br>Performance Criteria 4: Fix the article in jig and clean jewellery article using acidic cleaning bath for required time<br>Performance Criteria 5: Rinse article with distilled water to remove cleaning media. |
| | **Assessment Task 6** Perform electrolytic cleaning of the Jewellery article<br>Performance Criteria 1: Prepare electrolytic cleaning solution as per recipe.<br>Performance Criteria 2: Connect jewellery article with electrode in electrolytic cleaning apparatus<br>Performance Criteria 3: Adjust electric current and voltage parameters<br>Performance Criteria 4: Clean article for required time<br>Performance Criteria 5: Rinse article with distilled water to remove cleaning media. |
| | **Assessment Task 7 Perform Electroless plating on complex jewellery article**<br>Performance Criteria 1: Prepare recipe of the Electroless plating solution as per jewellery metal.<br>Performance Criteria 2: Mix ingredients to make Electroless solution for plating<br>Performance Criteria 3: Label solution container mentioning the ingredients and hazards of the solution<br>Performance Criteria 4: Fix the article in jig and perform Electroless plating of jewellery article as per requirement<br>Performance Criteria 5: Rinse article with distilled water to remove cleaning media |
| | **Assessment Task 8 Perform masking for multi-tone plating**<br>Performance Criteria 1: Prepare masking paint as per requirement of the jewellery article.<br>Performance Criteria 2: Perform masking on required portion of jewellery article<br>Performance Criteria 3: Hang the article for drying after masking |

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| | **Assessment Task 9: Comply with Personal Health and Safety Guidelines during all tasks**<br><br>Performance Criteria 1: Identify risk to personal health<br>Performance Criteria 2: Identify hygiene and safety at workplace<br>Performance Criteria 3: Identify tools, equipment and consumable<br>Performance Criteria 4: Report identified risk to health, hygiene and safety to concerned<br>Performance Criteria 5: List the Personal protective equipment (PPE)<br>Performance Criteria 6: Select personal protective equipment in terms of type and quantity according to work orders.<br>Performance Criteria 7: Wear PPE according to job requirements.<br>Performance Criteria 8: Clean Personal protective equipment (PPE).<br>Performance Criteria 9: Store PPE in proper place after use.<br>Performance Criteria 10: Identify hazardous waste materials that need to be disposed off<br>Performance Criteria 11: Segregate hazardous or non-hazardous waste carefully from the designated area as per approved procedure. |

*Continued on following page*

**Assessors Judgment Guide** (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

| | |
|---|---|
| Candidate Details | Name: ..... Registration/Roll Number: .....<br>Candidate Signature:..... ..... |
| Assessment Outcome | COMPETENT ☐ NOT YET COMPETENT ☐<br>Name of the Assessor:..... Assessor's code: .....<br>Signature of the Assessor:..... ..... |

| **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 | | | | | | | |

| Each Assessment Task (with performance criteria) | | | | |
|---|---|---|---|---|
| Assessment Task 1 | Description of assessment task 1: Identify surface defects of the jewellery article | | | |
| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
| 1 | Performance criteria 1: Identified surface defects of the jewellery article | | | |
| 2 | Performance criteria 2: Polished the jewellery article to remove identified surface defect (s) | | | |
| 3 | Performance criteria 3: Identified faulty hinges and soldered joints | | | |
| Competent ☐ | Not Yet Competent ☐ | | | |

| Assessment Task 2 | Description of assessment task 2 Perform steam cleaning of the Jewellery article |
|---|---|

| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
|---|---|---|---|---|
| 1 | Performance criteria 1: Setup steamer for cleaning process | | | |
| 2 | Performance criteria 2: Clean jewellery article with steam | | | |
| Competent ☐ | | Not Yet Competent ☐ | | |

| Assessment Task 3 | Description of assessment task 3 Perform ultrasonic cleaning of the Jewellery article |
|---|---|

| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
|---|---|---|---|---|
| 1 | Performance criteria 1: Prepared solution for ultrasonic cleaning | | | |
| 2 | Performance criteria 2: Adjusted temperature and frequency parameters | | | |
| 3 | Performance criteria 3: Fixed the article in jig and clean jewellery article using ultrasonic machine for required time | | | |
| 4 | Performance criteria 4: Rinsed article with water to remove cleaning media | | | |
| Competent ☐ | | Not Yet Competent ☐ | | |

| Assessment Task 4 | Description of assessment task 4 **Perform alkali cleaning of the Jewellery article** |
|---|---|

| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
|---|---|---|---|---|
| 1 | Performance criteria 1: Prepared recipe of the alkali cleaning solution as per jewellery metal | | | |
| 2 | Performance criteria 2: Mixed ingredients to make alkaline solution for cleaning | | | |
| 3 | Performance criteria 3: Labelled solution container mentioning the ingredients and hazards of the solution | | | |
| 4 | Performance Criteria 4: Fixed the article in jig and clean jewellery article using alkali cleaning bath for required time | | | |
| 5 | Performance Criteria 5: Rinsed article with distilled water to remove cleaning media. | | | |
| Competent ☐ | | Not Yet Competent ☐ | | |

| Assessment Task 5 | | Description of assessment task 5 **Perform acidic cleaning of the Jewellery article** | | |
|---|---|---|---|---|
| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
| 1 | Performance criteria 1: Prepared recipe of the acidic cleaning solution as per jewellery metal. | | | |
| 2 | Performance criteria 2: Mixed ingredients to make acidic solution for cleaning | | | |
| 3 | Performance criteria 3: Labelled solution container mentioning the ingredients and hazards of the solution | | | |
| 4 | Performance Criteria 4: Fixed the article in jig and clean jewellery article using acidic cleaning bath for required time | | | |
| 5 | Performance Criteria 5: Rinsed article with distilled water to remove cleaning media | | | |
| Competent ☐ | | Not Yet Competent ☐ | | |

:

| Assessment Task 6 | | Description of assessment task 6 Perform electrolytic cleaning of the Jewellery article | | |
|---|---|---|---|---|
| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
| 1 | Performance criteria 1: Prepared electrolytic cleaning solution as per recipe | | | |
| 2 | Performance criteria 2: Connected jewellery article with electrode in electrolytic cleaning apparatus | | | |
| 3 | Performance criteria 3: Adjusted electric current and voltage parameters | | | |
| 4 | Performance Criteria 4: Cleaned article for required time | | | |
| 5 | Performance Criteria 5: Rinsed article with distilled water to remove cleaning media | | | |
| Competent ☐ | | Not Yet Competent ☐ | | |

| Assessment Task 7 | | Description of assessment task 7 **Perform Electroless plating on complex jewellery article** | | |
|---|---|---|---|---|
| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
| 1 | Performance criteria 1: Prepared recipe of the Electroless plating solution as per jewellery metal. | | | |
| 2 | Performance criteria 2: Mixed ingredients to make Electroless solution for plating | | | |
| 3 | Performance criteria 3: Labelled solution container mentioning the ingredients and hazards of the solution | | | |
| 4 | Performance Criteria 4: Fixed the article in jig and perform Electroless plating of jewellery article as per requirement | | | |
| 5 | Performance Criteria 5: Rinsed article with distilled water to remove cleaning media | | | |
| Competent ☐ | | Not Yet Competent ☐ | | |

| Assessment Task 8 | | Description of assessment task 8 **Perform masking for multi-tone plating** | | |
|---|---|---|---|---|
| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
| 1 | Performance criteria 1: Prepared masking paint as per requirement of the jewellery article | | | |
| 2 | Performance criteria 2: Performed masking on required portion of jewellery article | | | |
| 3 | Performance criteria 3: Hanged the article for drying after masking | | | |
| Competent ☐ | | Not Yet Competent ☐ | | |

| Assessment Task 9 | Description of assessment task 9 **Comply with Personal Health and Safety Guidelines during all tasks** |
|---|---|

| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
|---|---|---|---|---|
| 1 | Identify risk to personal health | | | |
| 2 | Identify hygiene and safety at workplace | | | |
| 3 | Identify tools, equipment and consumable | | | |
| 4 | Report identified risk to health, hygiene and safety to concerned | | | |
| 5 | List the Personal protective equipment (PPE) | | | |
| 6 | Select personal protective equipment in terms of type and quantity according to work orders. | | | |
| 7 | Wear PPE according to job requirements. | | | |
| 8 | Clean Personal protective equipment (PPE). | | | |
| 9 | Store PPE in proper place after use. | | | |
| 10 | Identify hazardous waste materials that need to be disposed off | | | |
| 11 | Segregate hazardous or non-hazardous waste carefully from the designated area as per approved procedure. | | | |

| Competent ☐ | Not Yet Competent ☐ |
|---|---|

| **Title of Qualification:**<br>National Vocational Qualification Level-3 in Jewellery Electroplating | CS Code: | Level: 03 | Version: 01 |
|---|---|---|---|
| **Competency Standard Title:**<br>PERFORM ELECTROPLATING OF JEWELLERY ARTICLE<br>COMPLY WITH PERSONAL HEALTH AND SAFETY GUIDELINES | **Assessment Date (DD/MM/YY):** | | |

