



Skills for Employment Investment Program (SEIP)

ASSESSMENT TOOL

FOR

ELECTRONICS

(LIGHT ENGINEERING SECTOR)

**Finance Division, Ministry of Finance
Government of the People's Republic of Bangladesh**

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PART A – THE ASSESSOR

Instructions to Assessor

Assessment is the process of identifying a candidate's skills and knowledge set against the industry established standards in the workplace. It requires the candidate to consistently and over time demonstrate skills, knowledge and attitude that enable confident completion of workplace tasks in a variety of situations.

In judging assessment evidence, the assessor must ensure that the evidence is:

- authentic (the candidate's own work)
- valid (directly related to the current version of the endorsed competency standard)
- reliable (show that the candidate consistently meets the endorsed unit of competency)
- current (reflects the candidate's current capacity to perform the aspect of work covered by the endorsed unit of competency)
- sufficient (covers the full range of elements in the relevant unit of competency)

There are a number of assessment methods that may be employed including but not limited to:

- written examination
- oral questioning
- practical demonstration

A single unit of competency may be assessed or a group of units of competency may be assessed, either in an actual workplace or a simulated workplace environment.

Conducting Assessment

Prior to commencement of assessment, candidates must have the tasks clearly explained to them. Also, the assessor should provide candidates with clear advice and information about the:

- date, time and place for assessment
- structure of assessment
- number of times performance must be demonstrated or observed
- amount or type of assistance candidates can expect
- assessment environment
- resources required for assessment
- performance standards or benchmarks relevant to the qualification

As well as informing the candidate of what they will be required to do during the assessment, the assessor will also need to explain what evidence they will need to provide in response to the various assessment tasks.

If a candidate is required to submit evidence, any explanation must include specific guidance on:

- what to include as evidence
- how to present the evidence
- how to submit the evidence and to whom

Assessing Competence

Competency-based assessment does not award grades, but simply identifies if the candidate has the skills, knowledge and attitudes to undertake the required task to the specified standard.

Therefore, when assessing competency an assessor has two possible results (assessment decisions) that can be awarded:

- Competent (C)
- Not Yet Competent (NYC)

Competent (C)

If the candidate is able to successfully answer and demonstrate what is required to the expected standard of the assessment criteria, they will be deemed as 'Competent'.

The assessor will award 'Competent' if they feel the candidate has the necessary skills, knowledge and attitudes in all assessment tasks for a given package.

Not Yet Competent (NYC)

If the candidate is unable to answer and demonstrate competency to the expected standard, they will be deemed to be 'Not Yet Competent'.

This does not mean the candidate will need to complete all the assessment tasks again. When applying for reassessment, the focus will be on the specific assessment tasks that were not performed to the required standard.

The candidate may be required to:

- (a) undertake further training or instruction
- (b) undertake the specific assessment task again until they are deemed to be competent

Recording Assessment Information

When all assessment tasks are concluded, the evidence summary sheet should be completed, signed by all parties, and any outstanding activities or issues actioned.

The assessor should ensure that all appropriate forms are completed and signed by all parties.

| CHECKLIST FOR ASSESSOR | | |
|--|-----------------|----------------|
| Prior to the assessment I have: | Tick (✓) | Remarks |
| Ensured the candidate is informed about the venue and schedule of assessment. | | |
| Received current copies of the assessment criteria to be assessed, assessment plan and evidence plan. | | |
| Reviewed the assessment criteria and evidence plan to ensure I clearly understood the instructions and the requirements of the assessment process. | | |
| Identified and accommodated any special needs of the candidate. | | |
| Checked the set-up and resources for the assessment. | | |
| During the assessment I have: | | |
| Introduced myself and confirmed identities of candidates. | | |
| Collected the admission slips. | | |
| Put candidates at ease by being friendly and helpful. | | |
| Checked completed self-assessment guide. | | |
| Explained to candidates the purpose, context and benefits of the assessment. | | |
| Ensured candidates understood the assessment process and the assessment procedure. | | |
| Provided candidates with an overview of the assessment criteria to be used. | | |
| Gave specific and clear instructions to the candidates. | | |
| Observed carefully the specified time limits provided in the assessment package. | | |
| Stayed at the assessment area during the entire duration of the assessment activity. | | |
| Ensured notes are made on unusual conditions or situations during the assessment and include these in the report. | | |
| Did not provide any assistance during the assessment or indicated in any way whether the candidate is or is not performing the | | |