| | |
|---|---|
| Candidate Details | Name: .....<br><br>Registration/Roll Number: ..... |
| Guidance for Candidate | **To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):**<br>**1. Assessment Task 1: Setup electroplating workstation**<br>**2. Assessment Task 2: Perform electroplating of jewellery article**<br>**3. Assessment Task 3: Comply with Personal Health and Safety Guidelines during all tasks**<br>And complete:<br>**4. Knowledge assessment test (Written or Oral)**<br>**5. Portfolios at the time of assessment (if any)** |
| Minimum Evidence Required | **During a practical assessment, under observation by an assessor, you will complete:**<br>**Assessment Task 1 Setup electroplating workstation**<br>Performance Criteria 1: Set operating parameters (temperature, pH, voltage, and current density) as per requirement of the article.<br>Performance Criteria 2: Adjust anode/cathode surface area ratio<br>Performance Criteria 3: Connect electrodes with power supply |
| | **Assessment Task 2 Perform electroplating of jewellery article**<br>Performance Criteria 1: Immerse jewellery article in electroplating bath.<br>Performance Criteria 2: Perform electroplating (Copper, Nickel, Silver, Gold, Rhodium)<br>Performance Criteria 3: Rinse article with distilled water to remove electrolyte |

| | |
|---|---|
| | **Assessment Task 3: Comply with Personal Health and Safety Guidelines during all tasks**<br><br>Performance Criteria 1: Identify risk to personal health<br>Performance Criteria 2: Identify hygiene and safety at workplace<br>Performance Criteria 3: Identify tools, equipment and consumable<br>Performance Criteria 4: Report identified risk to health, hygiene and safety to concerned<br>Performance Criteria 5: List the Personal protective equipment (PPE)<br>Performance Criteria 6: Select personal protective equipment in terms of type and quantity according to work orders.<br>Performance Criteria 7: Wear PPE according to job requirements.<br>Performance Criteria 8: Clean Personal protective equipment (PPE).<br>Performance Criteria 9: Store PPE in proper place after use.<br>Performance Criteria 10: Identify hazardous waste materials that need to be disposed off<br>Performance Criteria 11: Segregate hazardous or non-hazardous waste carefully from the designated area as per approved procedure. |

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**Assessors Judgment Guide** (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

| | |
|---|---|
| Candidate Details | Name: ..... Registration/Roll Number: .....<br>Candidate Signature:..... ..... |
| Assessment Outcome | COMPETENT ☐ NOT YET COMPETENT ☐<br>Name of the Assessor:..... Assessor's code: .....<br>Signature of the Assessor:..... ..... |

| **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 | | | | | | | |

| Each Assessment Task (with performance criteria) | | | | |
|---|---|---|---|---|
| Assessment Task 1 | Description of assessment task 1: Setup electroplating workstation | | | |
| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
| 1 | Set operating parameters (temperature, pH, voltage, and current density) as per requirement of the article | | | |
| 2 | Adjusted anode/cathode surface area ratio | | | |
| 3 | Connected electrodes with power supply | | | |
| Competent ☐ | Not Yet Competent ☐ | | | |

| Assessment Task 2 | Description of assessment task 2 Perform electroplating of jewellery article |
|---|---|

| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
|---|---|---|---|---|
| 1 | Immersed jewellery article in electroplating bath | | | |
| 2 | Performed electroplating (Copper, Nickel, Silver, Gold, Rhodium) | | | |
| 3 | Rinsed article with distilled water to remove electrolyte | | | |
| Competent ☐ | | Not Yet Competent ☐ | | |

| Assessment Task 3 | Description of assessment task 3<br>**Comply with Personal Health and Safety Guidelines during all tasks** |
|---|---|

| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
|---|---|---|---|---|
| 1 | Identify risk to personal health | | | |
| 2 | Identify hygiene and safety at workplace | | | |
| 3 | Identify tools, equipment and consumable | | | |
| 4 | Report identified risk to health, hygiene and safety to concerned | | | |
| 5 | List the Personal protective equipment (PPE) | | | |
| 6 | Select personal protective equipment in terms of type and quantity according to work orders. | | | |
| 7 | Wear PPE according to job requirements. | | | |
| 8 | Clean Personal protective equipment (PPE). | | | |
| 9 | Store PPE in proper place after use. | | | |
| 10 | Identify hazardous waste materials that need to be disposed off | | | |
| 11 | Segregate hazardous or non-hazardous waste carefully from the designated area as per approved procedure. | | | |
| Competent ☐ | | Not Yet Competent ☐ | | |

| **Title of Qualification:**<br>**National Vocational Qualification Level-3 in Jewellery Electroplating** | CS Code: | Level: 03 | Version: 01 |
|---|---|---|---|
| **Competency Standard Title:**<br>PERFORM POST-TREATMENT OF PLATED ARTICLE<br>COMPLY WITH PERSONAL HEALTH AND SAFETY GUIDELINES | **Assessment Date (DD/MM/YY):** | | |

| | |
|---|---|
| Candidate Details | Name: .....<br><br>Registration/Roll Number: ..... |
| Guidance for Candidate | **To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):**<br>**1. Assessment Task 1: Apply inorganic protective coating**<br>**2. Assessment Task 2: Apply organic protective coating**<br>**3. Assessment Task 3: Apply electrophoretic composite coating**<br>**4. Assessment Task 4: Comply with Personal Health and Safety Guidelines during all tasks**<br>And complete:<br>**5. Knowledge assessment test (Written or Oral)**<br>**6. Portfolios at the time of assessment (if any)** |
| Minimum Evidence Required | **During a practical assessment, under observation by an assessor, you will complete:**<br>**Assessment Task 1 Apply inorganic protective coating**<br>Performance Criteria 1: Remove masking by solvent and perform ultrasonic cleaning if required.<br>Performance Criteria 2: Prepare inorganic protective coating solution as per recipe<br>Performance Criteria 3: Apply protective coating when article is gold, rhodium, nickel, copper, or silver electroplated if required.<br>Performance Criteria 4: Cure protective coating by air drying / heat drying |
| | **Assessment Task 2 Apply organic protective coating**<br>Performance Criteria 1: Remove masking by solvent and perform ultrasonic cleaning if required.<br>Performance Criteria 2: Prepare organic protective coating solution as per recipe<br>Performance Criteria 3: Apply protective coating when article is gold, rhodium, nickel, copper, or silver electroplated if required<br>Performance Criteria 4: Cure protective coating by Ultra Violet/ heat drying |
| | **Assessment Task 3 Apply electrophoretic composite coating**<br>Performance Criteria 1: Remove masking by solvent and perform ultrasonic cleaning if required.<br>Performance Criteria 2: Prepare electrophoretic composite coating solution as per recipe<br>Performance Criteria 3: Setup workstation for electrophoretic composite coating<br>Performance Criteria 4: Perform electrophoretic protective coating when article is gold, rhodium, nickel, copper, or silver electroplated if required |

| | |
|---|---|
| | **Assessment Task 4: Comply with Personal Health and Safety Guidelines during all tasks**<br><br>Performance Criteria 1: Identify risk to personal health<br>Performance Criteria 2: Identify hygiene and safety at workplace<br>Performance Criteria 3: Identify tools, equipment and consumable<br>Performance Criteria 4: Report identified risk to health, hygiene and safety to concerned<br>Performance Criteria 5: List the Personal protective equipment (PPE)<br>Performance Criteria 6: Select personal protective equipment in terms of type and quantity according to work orders.<br>Performance Criteria 7: Wear PPE according to job requirements.<br>Performance Criteria 8: Clean Personal protective equipment (PPE).<br>Performance Criteria 9: Store PPE in proper place after use.<br>Performance Criteria 10: Identify hazardous waste materials that need to be disposed off<br>Performance Criteria 11: Segregate hazardous or non-hazardous waste carefully from the designated area as per approved procedure. |

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**Assessors Judgment Guide** (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

| | |
|---|---|
| Candidate Details | Name: ..... Registration/Roll Number: .....<br>Candidate Signature:..... ..... |
| Assessment Outcome | COMPETENT ☐ NOT YET COMPETENT ☐<br>Name of the Assessor:..... Assessor's code: .....<br>Signature of the Assessor:..... ..... |

| **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 | | | | | | | |

| Each Assessment Task (with performance criteria) | | | | |
|---|---|---|---|---|
| Assessment Task 1 | Description of assessment task 1: **Apply inorganic protective coating** | | | |
| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
| 1 | Remove masking by solvent and perform ultrasonic cleaning if required. | | | |
| 2 | Prepare inorganic protective coating solution as per recipe | | | |
| 3 | Apply protective coating when article is gold, rhodium, nickel, copper, or silver electroplated if required | | | |
| 4 | Cure protective coating by air drying / heat drying | | | |
| Competent ☐ | Not Yet Competent ☐ | | | |

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| Assessment Task 2 | Description of assessment task 2 **Apply organic protective coating** |
|---|---|

| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
|---|---|---|---|---|
| 1 | Remove masking by solvent and perform ultrasonic cleaning if required. | | | |
| 2 | Prepare organic protective coating solution as per recipe | | | |
| 3 | Apply protective coating when article is gold, rhodium, nickel, copper, or silver electroplated if required | | | |
| 4 | Cure protective coating by Ultra Violet/ heat drying | | | |
| Competent ☐ | | Not Yet Competent ☐ | | |

| Assessment Task 3 | Description of assessment task 3 Apply electrophoretic composite coating |
|---|---|

| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
|---|---|---|---|---|
| 1 | Remove masking by solvent and perform ultrasonic cleaning if required. | | | |
| 2 | Prepare electrophoretic composite coating solution as per recipe. | | | |
| 3 | Setup workstation for electrophoretic composite coating. | | | |
| 4 | Perform electrophoretic protective coating when article is gold, rhodium, nickel, copper, or silver electroplated if required. | | | |
| Competent ☐ | | Not Yet Competent ☐ | | |

| Assessment Task 4 | Description of assessment task 4<br>**Comply with Personal Health and Safety Guidelines during all tasks** |
|---|---|

| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
|---|---|---|---|---|
| 1 | Identify risk to personal health | | | |
| 2 | Identify hygiene and safety at workplace | | | |
| 3 | Identify tools, equipment and consumable | | | |
| 4 | Report identified risk to health, hygiene and safety to concerned | | | |
| 5 | List the Personal protective equipment (PPE) | | | |
| 6 | Select personal protective equipment in terms of type and quantity according to work orders. | | | |
| 7 | Wear PPE according to job requirements. | | | |
| 8 | Clean Personal protective equipment (PPE). | | | |
| 9 | Store PPE in proper place after use. | | | |
| 10 | Identify hazardous waste materials that need to be disposed off | | | |
| 11 | Segregate hazardous or non-hazardous waste carefully from the designated area as per approved procedure. | | | |

| Competent ☐ | Not Yet Competent ☐ |
|---|---|

| **Title of Qualification:**<br>**National Vocational Qualification Level-3 in Jewellery Electroplating** | CS Code: | Level: 03 | Version: 01 |
|---|---|---|---|
| **Competency Standard Title:**<br>RECOVER PRECIOUS METALS<br>COMPLY WITH PERSONAL HEALTH AND SAFETY GUIDELINES | **Assessment Date (DD/MM/YY):** | | |

| | |
|---|---|
| Candidate Details | Name: .....<br><br>Registration/Roll Number: ..... |
| Guidance for Candidate | **To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):**<br>**1. Assessment Task 1:** Recover precious metals (Gold, silver, rhodium) from used electroplating solutions<br>2. **Assessment Task 2:** Recover precious metals (Gold, silver, rhodium) from jigs' waste.<br>1. **Assessment task 3:** Comply with Personal Health and Safety Guidelines during all tasks<br>And complete:<br>**2. Knowledge assessment test (Written or Oral)**<br>**3. Portfolios at the time of assessment (if any)** |
| Minimum Evidence Required | **During a practical assessment, under observation by an assessor, you will complete:**<br>**Assessment Task 1 Recover precious metals (Gold, silver, rhodium) from used electroplating solutions**<br>Performance Criteria 1: Neutralize waste solution<br>Performance Criteria 2: Perform metal precipitation<br>Performance Criteria 3: Filter and dry metal residue<br>Performance Criteria 4: Perform melting of metal residue<br>Performance Criteria 5: Submit ingot for refining |
| | **Assessment Task 2 Recover precious metals (Gold, silver, rhodium) from jigs' waste.**<br>Performance Criteria 1: Perform melting of jigs' waste into single metallic bar/ingot<br>Performance Criteria 2: Submit metallic bar for refining |

| | |
|---|---|
| | **Assessment Task 3: Comply with Personal Health and Safety Guidelines during all tasks**<br><br>Performance Criteria 1: Identify risk to personal health<br>Performance Criteria 2: Identify hygiene and safety at workplace<br>Performance Criteria 3: Identify tools, equipment and consumable<br>Performance Criteria 4: Report identified risk to health, hygiene and safety to concerned<br>Performance Criteria 5: List the Personal protective equipment (PPE)<br>Performance Criteria 6: Select personal protective equipment in terms of type and quantity according to work orders.<br>Performance Criteria 7: Wear PPE according to job requirements.<br>Performance Criteria 8: Clean Personal protective equipment (PPE).<br>Performance Criteria 9: Store PPE in proper place after use.<br>Performance Criteria 10: Identify hazardous waste materials that need to be disposed off<br>Performance Criteria 11: Segregate hazardous or non-hazardous waste carefully from the designated area as per approved procedure. |

*Continued on following page*

**Assessors Judgment Guide** (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

| | |
|---|---|
| Candidate Details | Name: ..... Registration/Roll Number: .....<br>Candidate Signature:..... ..... |
| Assessment Outcome | COMPETENT ☐ NOT YET COMPETENT ☐<br>Name of the Assessor:..... Assessor's code: .....<br>Signature of the Assessor:..... ..... |

| **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 | | | | | | | |

| Each Assessment Task (with performance criteria) | | | | |
|---|---|---|---|---|
| Assessment Task 1 | Description of assessment task 1: Recover precious metals (Gold, silver, rhodium) from used electroplating solutions | | | |
| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
| 1 | Neutralize waste solution | | | |
| 2 | Perform metal precipitation | | | |
| 3 | Filter and dry metal residue | | | |
| 4 | Perform melting of metal residue | | | |
| 5 | Submit ingot for refining | | | |
| Competent ☐ | Not Yet Competent ☐ | | | |

| Assessment Task 2 | Description of assessment task 2 Recover precious metals (Gold, silver, rhodium) from jigs' waste. |
|---|---|

| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
|---|---|---|---|---|
| 1 | Perform melting of jigs' waste into single metallic bar/ingot | | | |
| 2 | Submit metallic bar for refining | | | |
| Competent ☐ | | Not Yet Competent ☐ | | |

| Assessment Task 3 | Description of assessment task 3<br>**Comply with Personal Health and Safety Guidelines during all tasks** |
|---|---|

| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
|---|---|---|---|---|
| 1 | Identify risk to personal health | | | |
| 2 | Identify hygiene and safety at workplace | | | |
| 3 | Identify tools, equipment and consumable | | | |
| 4 | Report identified risk to health, hygiene and safety to concerned | | | |
| 5 | List the Personal protective equipment (PPE) | | | |
| 6 | Select personal protective equipment in terms of type and quantity according to work orders. | | | |
| 7 | Wear PPE according to job requirements. | | | |
| 8 | Clean Personal protective equipment (PPE). | | | |
| 9 | Store PPE in proper place after use. | | | |
| 10 | Identify hazardous waste materials that need to be disposed off | | | |
| 11 | Segregate hazardous or non-hazardous waste carefully from the designated area as per approved procedure. | | | |
| Competent ☐ | | Not Yet Competent ☐ | | |

| **Title of Qualification:**<br>National Vocational Qualification Level-3 in Jewellery Electroplating | CS Code: | Level: 03 | Version: 01 |
|---|---|---|---|
| **Competency Standard Title:**<br>Develop Entrepreneurial Skills | **Assessment Date (DD/MM/YY):** | | |

| | |
|---|---|
| Candidate Details | Name: .....<br><br>Registration/Roll Number: ..... |
| Guidance for Candidate | **To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):**<br>1. **Assessment Task 1:** Candidate is required to perform personal SWOT Analysis.<br>2. **Assessment Task 2:** Candidate is required to present a finalized business idea<br>3. **Assessment Task 3:** Candidate is required to enlist support providers according to the business idea.<br>**And complete:**<br>4. **Knowledge assessment test (Written or Oral)**<br>5. **Portfolios at the time of assessment (if any)** |
| Minimum Evidence Required | **During a practical assessment, under observation by an assessor, you will complete:**<br>**Assessment Task 1:** Candidate is required to perform personal SWOT Analysis<br>**Performance Criteria 1:** Set personal objectives for pursuing entrepreneurship<br>**Performance Criteria 2:** Document gaps in self for skills and attributes required for an entrepreneur<br>**Performance Criteria 3:** Take appropriate actions to cover identified gaps |
| | **Assessment Task 2:** Candidate is required to present a finalized business idea.<br>**Performance Criteria 1:** Conduct an elementary market survey to collect basic information on business ideas relevant to own interests<br>**Performance Criteria 2:** Compile the information collected through the market survey<br>**Performance Criteria 3:** Gather customer needs for identified business ideas<br>**Performance Criteria 4:** Identify the available funding sources based on their terms and conditions, maximum loan limit, payback time, interest rate<br>**Performance Criteria 5:** Choose the best available option according to investment requirement<br>**Performance Criteria 6:** Shortlist the best option in terms of cost, service, quality, sales, profit margin, overall expenses<br>**Performance Criteria 7:** Estimate the available resources<br>**Performance Criteria 8:** Identify relevant customer segments and their needs<br>**Performance Criteria 9:** Identify existing solutions in the market<br>**Performance Criteria 10:** Devise the business idea for specific customer needs |

| | |
|---|---|
| | **Performance Criteria 11:** Identify key technologies required for execution of business idea |
| | **Assessment Task 3:** Candidate is required to enlist support providers according to the business idea.<br><br>**Performance Criteria 1:** Identify support providers for promoting the business idea<br>**Performance Criteria 2:** Summarize features, benefits and key information of the business idea<br>**Performance Criteria 3:** Present the business idea considering criteria of support providers |