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| activity correctly (intervened only for health and safety reasons). | | |
| Implemented the evidence gathering process and ensured its validity, reliability, fairness and flexibility. | | |
| Collected appropriate evidence and matched relevance to the elements, performance criteria, range of variables and evidence guide in the relevant units of competency. | | |
| Explained the results reporting procedure to the candidate. | | |
| Encouraged candidates to seek clarifications if in doubt about the pre- and post-assessment activity procedures. | | |
| Asked candidates for feedback on the assessment. | | |
| Explained legal, health and safety, and ethical issues, if applicable. | | |
| After the assessment I have: | | |
| <p>Provided feedback on the assessment decision. This includes the following:</p> <ul style="list-style-type: none"> ▪ clear and constructive feedback on the assessment decision ▪ information on ways of addressing any identified gaps in competency revealed by the assessment ▪ opportunity to discuss the assessment process and outcome ▪ information on reassessment process (if necessary) ▪ information on appeal (if necessary) | | |
| <p>Prepared the necessary assessment reports. This includes the following:</p> <ul style="list-style-type: none"> ▪ record the assessment decision using the prescribed rating sheet ▪ maintain records of the assessment procedures, evidence collected and assessment decision ▪ endorse assessment decision to BTEB ▪ prepare recommendations for the issuance of certificate | | |
| Thanked candidate for participating in the assessment. | | |

Assessment Evidence Guide

The purpose of assessment is to confirm that an individual can perform to the standards expected by in the workplace, as expressed in the competency standards.

To attain the certificate of **Electronics**, a candidate must demonstrate competent skill and knowledge in all the units of competency listed below. Upon successful completion of all assessment activities, a candidate shall be awarded with a certificate.

| CODE | UNIT OF COMPETENCY |
|---|--|
| Generic Competencies | |
| SEIP-LE-ELC-01-G | Use basic mathematical concepts |
| SEIP-LE-ELC-02-G | Carry out workplace interaction |
| SEIP-LE-ELC-03-G | Operate in a team environment |
| SEIP-LE-ELC-04-G | Apply basic IT skills |
| Sector-specific Competencies | |
| SEIP-LE-ELC-01-S | Apply occupational health and safety (OHS) practice in the workplace |
| SEIP-LE-ELC-02-S | Read and interpret sketches and drawings |
| SEIP-LE-ELC-03-S | Use hand and power tool |
| SEIP-LE-ELC-04-S | Apply quality system |
| Occupation-specific Competencies | |
| SEIP-LE-ELC-01-O | Test electronic components |
| SEIP-LE-ELC-02-O | Connect and terminate electrical wiring and electronic circuits |
| SEIP-LE-ELC-03-O | Assemble Electronic Products |
| SEIP-LE-ELC-04-O | Service consumer electronic products and systems |
| SEIP-LE-ELC-05-O | Service industrial electronic modules, products and systems |

Assessment Evidence Plan

An assessment evidence plan is a document that assists in establishing what evidence needs to be collected by the assessor to ensure that the candidate meets all the appropriate requirements of the competency standard. It usually contains a record of:

- evidence requirements as set out in the competency standard
- who will collect the evidence
- time period needed to collect the evidence

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| Occupation: | Electronics | | | | | |
| Unit Name: | Use basic mathematical concepts | | | | | |
| Unit Code: | SEIP-LE-ELC-01-G | | | | | |
| Assessment Method: | P | O | | W | | |
| | Performance <i>(including demonstration and observation)</i> | Oral questioning | | Written examination <i>(including short-answer, multiple choice, and true or false questions)</i> | | |
| Element | Performance Criteria | | | P | O | W |
| 1. Identify calculation requirements in the workplace | 1.1. Calculation requirements are identified from workplace information. | | | √ | | |
| | 1.2. Mathematical problems are constructed from workplace information. | | | √ | | |
| 2. Select appropriate mathematical methods/concepts for calculation | 2.1. Appropriate method is selected to carry out the calculation requirement. | | | | √ | |
| | 2.2. Constructed mathematical problems are solved with appropriate method | | | | √ | |
| 3. Use tool/instrument to perform calculations | 3.1. Tools and instruments required for computation are identified. | | | √ | | |
| | 3.2. Calculation is performed using appropriate tools and instruments accurately | | | | √ | |

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| Occupation: | Electronics | | | | | |
| Unit Name: | Carry out workplace interaction | | | | | |
| Unit Code: | SEIP-LE-ELC-02-G | | | | | |
| Assessment Method: | P | O | | W | | |
| | Performance <i>(including demonstration and observation)</i> | Oral questioning | | Written examination <i>(including short-answer, multiple choice, and true or false questions)</i> | | |
| Element | Performance Criteria | | | P | O | W |
| | 1.1. Workplace codes of conduct are interpreted as per organisational guidelines. | | | | √ | |