*Continued on following page*

**Assessors Judgment Guide** (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

| | |
|---|---|
| Candidate Details | Name: ..... Registration/Roll Number: .....<br>Candidate Signature:..... ..... |
| Assessment Outcome | COMPETENT ☐ NOT YET COMPETENT ☐<br>Name of the Assessor:..... Assessor's code: .....<br>Signature of the Assessor:..... ..... |

| **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 | | | | | | | |

| Each Assessment Task (with performance criteria) | | | | |
|---|---|---|---|---|
| **Assessment Task 1**<br>Candidate is required to perform personal SWOT Analysis | Description of assessment task 1 | | | |
| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
| **1.** | **Performance Criteria 1:** Personal objectives for pursuing entrepreneurship were set | | | |
| **2.** | **Performance Criteria 2:** Documented gaps in self for skills and attributes required for an entrepreneur | | | |
| **3.** | **Performance Criteria 3:** Took appropriate actions to cover identified gaps | | | |
| Competent ☐ | Not Yet Competent ☐ | | | |

| **Assessment Task 2**<br>Candidate is required to present a finalised business idea. | Description of assessment task 2 |
|---|---|

| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
|---|---|---|---|---|
| **1.** | **Performance Criteria 1:** Conduct an elementary market survey to collect basic information on business ideas relevant to own interests | | | |
| **2.** | **Performance Criteria 2:** Compile the information collected through the market survey | | | |
| **3.** | **Performance Criteria 3:** Gather customer needs for identified business ideas | | | |
| **4.** | **Performance Criteria 4:** Identify the available funding sources based on their terms and conditions, maximum loan limit, payback time, interest rate | | | |
| **5.** | **Performance Criteria 5:** Choose the best available option according to investment requirement | | | |
| **6.** | **Performance Criteria 6:** Shortlist the best option in terms of cost, service, quality, sales, profit margin, overall expenses | | | |
| **7.** | **Performance Criteria 7:** Estimate the available resources | | | |
| **8.** | **Performance Criteria 8:** Identify relevant customer segments and their needs | | | |
| **9.** | **Performance Criteria 9:** Identify existing solutions in the market | | | |
| **10.** | **Performance Criteria 10:** Devise the business idea for specific customer needs | | | |
| **11.** | **Performance Criteria 11:** Identify key technologies required for execution of business idea | | | |
| Competent ☐ | | Not Yet Competent ☐ | | |

| **Assessment Task 3**<br>Candidate is required to enlist support providers according to the business idea. | Description of assessment task 3 |
|---|---|

| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
|---|---|---|---|---|
| **1.** | **Performance Criteria 1:** Identified support providers for promoting the business idea | | | |
| **2.** | **Performance criteria 2:** Summarised features, benefits and key information of the business idea | | | |
| **3.** | **Performance criteria 3:** Presented the business idea considering criteria of support providers | | | |
| Competent ☐ | | Not Yet Competent ☐ | | |

| **Title of Qualification:**<br>National Vocational Qualification Level-3 in Jewellery Electroplating | CS Code: | Level: 03 | Version: 01 |
|---|---|---|---|

| **Competency Standard Titles:** | **Assessment Date (DD/MM/YY):** |
|---|---|
| COMPLY WITH PERSONAL HEALTH AND SAFETY GUIDELINES<br>PERFORM PRE-TREATMENT OF JEWELLERY ARTICLE<br>PERFORM ELECTROPLATING OF JEWELLERY ARTICLE<br>PERFORM POST-TREATMENT OF PLATED ARTICLE<br>RECOVER PRECIOUS METALS<br>DEVELOP ENTREPRENEURIAL SKILLS | |

| | |
|---|---|
| Candidate Details | Name: .....<br><br>Registration/Roll Number: ..... |
| Guidance for Candidate | **To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):**<br><br>**Assessment Task 1: Comply with personal health and safety guidelines during all assessment tasks**<br>**Assessment Task 2: Perform Pre-treatment of Jewellery Article as assigned by the assessor**<br>**Assessment Task 3: Perform electroplating of jewellery article using any of the following applicable methods as assigned by assessor**<br>**Assessment Task 4: Perform post-treatment of plated article using any of the following applicable methods as assigned by assessor**<br><br>And complete:<br>**1. Knowledge assessment test (Written or Oral)**<br>**2. Portfolios at the time of assessment (if any)** |

| | |
|---|---|
| Minimum Evidence Required | **During a practical assessment, under observation by an assessor, you will complete all of the assessment task as per instructions by assessor:**<br><br>**Assessment Task 1: Comply with personal health and safety guidelines during all assessment tasks**<br>P1: Select personal protective equipment in terms of type and quantity according to work orders.<br>P2. Wear PPE according to job requirements<br>P3. Maintain cleanliness and hygiene<br>P4. Identify and segregate the hazardous and non-hazardous waste materials that need to be disposed, and use proper disposal containers to dispose-off hazardous waste as per procedure<br><br>**Assessment Task 2: Perform Pre-treatment of Jewellery Article as assigned by the assessor**<br>P1: Check for any surface defects including marks, scratches and roughness<br>P2. Segregate jewellery articles according to quality<br>P3. Perform buffing to polish the surface of the jewellery article<br>P4. Inspect for faulty hinges and soldered joints.<br>P5. Clean Jewellery article using method(s) assigned by assessor (assessor may assign multiple methods if needed for the operation)<br>Option-1: Perform steam cleaning<br>• Setup steamer for cleaning process.<br>• Clean jewellery article with steam ensuring the articles are free of any deposits<br>Option-2: Perform ultrasonic cleaning<br>• Prepare solution for ultrasonic cleaning.<br>• Adjust temperature and frequency parameters.<br>• Fix the article in jig and clean jewellery article using ultrasonic machine for required time<br>• Rinse article with water to remove cleaning media.<br>• Inspect cleaned surface of the article.<br>Option-3: Perform alkali cleaning<br>• Prepare recipe of the alkali cleaning solution as per jewellery metal.<br>• Mix ingredients to make alkaline solution for cleaning<br>• Label solution container mentioning the ingredients and hazards of the solution.<br>• Fix the article in jig and clean jewellery article using alkali cleaning bath for required time<br>• Rinse article with distilled water to remove cleaning media.<br>Option-4: Perform electrolytic cleaning<br>• Prepare electrolytic cleaning solution as per recipe.<br>• Connect jewellery article with electrode in electrolytic cleaning apparatus.<br>• Adjust electric current and voltage parameters.<br>• Clean article for required time |

| | |
|---|---|
| | • Rinse article with distilled water to remove cleaning media.<br>Option-5: Perform acid activation of the surface<br>• Prepare recipe of the acidic cleaning solution as per jewellery metal.<br>• Mix ingredients to make acidic solution for cleaning<br>• Label solution container mentioning the ingredients and hazards of the solution.<br>• Fix the article in jig and clean jewellery article using acidic cleaning bath for required time<br>• Rinse article with distilled water to remove cleaning media.<br>P6. Perform Electroless plating on complex jewellery article *(optional as per requirements of jewellery article)*<br>• Prepare recipe of the Electroless plating solution and mix ingredients as per jewellery metal.<br>• Fix the article in jig and perform Electroless plating of jewellery article as per requirement<br>• Rinse article with distilled water to remove cleaning media<br>P7. Perform masking for multi-tone plating *(optional as per requirements of jewellery article)*<br>• Prepare masking paint as per requirement of the jewellery article.<br>• Perform masking on required portion of jewellery article<br>• Hang the article for drying after masking<br><br>**Assessment Task 3: Perform electroplating of jewellery article using any of the following applicable methods as assigned by assessor**<br>**Option-1:** Perform electroplating of jewellery article<br>• Set operating parameters (temperature, pH, voltage, and current density) as per requirement of the article.<br>• Adjust anode/cathode surface area ratio.<br>• Connect electrodes with power supply.<br>• Immerse jewellery article in electroplating bath.<br>• Perform electroplating with provided metal and rinse article with distilled water to remove electrolyte.<br>**Option-2:** Perform alloy plating<br>• Set operating parameters (temperature, pH, voltage, and current density) as per requirement of the article.<br>• Adjust anode/cathode surface area ratio<br>• Connect electrodes with power supply<br>• Immerse jewellery article in alloy plating bath.<br>• Perform alloy plating with provided metal and rinse article with distilled water to remove electrolyte.<br>**Option-3:** Perform/ Demonstrate pen plating<br>• Set operating parameters of pen plating unit.<br>• Dip the tip of plating pen into electroplating solution.<br>• Mark the parts of jewellery article with the help of plating pen's tip where plating is required.<br>• Rinse article with distilled water to remove electrolyte.<br><br>**Assessment Task 4: Perform post-treatment of plated article using any of the following applicable methods as assigned by assessor**<br>**Option-1:** Apply inorganic protective coating<br>• Remove masking by solvent and perform ultrasonic cleaning if |