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| 1. Interpret workplace communication and etiquette | 1.2. Appropriate lines of communication are maintained with supervisors and colleagues | √ | √ | |
| | 1.3. Workplace interactions are conducted in a courteous manner to gather and convey information. | √ | √ | |
| | 1.4. Workplace procedures and matters are comprehended | √ | | |
| 2. Read and understand workplace documents | 2.1. Workplace documents are interpreted correctly. | | √ | |
| | 2.2. Visual information/symbols/signage are understood correctly and followed. | √ | | |
| | 2.3. Specific and relevant information are accessed from appropriate sources. | | √ | |
| | 2.4. Appropriate medium is used to transfer information and ideas. | | √ | |
| 3. Participate in workplace meetings and discussions | 3.1. Team meetings are attended on time | | √ | |
| | 3.2. Meeting procedures and etiquette are followed. | | √ | |
| | 3.3. Active participation is ensured, opinions are expressed and heard. | | √ | |
| | 3.4. Inputs are provided and interpreted in line with the meeting purpose. | | √ | |
| 4. Practice professional ethics at work | 4.1. Responsibilities as a team member are performed | √ | | |
| | 4.2. Tasks are performed in accordance with workplace procedures. | √ | | |
| | 4.3. Confidentiality is maintained. | √ | | |
| | 4.4. Inappropriate and conflicting situations are avoided | | √ | |

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| Occupation: | Electronics | | | | | |
| Unit Name: | Operate in a team environment | | | | | |
| Unit Code: | SEIP-LE-ELC-03-G | | | | | |
| Assessment Method: | P | O | W | | | |
| | Performance (including demonstration and observation) | Oral questioning | Written examination (including short-answer, multiple choice, and true or false questions) | | | |
| Element | Performance Criteria | | | P | O | W |
| 1. Identify team goals and work processes | 1.1. Roles and objectives of the team are identified and interpreted. | | | | √ | |
| | 1.2. Roles and responsibilities of team members are identified and interpreted. | | | | √ | |

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| 2. Identify own role and responsibilities within team | 2.1. Personal role and responsibilities are identified within the team environment. | √ | | |
| | 2.2. Reporting relationships are interpreted within team and external to team. | | √ | |
| 3. Communicate and co-operate with team members | 3.1. Other teammates' tasks are identified and support provided when requested. | √ | | |
| | 3.2. The team is encouraged through sharing information or expertise, working together to solve problems, and putting team success first. | √ | | |
| | 3.3. Views and opinions of other team members are interpreted and respected. | √ | √ | |
| 4. Practice problem solving within the team | 4.1. Problems faced at the individual and team level are identified and showed insight into the root-causes of the problems. | | | √ |
| | 4.2. A range of solutions and courses of action are identified together with benefits, costs, and risks associated with each. | | | √ |
| | 4.3. The good ideas of others to help develop solutions are recognised and advice sought from those who have solved similar problems. | | | √ |
| | 4.4. It is looked beyond the obvious and not stopped at the first answers. | | √ | |

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| Occupation: | Electronics | | | | | |
| Unit Name: | Apply basic IT skills | | | | | |
| Unit Code: | SEIP-LE-ELC-04-G | | | | | |
| Assessment Method: | P | O | W | | | |
| | Performance (including demonstration and observation) | Oral questioning | Written examination (including short-answer, multiple choice, and true or false questions) | | | |
| Element | Performance Criteria | | | P | O | W |
| 1. Identify and use most commonly used IT tools | 1.1. History of information technology (IT) is identified and summarised. | | √ | √ | | |
| | 1.2. Commonly used IT tools are identified and described. | | √ | | | |
| 2. Understand use of computer | 2.1. Basic parts of a computer are identified. | | √ | | | |
| | 2.2. Turning on and off technique of a computer is performed. | √ | | | | |
| | 2.3. Working environment, functions and features of operating system is interpreted. | | √ | | | |
| | 2.4. Simple trouble-shooting techniques are applied. | √ | | | | |

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| 3. Work with word processing application | 3.1. Word processing application appropriate to perform activity is operated. | √ | | |
| | 3.2. Basic typing technique to document is applied. | √ | | |
| | 3.3. Word processing techniques to document are employed. | √ | | |
| | 3.4. Personal CV writing using suitable word processing techniques is practiced. | | | √ |
| | 3.5. Saving and retrieving technique of a document is used. | √ | | |
| 4. Work with spread sheets | 4.1. Spreadsheet working environment, functions and features are identified and interpreted | √ | √ | |
| | 4.2. Data entry on spreadsheet appropriate to perform activity is performed. | √ | | |
| | 4.3. Data manipulation techniques to spreadsheet document are applied. | √ | | |
| | 4.4. Spreadsheet document is created and saved. | √ | | |
| 5. Access email and search the internet | 5.1. Use of email account in online environment is explained. | | √ | |
| | 5.2. Writing and sending of workplace emails is completed. | √ | | |
| | 5.3. Different browsers to work online are identified and selected. | √ | | |
| | 5.4. Browse different web portals and apply proper search techniques. | √ | | |

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| Occupation: | Electronics | | | | | |
| Unit Name: | Apply occupational health and safety (OHS) practice in the workplace | | | | | |
| Unit Code: | SEIP-LE-ELC-01-S | | | | | |
| Assessment Method: | P | O | W | | | |
| | Performance (including demonstration and observation) | Oral questioning | Written examination (including short-answer, multiple choice, and true or false questions) | | | |
| Element | Performance Criteria | | | P | O | W |
| 1. Identify OHS policies and procedures | 1.1. OHS policies and safe operating procedures are interpreted. | | | | | √ |
| | 1.2. Safety signs and symbols are identified and followed. | √ | √ | | | |
| | 1.3. Response, evacuation procedures and other contingency measures are interpreted correctly. | | | √ | | |

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| 2. Apply personal health and safety practices | 2.1. OHS policies and procedures are applied in the workplace including personal protective equipment (PPE). | √ | | |
| | 2.2. Common health issues are recognised. | | √ | |
| | 2.3. Common safety issues are identified. | √ | | |
| 3. Report hazards and risks | 3.1. Hazards and risks are identified. | √ | | |
| | 3.2. Hazards and risks assessment and controls are interpreted. | | √ | |
| 4. Respond to emergencies | 4.1. Respond to alarms and warning devices. | √ | | |
| | 4.2. Emergency response plans and procedures are responded to. | | √ | |
| | 4.3. First aid procedures during emergency situations are identified. | | √ | |

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| Occupation: | Electronics | | | | | |
| Unit Name: | Read and interpret sketches and drawings | | | | | |
| Unit Code: | SEIP-LE-ELC-02-S | | | | | |
| Assessment Method: | P | O | W | | | |
| | Performance (including demonstration and observation) | Oral questioning | Written examination (including short-answer, multiple choice, and true or false questions) | | | |
| Element | Performance Criteria | | | P | O | W |
| 1. Interpret information and specifications | 1.1. Appropriate manuals for work activity are identified and collected. | | | √ | | |
| | 1.2. Information and specifications in the manuals is interpreted and applied. | | | √ | | |
| 2. Read and interpret sketches and drawings | 2.1. Relevant sketches and drawings are identified for job requirement. | | | √ | | |
| | 2.2. Key terms and abbreviations are identified and interpreted. | | | | | √ |
| | 2.3. Signs and symbols are identified and interpreted. | | | | √ | |
| | 2.4. Schedules, dimensions, sketches, drawings and specifications are correctly read and interpreted. | | | | √ | |