| | |
|---|---|
| | required.<br>• Prepare inorganic protective coating solution as per recipe<br>• Apply protective coating<br>• Cure protective coating by air drying / heat drying as per provided equipment<br>**Option-2:** Apply organic protective coating<br>• Remove masking by solvent and perform ultrasonic cleaning if required.<br>• Prepare organic protective coating solution as per recipe<br>• Apply protective coating<br>• Cure protective coating by Ultra Violet/ heat drying as per provided equipment<br>**Option-3:** Apply electrophoretic composite coating<br>• Remove masking by solvent and perform ultrasonic cleaning if required.<br>• Prepare electrophoretic composite coating solution as per recipe<br>• Setup workstation for electrophoretic composite coating<br>• Perform electrophoretic protective coating<br>• Cure protective coating by heat drying |
| | **Portfolios required at the time of assessment (if any)**<br>P1: Diary log of work completed on complying with personal health and safety guidelines<br>P2: Diary log of work completed on recovering precious metal<br>P3: Diary log of work completed on developing entrepreneurship skills |

*Continued on following page*

**Assessors Judgment Guide** (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

| | |
|---|---|
| Candidate Details | Name: ..... Registration/Roll Number: .....<br>Candidate Signature:..... ..... |
| Assessment Outcome | COMPETENT ☐ NOT YET COMPETENT ☐<br>Name of the Assessor:..... Assessor's code: .....<br>Signature of the Assessor:..... ..... |

| **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 | | | | ✓ | | | |

| Assessment Task 1 | Description of assessment task 1<br>**Comply with personal health and safety guidelines during all assessment tasks** |
|---|---|

| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
|---|---|---|---|---|
| 1 | Select personal protective equipment in terms of type and quantity according to work orders. | | | |
| 2 | Wear PPE according to job requirements | | | |
| 3 | Maintain cleanliness and hygiene | | | |
| 4 | Identify and segregate the hazardous and non-hazardous waste materials that need to be disposed, and use proper disposal containers to dispose-off hazardous waste as per procedure | | | |
| Competent ☐ | | Not Yet Competent ☐ | | |

| Assessment Task 2 | Description of assessment task 2<br>**Perform Pre-treatment of Jewellery Article as assigned by the assessor** |
|---|---|

| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
|---|---|---|---|---|
| 1 | Check for any surface defects including marks, scratches and roughness | | | |
| 2 | Segregate jewellery articles according to quality | | | |
| 3 | Perform buffing to polish the surface of the jewellery article | | | |
| 4 | Inspect for faulty hinges and soldered joints. | | | |
| 5 | Clean Jewellery article using method(s) assigned by assessor (assessor may assign multiple methods if needed for the operation) | | | |
| | Option-1: Perform steam cleaning<br>• Setup steamer for cleaning process.<br>• Clean jewellery article with steam ensuring the articles are free of any deposits | | | |
| | Option-2: Perform ultrasonic cleaning<br>• Prepare solution for ultrasonic cleaning.<br>• Adjust temperature and frequency parameters.<br>• Fix the article in jig and clean jewellery article using ultrasonic machine for required time<br>• Rinse article with water to remove cleaning media.<br>• Inspect cleaned surface of the article. | | | |
| | Option-3: Perform alkali cleaning<br>• Prepare recipe of the alkali cleaning solution as per jewellery metal.<br>• Mix ingredients to make alkaline solution for cleaning<br>• Label solution container mentioning the ingredients and hazards of the solution.<br>• Fix the article in jig and clean jewellery article using alkali cleaning bath for required time<br>• Rinse article with distilled water to remove cleaning media. | | | |
| | Option-4: Perform electrolytic cleaning<br>• Prepare electrolytic cleaning solution as per recipe.<br>• Connect jewellery article with electrode in electrolytic cleaning apparatus.<br>• Adjust electric current and voltage | | | |

| | | | | |
|---|---|---|---|---|
| | parameters.<br>• Clean article for required time<br>• Rinse article with distilled water to remove cleaning media. | | | |
| | Option-5: Perform acid activation of the surface<br>• Prepare recipe of the acidic cleaning solution as per jewellery metal.<br>• Mix ingredients to make acidic solution for cleaning<br>• Label solution container mentioning the ingredients and hazards of the solution.<br>• Fix the article in jig and clean jewellery article using acidic cleaning bath for required time<br>• Rinse article with distilled water to remove cleaning media. | | | |
| 6 | Perform Electroless plating on complex jewellery article *(optional as per requirements of jewellery article)* | | | |
| | Prepare recipe of the Electroless plating solution and mix ingredients as per jewellery metal. | | | |
| | Fix the article in jig and perform Electroless plating of jewellery article as per requirement | | | |
| | Rinse article with distilled water to remove cleaning media | | | |
| 7 | Perform masking for multi-tone plating *(optional as per requirements of jewellery article)* | | | |
| | Prepare masking paint as per requirement of the jewellery article. | | | |
| | Perform masking on required portion of jewellery article | | | |
| | Hang the article for drying after masking | | | |
| Competent ☐ | | Not Yet Competent ☐ | | |

| Assessment Task 3 | Description of assessment task 3<br>**Perform electroplating of jewellery article using any of the following applicable methods as assigned by assessor** |
|---|---|

| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
|---|---|---|---|---|
| **Option-1** | **Perform electroplating of jewellery article** | | | |
| | Set operating parameters (temperature, pH, voltage, and current density) as per requirement of the article. | | | |
| | Adjust anode/cathode surface area ratio. | | | |
| | Connect electrodes with power supply. | | | |
| | Immerse jewellery article in electroplating bath. | | | |
| | Perform electroplating with provided metal and rinse article with distilled water to remove electrolyte. | | | |
| **Option-2** | **Perform alloy plating** | | | |
| | Set operating parameters (temperature, pH, voltage, and current density) as per requirement of the article. | | | |
| | Adjust anode/cathode surface area ratio | | | |
| | Connect electrodes with power supply | | | |
| | Immerse jewellery article in alloy plating bath. | | | |
| | Perform alloy plating with provided metal and rinse article with distilled water to remove electrolyte. | | | |
| **Option-3** | **Perform/ Demonstrate pen plating** | | | |
| | Set operating parameters of pen plating unit. | | | |
| | Dip the tip of plating pen into electroplating solution. | | | |
| | Mark the parts of jewellery article with the help of plating pen's tip where plating is required. | | | |
| | Rinse article with distilled water to remove electrolyte. | | | |

| Competent ☐ | Not Yet Competent ☐ |
|---|---|

| Assessment Task 4 | Description of assessment task 4<br>**Perform post-treatment of plated article using any of the following applicable methods as assigned by assessor** |
|---|---|

| During the practical assessment, candidate demonstrated the following: | | Yes | No | Remarks |
|---|---|---|---|---|
| **Option-1** | **Apply inorganic protective coating** | | | |
| | Remove masking by solvent and perform ultrasonic cleaning if required. | | | |
| | Prepare inorganic protective coating solution as per recipe | | | |
| | Apply protective coating | | | |
| | Cure protective coating by air drying / heat drying as per provided equipment | | | |
| **Option-2** | **Apply organic protective coating** | | | |
| | Remove masking by solvent and perform ultrasonic cleaning if required. | | | |
| | Prepare organic protective coating solution as per recipe | | | |
| | Apply protective coating | | | |
| | Cure protective coating by Ultra Violet/ heat drying as per provided equipment | | | |
| **Option-3** | **Apply electrophoretic composite coating** | | | |
| | Remove masking by solvent and perform ultrasonic cleaning if required. | | | |
| | Prepare electrophoretic composite coating solution as per recipe | | | |
| | Setup workstation for electrophoretic composite coating | | | |
| | Perform electrophoretic protective coating | | | |
| | Cure protective coating by heat drying | | | |

| Competent ☐ | Not Yet Competent ☐ |
|---|---|

| Portfolio (if any) | Description of portfolio<br>Diary log of completed work |
|---|---|
| Current ☐ Sufficient ☐ Authentic ☐ Valid ☐ Reliable ☐ | |

| Portfolio meet the following performance standards: | | Yes | No | Remarks |
|---|---|---|---|---|
| 1 | Diary log of work completed on complying with personal health and safety guidelines | | | |
| 2 | Diary log of work completed on recovering precious metal | | | |
| 3 | Diary log of work completed on developing entrepreneurship skills | | | |

| Competent ☐ | Not Yet Competent ☐ |
|---|---|

| **Title of Qualification:**<br>National Vocational Qualification Level-3 in Jewellery Electroplating | CS Code: | Level: 03 | Version: 01 |
|---|---|---|---|
| **Competency Standard Title:**<br>PERFORM PRE-TREATMENT OF JEWELLERY ARTICLE | **Assessment Date (DD/MM/YY):** | | |

| Guidance for Candidate | **To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.** |
|---|---|