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| Occupation: | Electronics | | | | |
| Unit Name: | Use hand and power tools | | | | |
| Unit Code: | SEIP-LE-ELC-03-S | | | | |
| Assessment Method: | P | O | W | | |
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| | Performance (including demonstration and observation) | Oral questioning | Written examination (including short-answer, multiple choice, and true or false questions) | | |
|--|---|------------------|---|---|--|
| Element | Performance Criteria | P | O | W | |
| 1. Identify and inspect hand and power tools | 1.1. Appropriate hand and power tools are identified. | √ | | | |
| | 1.2. Application of hand and power tools is recognized. | | √ | | |
| | 1.3. Usability of hand and power tools is checked and verified. | √ | | | |
| 2. Use hand tools properly and safely | 2.1. Appropriate hand tools are selected. | √ | | | |
| | 2.2. Safety precautions are ensured before using hand tools. | √ | | | |
| | 2.3. Unsafe or faulty hand tools are identified and marked for repair. | √ | | | |
| | 2.4. Measuring tools are checked and calibrated before use. | √ | | | |
| | 2.5. Use hand tools properly and safely to perform work activity. | √ | | | |
| 3. Operate power tools properly and safely | 3.1. Appropriate power tools are selected. | √ | | | |
| | 3.2. Power supply outlet and electrical cord are inspected and confirmed safe for use in accordance with established workplace safety requirements. | √ | | | |
| | 3.3. Safety precautions are ensured before using power tools in accordance with manufacturer's operating specification. | √ | | | |
| | 3.4. Proper sequence of operation applied for using power tools. | √ | | | |
| | 3.5. Unsafe or faulty power tools are identified and marked for repair. | √ | | | |
| | 3.6. Operate power tools properly and safely to perform work activity. | √ | | | |
| 4. Clean and maintain hand and power tools | 4.1. Dust and foreign matter is removed from hand and power tools in accordance to workplace standards. | √ | | | |
| | 4.2. Condition of hand and power tools is checked after use and reported. | √ | | | |
| | 4.3. Appropriate lubricant is applied after use and prior to storage. | √ | | | |
| | 4.4. Measuring tools are checked and calibrated after use. | √ | | | |
| | 4.5. Defective hand and power tools are inspected and repaired or replaced. | | √ | √ | |

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| | 4.6. Hand and power tools are stored and secured in accordance with workplace requirements. | | √ | |
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| Occupation: | Electronics | | | |
| Unit Name: | Apply quality system | | | |
| Unit Code: | SEIP-LE-ELC-04-S | | | |
| Assessment Method: | P | O | W | |
| | Performance <i>(including demonstration and observation)</i> | Oral questioning | Written examination <i>(including short-answer, multiple choice, and true or false questions)</i> | |
| Element | Performance Criteria | P | O | W |
| 1. Work within quality system | 1.1. Instructions and procedures relating to quality improvement system are identified and followed. | √ | | |
| | 1.2. Duties are performed in accordance with quality improvement system ensuring conformance to specifications. | √ | | |
| | 1.3. Defects are detected and reported to authority according to standard operating procedure. | √ | | |
| | 1.4. Quality service is delivered to customer in providing a product or service. | √ | | |
| 2. Apply and monitor quality improvement system | 2.1. Performance measurement systems are identified. | √ | | |
| | 2.2. Specifications and standard operating procedure are identified and established. | √ | | |
| | 2.3. Performance is assessed at regular intervals. | √ | | |
| | 2.4. Defects are detected and reported to authority according to standard operating procedure. | | | √ |
| | 2.5. Process improvement procedures are contributed to and implemented. | √ | | |
| | 2.6. Improvement of internal/external customer and supplier relationships is contributed to. | √ | | |
| | 2.7. Performance of operation or quality of product or service is monitored to ensure customer satisfaction. | √ | | |
| 3. Apply standard procedures for each job | 3.1. Concept of supplying product or service to meet the customer's requirements is understood and accordingly applied. | √ | | |
| | 3.2. Responsibility is taken for quality of own work. | √ | | |
| | 3.3. Quality system procedures for each job are followed. | √ | | |
| | 3.4. Conformance to specification is ensured in every case at all situations. | | | √ |

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| Occupation: | Electronics | | | | | |
| Unit Name: | Test electronic components | | | | | |
| Unit Code: | SEIP-LE-ELC-01-O | | | | | |
| Assessment Method: | P | O | W | | | |
| | Performance (including demonstration and observation) | Oral questioning | Written examination (including short-answer, multiple choice, and true or false questions) | | | |
| Element | Performance Criteria | | | P | O | W |
| 1. Identify basic electronic components | 1.1. Different components are identified. | | | √ | | |
| | 1.2. Different component's symbols are interpreted. | | | √ | | |
| | 1.3. Different terminals are identified. | | | √ | | |
| 2. Practice soldering | 2.1. Components are mounted and soldered in accordance with soldering principles. | | | √ | | |
| | 2.2. Soldered components are checked to ensure compliance with international standards and job requirement. | | | √ | | |
| 3. Determine testing criteria | 3.1. Work instructions are obtained and clarified based on client requirements. | | | √ | | |
| | 3.2. Responsible person is consulted for effective and proper work coordination. | | | √ | | |
| | 3.3. Data sheets are obtained and interpreted based on manufacturers specifications. | | | | √ | |
| | 3.4. Testing criteria is defined to ensure components meet technical and quality requirements. | | | | √ | |
| | 3.5. Document and communicate testing criteria to relevant personnel. | | | | √ | |
| 4. Plan testing approach | 4.1. Testing method is identified based on type of electronic component. | | | √ | | |
| | 4.2. Characteristics of testing method to be used are determined. | | | | | √ |
| | 4.3. Testing method is selected pursuant to testing strategy. | | | √ | | |
| | 4.4. Plan for testing components is developed and documented. | | | | | √ |
| | 4.5. Tools and testing devices are prepared and checked as per standard operating procedure. | | | √ | | |
| | 4.6. Recording system is established to document testing results, including problems and faults. | | | | | √ |