**Assessors Guide** (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

| Candidate Details | Name: ..... Registration/Roll Number:<br>Candidate Signature: ..... ..... |
|---|---|
| Written Assessment Outcome | COMPETENT ☐ NOT YET COMPETENT ☐<br>Name of the Assessor: ..... Assessor's code:<br>Signature of the Assessor: ..... ..... |

| **Title of Qualification:**<br>National Vocational Qualification Level-3 in Jewellery Electroplating | CS Code: | Level: 03 | Version: 01 |
|---|---|---|---|
| **Competency Standard Title:**<br>PERFORM PRE-TREATMENT OF JEWELLERY ARTICLE | **Assessment Date (DD/MM/YY):** | | |

**WRITTEN ASSESSMENT**

| Question | Candidate's answer |
|---|---|
| What are the types of polishing media used for jewellery finishing? | Tri-poly, silicon polisher |
| Note down any three types of surface defects | File markers, solder lines, pores, holes, drill marks, pits, tool marks |
| List three precious & three non-precious metals used in jewellery making. | Precious: Gold, Silver, Rhodium, Palladium<br>Non- precious: Copper, Nickel, Zinc, Aluminium |
| Calculate the volume of given container below (drawn) | |
| What is the pH range of acidic solution? | pH below 7 is acidic |
| What is the pH range of Basic (alkaline) solution? | pH above 7 is acidic |

| Question | Candidate's answer |
|---|---|
| What is the pH of neutral solution or water? | Neutral solution has pH 7 |
| How is acidic solution prepared? | Acidic solution is using acids and acidic salts. |
| How is electrolytic cleaning solution prepared? | It is made by adding certain alkalis like sodium hydroxide, sodium carbonate, sodium meta-silicate etc. |
| Why is rinsing performed after each cleaning step? | We rinse article to neutralize the effect of acid or base and wash out the impurities/contaminants. |
| What is the appropriate dipping time duration in acidic cleaning media? | Dipping time: 10-15 seconds with agitation. |
| What is the appropriate dipping time duration in alkaline cleaning media? | Dipping time: 20-60 seconds |
| What is the sequence of process used to clean jewellery article? | Basic cleaning → Rinsing → Acidic cleaning → Rinsing → Ultrasonic cleaning → Rinsing |
| Where is Electroless plating applicable? | It is conducted to achieve homogeneous plating on Jewellery articles with complex shapes |

| **Title of Qualification:**<br>National Vocational Qualification Level-3 in Jewellery Electroplating | CS Code: | Level: 03 | Version: 01 |
|---|---|---|---|
| **Competency Standard Title:**<br>PERFORM ELECTROPLATING OF JEWELLERY ARTICLE | **Assessment Date (DD/MM/YY):** | | |

| Guidance for Candidate | **To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.** |
|---|---|

**Assessors Guide** (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

| Candidate Details | Name: ..... Registration/Roll Number:<br>Candidate Signature:..... ..... |
|---|---|
| Written Assessment Outcome | COMPETENT ☐ NOT YET COMPETENT ☐<br>Name of the Assessor: ..... Assessor's code:<br>Signature of the Assessor:..... ..... |

| **Title of Qualification:**<br>National Vocational Qualification Level-3 in Jewellery Electroplating | CS Code: | Level: 03 | Version: 01 |
|---|---|---|---|
| **Competency Standard Title:**<br>PERFORM ELECTROPLATING OF JEWELLERY ARTICLE | **Assessment Date (DD/MM/YY):** | | |

**WRITTEN ASSESSMENT**

| Question | Candidate's answer |
|---|---|
| What is electroplating? | The process that uses electric current to reduce dissolved metal cations so that they form a thin coherent metal coating on an electrode. |
| What is purpose of electroplating? | Major purposes of electroplating are;<br>• Achieve required appearance<br>• Corrosion Protection<br>• Add Engineering or mechanical properties to Jewellery |
| List down the major parts of electroplating unit. | • Cathode<br>• Anode<br>• Electrolyte<br>• D.C supply<br>• Electroplating bath |
| What are important parameters of electroplating? | • Control of electrolyte formulation and pH<br>• Control of anode surface area and position<br>• Electrical conditions<br>• Temperature of electrolyte<br>• Agitation |

| Question | Candidate's answer |
|---|---|
| What is the purpose of using additives in electroplating bath? | Major purposes of additives are;<br>• Brightening<br>• Levelling<br>• Grain refining |
| Is Jewellery article used as cathode or anode? And why? | Jewellery article is used as cathode to coat it with selected (anode) metal. |
| How are cathode and anode connected in electroplating? | Cathode (Jewellery Article) is connected to Negative (-ve) terminal whereas Anode (Metal electrode) is connected to Positive (+ve) terminal of electrical supply. |
| What is current density? | Current density is the current supplied per unit square area of article |
| What is specific gravity? | It tells the density of solution with respect to water. |
| What is the unit of thickness used to measure plated layer? | Thickness is usually measured in Microns. |
| What is the composition of nickel plating bath? | • Nickel sulphate<br>• Nickel chloride<br>• Boric acid<br>• Water |
| What is composition of copper plating bath? | • Copper salt<br>• Water<br>• Additives |

| Question | Candidate's answer |
| --- | --- |
| What is the composition of silver-plating bath? | Silver salt and conducting salt with water |
| What is the use of Hull cell? | Hull cell is used for qualitative analysis of bath used for plating |

| **Title of Qualification:**<br>National Vocational Qualification Level-3 in Jewellery Electroplating | CS Code: | Level: 03 | Version: 01 |
|---|---|---|---|
| **Competency Standard Title:**<br>PERFORM POST-TREATMENT OF PLATED ARTICLE | **Assessment Date (DD/MM/YY):** | | |

| Guidance for Candidate | **To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.** |
|---|---|

**Assessors Guide** (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

| Candidate Details | Name: ..... Registration/Roll Number:<br>Candidate Signature: ..... ..... |
|---|---|
| Written Assessment Outcome | COMPETENT ☐ NOT YET COMPETENT ☐<br>Name of the Assessor: ..... Assessor's code:<br>Signature of the Assessor: ..... ..... |

| **Title of Qualification:**<br>National Vocational Qualification Level-3 in Jewellery Electroplating | CS Code: | Level: 03 | Version: 01 |
|---|---|---|---|
| **Competency Standard Title:**<br>PERFORM POST-TREATMENT OF PLATED ARTICLE | **Assessment Date (DD/MM/YY):** | | |

**WRITTEN ASSESSMENT**

| Question | Candidate's answer |
|---|---|
| What is the purpose of post treatment after electroplating? | It is used to remove insulting coatings and for final observation of finished plated article.<br>It is also used for protective coatings. |
| What is the purpose of masking? | To insulate the unwanted parts of piece. |
| What are major types of protective coatings? | • Organic<br>• Inorganic<br>• Electrophoretic coating |
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| Question | Candidate's answer |
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| **Title of Qualification:**<br>National Vocational Qualification Level-3 in Jewellery Electroplating | CS Code: | Level: 03 | Version: |
|---|---|---|---|
| **Competency Standard Title:**<br>Develop Entrepreneurial Skills | **Assessment Date (DD/MM/YY):** | | |

| Guidance for Candidate | **To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.** |
|---|---|

**Assessors Guide** (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

| Candidate Details | Name: ..... Registration/Roll Number:<br>Candidate Signature: ..... ..... |
|---|---|
| Written Assessment Outcome | COMPETENT ☐ NOT YET COMPETENT ☐<br>Name of the Assessor: ..... Assessor's code:<br>Signature of the Assessor: ..... ..... |

| **Title of Qualification:**<br>National Vocational Certificate Entrepreneurship | CS Code: | Level: 03 | Version: |
|---|---|---|---|
| **Competency Standard Title:**<br>Develop Entrepreneurial Skills | **Assessment Date (DD/MM/YY):** | | |

**WRITTEN ASSESSMENT**

| **Question** | **Candidate's answer** |
|---|---|
| **1.** What are the objectives of entrepreneurship? | To find the solution of a problem and develop a product that can be sold to customers. |
| **2.** How to identified gaps? | In order to identify gaps, it is important to look for a problem around in any form. |
| **3.** What are the appropriate actions to avoid gaps? | To avoid gaps, one must have a customer centric approach. |
| **4.** What is market survey? | Market survey is the survey research and analysis of the market for a particular product/service which includes the investigation into customer preferences. |
| **5.** Describe the viable business idea? | A viable idea is the one that can be implemented in real life and can be used for generating profits as well. |
| **6.** What are the funding sources? | • Angel Investors<br>• Venture Capitalist<br>• Private Equity Firms |
| **7.** Who are the support providers? | Various influencers, non-profitable organizations are support providers for startups to grow in market. |

| **Title of Qualification:**<br>National Vocational Qualification Level-3 in Jewellery Electroplating | CS Code: | Level: 03 | Version: 01 |
|---|---|---|---|
| **Competency Standard Title:**<br>COMPLY WITH PERSONAL HEALTH AND SAFETY GUIDELINES<br>PERFORM PRE-TREATMENT OF JEWELLERY ARTICLE<br>PERFORM ELECTROPLATING OF JEWELLERY ARTICLE<br>PERFORM POST-TREATMENT OF PLATED ARTICLE<br>RECOVER PRECIOUS METALS<br>DEVELOP ENTREPRENEURIAL SKILLS | **Assessment Date (DD/MM/YY):** | | |

| Guidance for Candidate | **To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.** |
|---|---|

**Assessors Guide** (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

| Candidate Details | Name: ..... Registration/Roll Number:<br>Candidate Signature:..... ..... |
|---|---|
| Written Assessment Outcome | COMPETENT ☐ NOT YET COMPETENT ☐<br>Name of the Assessor: ..... Assessor's code:<br>Signature of the Assessor:..... ..... |

| **Title of Qualification:**<br>National Vocational Qualification Level-3 in Jewellery Electroplating | CS Code: | Level: 03 | Version: 01 |
|---|---|---|---|
| **Competency Standard Title:**<br>COMPLY WITH PERSONAL HEALTH AND SAFETY GUIDELINES<br>PERFORM PRE-TREATMENT OF JEWELLERY ARTICLE<br>PERFORM ELECTROPLATING OF JEWELLERY ARTICLE<br>PERFORM POST-TREATMENT OF PLATED ARTICLE<br>RECOVER PRECIOUS METALS<br>DEVELOP ENTREPRENEURIAL SKILLS | **Assessment Date (DD/MM/YY):** | | |

**WRITTEN ASSESSMENT**

| Question | Urdu translation of question | Candidate's answer | Urdu translation of candidate's answer |
|---|---|---|---|
| What are the types of polishing media used for jewellery finishing? | زیورات کی پالش اور تکمیلی مراحل کیلئے استعمال ہونے والے پالش میڈیا کے نام لکھیں ؟ | Tri-poly, silicon polisher | ٹرائی پولی، سلکان پالشر |
| Note down any three types of surface defects | زیورات پر مرمت کا کام کرتے ہوئے رہ جانے والی سطحی نقائص میں سے کوئی سے بھی تین نقائص کی وضاحت کریں؟ | File markers, solder lines, pores, holes, drill marks, pits, tool marks | فائل مارکر ، سولڈر لائنز ، سوراخ ، ڈرل کے نشان ، گڈھی ، آلے کے نشانات |

| Question | Urdu translation of question | Candidate's answer | Urdu translation of candidate's answer |
|---|---|---|---|
| List three precious & three non-precious metals used in jewellery making. | زیورات بنانے میں استعمال ہونے والی تین قیمتی اور تین غیر قیمتی دھاتوں کی فہرست بنائیں | Precious: Gold, Silver, Rhodium, Palladium<br>Non- precious: Copper, Nickel, Zinc, Aluminium | قیمتی: سونا ، چاندی ، رہڈیم ، پیلاڈیم<br>غیر قیمتی: کاپر ، نکل ، زنک ، ایلومینیم |
| What is the pH range of acidic solution? | تیزابیت کے pH کا حد کیا ہے؟ | pH below 7 is acidic | محلول میں ہائیڈروجن کی پاور کو pHکہتے ہے۔ محلول جس کی pH 7 سے کم ہو تیزاب میں شامل ہے۔ |
| What is the pH range of Basic (alkaline) solution? | بنیادی (الکلائن) حل کی پییچ حد ہوتی ہے؟ | pH above 7 is acidic | محلول جس کی pH 7 سے ذیادہ ہو الکلائن میں شامل ہے۔ |
| What is the pH of neutral solution or water? | نیوٹرل محلول جیسا کہ پانی کا pH مقدار کیا ہے؟ | Neutral solution has pH 7 | نیوٹرل محلول جیسا کہ پانی کا pHمقدار 7ہوتا ہے |
| How is acidic solution prepared? | تیزابیت کا محلول کس طرح تیار کیا جاتا ہے؟ | Acidic solution is prepared by using acids and acidic salts. | تیزابیت کا محلول اپنے مطلوبہ pHکے مقدار پر تیار کرنے کیلئے تیزاب اور تیزابیت کے نمک کا استعمال کیا جاتا ہے۔ |
| How is electrolytic cleaning solution prepared? | زیورات کی صفائی کیلئے الیکٹرولائٹک محلول کیسے تیار کیا جاتا ہے؟ | Electrolytic cleaning solution is prepared by adding certain alkalis like sodium hydroxide, sodium carbonate, sodium meta-silicate etc. | زیورات کی صفائی کیلئے الیکٹرولائٹک محلول کچھ الکلیاں جیسے سوڈیم ہائیڈرو آکسائیڈ ، سوڈیم کاربونیٹ ، سوڈیم میٹا سلیکیٹ وغیرہ شامل کرکے تیار کیا جاتا ہے۔ |

| Question | Urdu translation of question | Candidate's answer | Urdu translation of candidate's answer |
|---|---|---|---|
| Why is rinsing performed after each cleaning step? | زیورات کی صفائی کے عمل کے دوران رنزنگ کا عمل کیوں بارہا دہرایا جاتا ہے؟ | We rinse article to neutralize the effect of acid or base and wash out the impurities/ contaminants. | زیورات کی صفائی کے عمل کے دوران رنزنگ کا عمل بارہا اس لئے دہرایا جاتا ہے تاکہ ہم ایسڈ یا بیس کے اثر کو نیوٹرلائز /غیرجانبدار کیا جاسکے اور ساتھ میں کسی قسم کی غیر ضروری شمولیات یا آلودگیوں کو ختم/ کم کیا جاسکے۔ |
| What is the appropriate dipping time duration in acidic cleaning media? | زیورات کی صفائی کے عمل کے دوران تیزابی محلول میں زیور کو صفائی ستھرائی کے لئے مناسب درکار مدت کتنا ہے؟ | Dipping time: 10-15 seconds with agitation. | زیورات کی صفائی کے عمل کے دوران تیزابی محلول میں زیور کو صفائی ستھرائی کے لئے مناسب درکار مدت 10 سے 15 سیکنڈ ہے۔ |
| What is the appropriate dipping time duration in alkaline cleaning media? | زیورات کی صفائی کے عمل کے دوران الکلائین محلول میں زیور کو صفائی ستھرائی کے لئے مناسب درکار مدت کتنا ہے؟ | Dipping time: 20-60 seconds | زیورات کی صفائی کے عمل کے دوران الکلائین محلول میں زیور کو صفائی ستھرائی کے لئے مناسب درکار مدت ۲۰ سے ۶۰ سیکنڈ ہے۔ |
| What is the sequence of process used to clean jewellery article? | زیور کو صاف کرنے کے لئے متعلقع عمل کو ترتیب وار لکیں؟ | Basic cleaning → Rinsing → Acidic cleaning → Rinsing → Ultrasonic cleaning → Rinsing | زیور کو صاف کرنے کے لئے متعلقع عمل کو اس ترتیب سے دہرایا جاتا ہے ۱۔ بنیادی صفائی کا عمل ۲۔ رینزنگ ۳۔ تیزاب کی صفائی ۴۔ رینزنگ ۵۔ الٹراسونک صفائی ۶۔ رینزنگ |