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| 5. Test components | 5.1. Component testing is carried out to ensure products meet creative, production and technical requirements. | √ | | |
| | 5.2. Problems, faults and remedial steps required are documented in records system. | | | √ |
| | 5.3. Problems and faults are resolved in accordance with standard operating procedure. | √ | | |
| | 5.4. Products are evaluated against testing criteria. | √ | | |
| | 5.5. Testing process is reported to relevant personnel. | | √ | √ |

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| Occupation: | Electronics | | | |
| Unit Name: | Connect and terminate electrical wiring and electronics circuit | | | |
| Unit Code: | SEIP-LE-ELC-02-O | | | |
| Assessment Method: | P | O | W | |
| | Performance (including demonstration and observation) | Oral questioning | Written examination (including short-answer, multiple choice, and true or false questions) | |
| 1. Identify measuring devices and accessories | 1.1. Measuring devices and accessories are collected. | √ | | |
| | 1.2. Measuring devices and accessories are checked. | √ | √ | |
| 2. Prepare for connection and termination | 2.1. Materials are checked according to job specification. | | √ | |
| | 2.2. Appropriate tools and testing devices are selected as per job requirement. | √ | | |
| | 2.3. Job requirement is planned as per standard operating procedure. | | | √ |
| | 2.4. Electrical wiring and electronic circuits are prepared for connection/termination as per job requirement. | √ | | |
| 3. Perform connection and termination | 3.1. Appropriate ranges of methods in connection/termination are employed as per job and manufacturers specification. | √ | | |
| | 3.2. Correct sequence of operation is followed according to job specification and standard operating procedure. | √ | | |
| | 3.3. Accessories are adjusted as per job specification, if necessary. | √ | | |
| | 3.4. Confirmation of connection/termination is undertaken to ensure quality completion of job as per job specification. | √ | √ | |
| 4. Test connection and termination | 4.1. Testing of completed connections/terminations is carried out to ensure compliance. | √ | √ | |

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| | 4.2. Wiring and circuits are checked using specified testing procedures. | √ | | |
| | 4.3. Unplanned events or conditions are responded to in accordance with standard operating procedure. | √ | | |

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| Occupation: | Electronics | | | | | |
| Unit Name: | Assemble electronic products | | | | | |
| Unit Code: | SEIP-LE-ELC-03-O | | | | | |
| Assessment Method: | P | O | W | | | |
| | Performance (including demonstration and observation) | Oral questioning | Written examination (including short-answer, multiple choice, and true or false questions) | | | |
| Element | Performance Criteria | | | P | O | W |
| 1. Prepare to assemble electronic products | 1.1. Assembly workplace is prepared in accordance with OHS policies and procedures. | | | √ | | |
| | 1.2. Established risk control measures for work preparation are followed. | | | √ | | |
| | 1.3. Work instructions are obtained and clarified based on job order or client requirements. | | | √ | | |
| | 1.4. Responsible person is consulted for effective and proper work coordination. | | | √ | | |
| | 1.5. Required materials, tools and equipment are prepared and checked in accordance with established procedures. | | | | √ | |
| | 1.6. Parts and components needed to complete the work are identified, prepared and obtained according to requirements. | | | √ | | |
| 2. Prepare/make PCB modules | 2.1. PCB layout is verified for conformity with the schematic diagram in accordance with the layout rules. | | | √ | | |
| | 2.2. PCB layout is transferred to copper-cladded board following acceptable methods and standards. | | | √ | | |
| | 2.3. Visual inspection is performed based on standards procedures. | | | √ | | |
| | 2.4. Thru-hole is drilled based on standards procedures. | | | √ | | |
| | 2.5. PCB is cleaned based on standards procedures. | | | √ | | |
| | 2.6. Functionality of PCB is tested and visual inspection is performed based on standards procedures. | | | √ | | |
| | 3.1. Knowledge of lead and lead-free soldering characteristics and requirements are applied to | | | √ | | |