| Question | Urdu translation of question | Candidate's answer | Urdu translation of candidate's answer |
|---|---|---|---|
| Why electroless plating is performed in the electroplating process? | **الیکٹرو پلیٹنگ کے عمل کو سرانجام دینے کیلئے الیکٹرو لیس پلیٹنگ کیوں کیا جاتا ہے؟** | It is conducted to achieve homogeneous plating on Jewellery articles with complex shapes | **الیکٹرو پلیٹنگ کے عمل کو سرانجام دینے کیلئے الیکٹرو لیس پلیٹنگ پیچیدہ ڈیزائین والے زیورات پر یکساں پلیٹ لگانے/ حاصل کرنے کے لئے کیا جاتا ہے۔** |
| What is electroplating? | الیکٹروپلٹنگ کیا ہے؟ | Electroplating is also known as electro deposition. As the name suggests, the process involves depositing material using an electric current. This process results in a thin layer of metal being deposited onto the surface of a work piece called the substrate. Electroplating is primarily used to change the physical properties of an object. This process can be used to give objects increased beauty, wear resistance, corrosion protection, as well as increased thickness | الیکٹروپلاٹنگ کو الیکٹرو ڈیپوزیشن کرنے کے نام سے بھی جانا جاتا ہے۔ جیسا کہ نام سے پتہ چلتا ہے ، اس عمل میں بجلی کے کرنٹ کا استعمال کرکے الائی کو دھات کے سطح پر چڑھایا جاتا ہے۔ اس عمل کے نتیجے میں دھات کی ایک پتلی پرت کسی کام کے ٹکڑے کی سطح پر جمع ہوجاتی ہے جسے سبسٹریٹ کہتے ہیں۔ الیکٹروپلاٹنگ بنیادی طور پر کسی شے کی جسمانی خصوصیات کو تبدیل کرنے کے لئے استعمال ہوتا ہے۔ اس عمل سے اشیاء کی خوبصورتی ، استعمال میں خرابی سے مزاحمت ، زنگ سے تحفظ کے ساتھ ساتھ موٹائی میں اضافہ کرنے کے لئے استعمال کیا جاسکتا ہے |
| What is purpose of electroplating? | **الیکٹروپلاٹنگ کا مقصد کیا ہے؟** | Major purposes of electroplating are to; | **الیکٹروپلاٹنگ کے اہم مقاصد درجہ ذیل ہیں:**<br>• **مطلوبہ ظاہری صورت/ خوبصورتی کا حصول** |

| Question | Urdu translation of question | Candidate's answer | Urdu translation of candidate's answer |
|---|---|---|---|
| | | • Achieve required appearance<br>• Corrosion Protection<br>• Add Engineering or mechanical properties to Jewellery | • زنگ یا خراب ہونے سے زیور کا تحفظ<br>• جیولری میں انجینئرنگ یا میکانکی خصوصیات شامل کریں |
| List down the major parts of electroplating unit. | الیکٹروپلیٹنگ یونٹ کے خاص حصوں کی فہرست مرتب کریں | Major parts of the electroplating units are described as below:<br>• Cathode<br>• Anode<br>• Electrolyte<br>• D.C supply<br>• Electroplating bath | الیکٹروپلیٹنگ یونٹ کے خاص حصے درجہ ذیل ہیں۔<br>• کیتھوڈ<br>• انوڈ<br>• الیکٹرولائٹ<br>• ڈی سی سپلائی<br>• الیکٹرہ پلیٹنگ باتھ |
| What are important parameters of electroplating? | الیکٹروپلاٹنگ کے اہم پیرامیٹرز کون کون سے ہیں؟ | The electroplating parameters are as follows:<br>• Control of electrolyte formulation and pH<br>• Control of anode surface area and position<br>• Maintenance of Electrical conditions<br>• Temperature of electrolyte | الیکٹروپلاٹنگ کے اہم پیرامیٹرز درجہ ذیل ہیں۔<br>• الیکٹرولائٹ کی تشکیل اور pH کا کنٹرول<br>• اینوڈ کی سطح اور پوزیشن کا کنٹرول<br>• بجلی کے حالات کو برقرار رکھنا۔<br>• الیکٹرولائٹ کا درجہ حرارت<br>• ایجیٹیشن |

| Question | Urdu translation of question | Candidate's answer | Urdu translation of candidate's answer |
|---|---|---|---|
| | | • Agitation | |
| What is the purpose of using additives in electroplating bath? | الیکٹروپلیٹنگ بات میں ایڈیٹیوز کو استعمال کرنے کا مقصد کیا ہے؟ | Major purposes of additives are;<br>• Brightening<br>• Levelling<br>• Grain refining | الیکٹروپلیٹنگ بات میں ایڈیٹیوز کو استعمال کرنے کا مقصد :<br>• چمک دار بنانا<br>• سطح کو ہموار بنانا<br>• گرین سے ریفائینگ |
| Is Jewellery article used as cathode or anode? And why? | کیا زیورات کا بطور کیتھوڈ یا انوڈ کے استعمال ہوسکتا ہے؟ اور کیوں؟ | Jewellery article is used as cathode to coat it with selected (anode) metal. | زیور کو الیٹروپلیٹنگ کے عمل کے دوران بطور کیتھوڈ استعمال کیا جاتا ہے تاکہ منتخب شدہ (انوڈ) دھات کے ساتھ کوٹنگ کیا جاسکے۔ |
| How are cathode and anode connected in electroplating? | الیکٹروپلاٹنگ میں کیتھڈ اور انوڈ کیسے جڑے جاتے ہیں؟ | Cathode (Jewellery Article) is connected to Negative (-ve) terminal whereas Anode (Metal electrode) is connected to Positive (+ve) terminal of electrical supply. | کیتھوڈ (جیولری آرٹیکل) کو منفی ٹرمینل سے منسلک کیا جاتا ہے۔ جبکہ انوڈ (میٹل الیکٹروڈ) کو بجلی کی فراہمی کے مثبت ٹرمینل سے منسلک کیا جاتا ہے۔ |
| What is current density? | بجلی کی فراہمی میں بجلی کی کثافت کیا مراد ہے؟ | Current density is the current supplied per unit square area of article | بجلی کی کثافت سے مراد زیور کو فی یونٹ مربع رقبہ پر بجلی کی فراہمی ۔ |
| What is specific gravity in respect to jewellery | زیورات کی الیکٹروپلیٹنگ کے مناسبت سے کشش ثقل کی وضاحت کریں ؟ | Specific gravity in respect to jewellery electroplating process | زیورات کی الیکٹروپلیٹنگ کے مناسبت سے کشش ثقل سے مراد محلول میں پانی کی مناسبت سے اجزاء ترکیبی کی |

| Question | Urdu translation of question | Candidate's answer | Urdu translation of candidate's answer |
|---|---|---|---|
| electroplating process? | | tells the density of solution with respect to water. | کثافت کا تعین کرنا ہے۔ |
| What is the unit of thickness used to measure plated layer? | زیور پر چڑھائے ہوئے پرت کی پیمائش کے موٹائی کو ناپنے کیلئے کس یونٹ کا استعمال ہوتا ہے؟ | Thickness of the plated layer on jewellery article is usually measured in Microns. | زیور پر چڑھائے ہوئے پرت کی پیمائش کے موٹائی کو ناپنے کیلئے عام طور پر ما ئکرون یونٹ کا استعمال ہوتا ہے |
| What is the composition of nickel plating bath in the jewellery electroplating process? | زیورات کے الیکٹروپلیٹنگ کے عمل میں نیکل کا پرت چڑھانے کیلئے اجزاء ترکیبی کیا ہیں ؟ | The composition of nickel plating bath in the jewellery electroplating process are as follows:<br>• Nickel sulphate<br>• Nickel chloride<br>• Boric acid<br>• Water | زیورات کے الیکٹروپلیٹنگ کے عمل میں نیکل کا پرت چڑھانے کیلئے اجزاء ترکیبی درجہ ذیل ہیں:<br>• نکل سلفیٹ<br>• نکل کلورائد<br>• بورک ایسڈ<br>• پانی |
| What is the composition of copper plating bath in the jewellery electroplating process? | زیورات کے الیکٹروپلیٹنگ کے عمل میں تانبے / کاپر کا پرت چڑھانے کیلئے اجزاء ترکیبی کیا ہیں ؟ | The composition of copper plating bath in the jewellery electroplating process are as follows:<br>• Copper salt<br>• Water<br>• Additives as per requirements | زیورات کے الیکٹروپلیٹنگ کے عمل میں تانبے/ کاپر کا پرت چڑھانے کیلئے اجزاء ترکیبی درجہ ذیل ہیں:<br>• کاپر سالٹ<br>• پانی<br>• ضرورت کے مطابق ایڈیٹیوز |

| Question | Urdu translation of question | Candidate's answer | Urdu translation of candidate's answer |
|---|---|---|---|
| What is the composition of silver plating bath in the jewellery electroplating process? | زیورات کے الیکٹروپلیٹنگ کے عمل میں چاندی/ سلور کا پرت چڑھانے کیلئے اجزاء ترکیبی کیا ہیں ؟ | The composition of silver plating bath in the jewellery electroplating process are Silver salt and conducting salt with water | زیورات کے الیکٹروپلیٹنگ کے عمل میں چاندی/ سلور کا پرت چڑھانے کیلئے اجزاء ترکیبی میں شامل ہیں:<br>• سلور سالٹ<br>• کنڈنڈکٹنگ سالٹ<br>• پانی |
| What is the use of Hull cell? | ہل سیل کا استعمال کیا ہے؟ | Hull cell is used for qualitative analysis of bath used for plating | ہل سیل کو معیار کے تجزیہ کی مناسبت سے استعمال کیا جاتا ہے۔ |

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