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| 3. Mount and solder electronic components | mounting and soldering process in accordance with OHS standards. | | | |
| | 3.2. Components are mounted and soldered in accordance with soldering principles. | √ | | |
| | 3.3. Soldering/de-soldering techniques and procedures are applied in accordance with established standards and requirements. | √ | | |
| | 3.4. Soldered products are checked and complied with international standards and task specifications. | √ | | |
| 4. Perform electronic products assembly | 4.1. Work instructions is followed based on job order or client requirements. | √ | | |
| | 4.2. Assembly procedures are performed in accordance with OHS policies and work instructions. | √ | | |
| | 4.3. Modules and accessories are connected/integrated into the final product based on the client specifications. | √ | | |
| | 4.4. Excess components and materials are disposed of based on WEEE directives and 3Rs waste management program. | √ | | |
| 5. Test and inspect assembled electronic products | 5.1. Finished products are subjected to final visual/sensory inspection and testing in accordance with quality standards, procedures and requirements. | √ | | |
| | 5.2. Mechanical and electrical/electronic testing is performed in accordance with quality standards, procedures and requirements. | √ | | |
| | 5.3. Work completion is documented and responsible person is informed in accordance with established procedures. | | | √ |
| | 5.4. Housekeeping procedures are observed in accordance with 5S discipline and established procedures. | √ | | |

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| Occupation: | Electronics | | | | | |
| Unit Name: | Service consumer electronic products and systems | | | | | |
| Unit Code: | SEIP-LE-ELC-04-O | | | | | |
| Assessment Method: | P | O | W | | | |
| | Performance (including demonstration and observation) | Oral questioning | Written examination (including short-answer, multiple choice, and true or false questions) | | | |
| Element | Performance Criteria | | | P | O | W |
| 1. Prepare unit, tools and workplace for | 1.1. Complete check-up of consumer electronic products and systems is conducted and defects | | | √ | | |

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| installation and service | are identified, verified and documented against customer description. | | | |
| | 1.2. Manuals and service information required for installation are acquired as per standard procedure. | | √ | |
| | 1.3. Repair/maintenance history is verified in line with the company procedures. | | √ | |
| | 1.4. Workplace is set/prepared for installation job in line with the client's requirements. | √ | | |
| | 1.5. Necessary tools, test instruments and personal protective equipment are prepared in line with job requirements. | √ | | |
| 2. Install consumer electronic products and systems | 2.1. Materials necessary to complete the work are obtained in accordance with job requirements. | √ | | |
| | 2.2. Consumer electronic products and systems are installed in accordance with manufacturer's instructions, requirements, and without damage to the surrounding place or environment. | √ | | |
| | 2.3. Devices are tested in accordance with standard procedures. | | | √ |
| | 2.4. Final inspections are undertaken to ensure that the installed devices conforms to technical requirements. | √ | | |
| | 2.5. Unplanned events or conditions are responded to in accordance with established procedures. | √ | | |
| | 2.6. Work site is cleaned and cleared of all debris and left safe in accordance with the company requirements. | √ | | |
| | 2.7. Report on installation and testing of equipment is prepared according to company's procedures/policies. | | | √ |
| 3. Diagnose faults and defects of consumer electronic products and systems | 3.1. Systematic pre-testing procedure is observed in accordance with manufacturer's instructions. | √ | | |
| | 3.2. System defects/fault symptoms are identified using appropriate tools and equipment and troubleshooting techniques and in accordance with safety procedures. | √ | | |
| | 3.3. Test instruments required for the job are used in accordance with user manuals. | √ | | |
| | 3.4. Circuits are checked and isolated using specified testing procedures. | √ | | |
| | 3.5. Identified defects and faults are explained to the responsible person in accordance with enterprise or company policy and procedures. | √ | | |
| | 3.6. Control settings/adjustments are checked in conformity with service-manual specifications. | √ | | |

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| | 3.7. Results of diagnosis and testing are documented accurately and completely within the specified time. | √ | | |
| | 3.8. Customers are advised/informed regarding the status and serviceability of the unit according to procedures. | √ | | |
| 4. Maintain/repair consumer electronic products | 4.1. Personal protective equipment is used in accordance with Occupational Health and Safety practices. | √ | | |
| | 4.2. Electro-static discharge (ESD) protection procedure is followed in accordance with current industry standards. | √ | | |
| | 4.3. Defective parts/components are replaced with identical or recommended appropriate equivalent ratings. | √ | | |
| | 4.4. Repaired or replaced parts/components are soldered/mounted in accordance with the current industry standards. | √ | | |
| | 4.5. Control settings/adjustments are performed in conformity with service-manual specifications. | √ | | |
| | 4.6. Repair activity is performed within the required timeframe. | √ | | |
| | 4.7. Care and extreme precaution in handling the unit/product is observed as per procedures. | √ | | |
| | 4.8. Cleaning of unit is performed in accordance with standard procedures. | √ | | |
| | 4.9. Excess components and materials are disposed of based on WEEE directives and 3Rs waste management program. | | | √ |
| 5. Re-assemble and test repaired consumer electronic product | 5.1. Repaired units are reassembled according to procedures. | √ | | |
| | 5.2. Reassembled units are subjected to final testing and cleaning in conformity with manufacturer's specifications. | | √ | |
| | 5.3. Service completion procedures and documentations are complied with based on manual. | | | √ |
| | 5.4. Waste materials are disposed of in accordance with environmental requirements. | √ | | |

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| Occupation: | Electronics | | |
| Unit Name: | Service industrial electronic modules, products and systems | | |
| Unit Code: | SEIP-LE-ELC-05-O | | |
| Assessment Method: | P | O | W |

| | Performance (including demonstration and observation) | Oral questioning | Written examination (including short-answer, multiple choice, and true or false questions) | | |
|--|---|------------------|---|---|--|
| Element | Performance Criteria | P | O | W | |
| 1. Prepare unit, tools and workplace for installation / servicing | 1.1. Products and systems are conducted and defects are identified, verified and documented against customer description. | √ | | | |
| | 1.2. Repair/maintenance history is verified in line with the company procedures. | | | √ | |
| | 1.3. Service manuals and service information required for repair/maintenance are acquired as per standard procedure. | | | √ | |
| | 1.4. Workplace is set/prepared for repair job in line with the company requirements. | √ | | | |
| | 1.5. Necessary tools, materials, test instruments and personal protective equipment are prepared in line with job requirements. | √ | | | |
| 2. Install industrial electronic modules/products/ systems | 2.1. Materials necessary to complete the work are obtained in accordance with job requirements. | √ | | | |
| | 2.2. Industrial electronic modules/products/systems are installed in accordance with manufacturer's instructions, requirements, and without damage to the surrounding place or environment. | √ | | | |
| | 2.3. Devices are tested in accordance with standard procedures. | √ | | | |
| | 2.4. Final inspections are undertaken to ensure that the installed devices conforms to technical requirements. | √ | | | |
| | 2.5. Unplanned events or conditions are responded to in accordance with established procedures. | | | √ | |
| | 2.6. Work site is cleaned and cleared of all debris and left safe in accordance with the company requirements. | √ | | | |
| | 2.7. Report on installation and testing of equipment is prepared according to company's procedures/policies. | | | √ | |
| 3. Diagnose faults and defects of industrial electronic modules/products/systems | 3.1. Systematic pre-testing procedure is observed in accordance with manufacturer's instructions. | √ | | | |
| | 3.2. System defects/fault symptoms are identified using appropriate tools and equipment and troubleshooting techniques and in accordance with safety procedures. | √ | | | |
| | 3.3. Test instruments required for the job are used in accordance with user manuals. | √ | | | |
| | 3.4. Circuits are checked and isolated using specified testing procedures. | √ | | | |

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| | 3.5. Identified defects and faults are explained to the responsible person in accordance with enterprise or company policy and procedures. | √ | | |
| | 3.6. Control settings/adjustments are checked in conformity with service-manual specifications. | √ | | |
| | 3.7. Results of diagnosis and testing are documented accurately and completely within the specified time. | √ | | |
| | 3.8. Customers are advised/informed regarding the status and serviceability of the unit according to procedures. | | | √ |
| 4. Maintain/Repair industrial electronic products | 4.1. Personal protective equipment is used in accordance with occupational health and safety practices. | √ | | |
| | 4.2. Electro-static discharge (ESD) protection procedure is followed in accordance with current industry standards. | √ | | |
| | 4.3. Defective parts/components are replaced with identical or recommended appropriate equivalent ratings. | √ | | |
| | 4.4. Repaired or replaced parts/components are soldered/mounted in accordance with the current industry standards. | | | √ |
| | 4.5. Control settings/adjustments are performed in conformity with service-manual specifications. | √ | | |
| | 4.6. Repair activity is performed within the required timeframe. | √ | | |
| | 4.7. Care and extreme precaution in handling the unit/product is observed as per OHS procedures. | √ | | |
| | 4.8. Cleaning of unit is performed in accordance with standard procedures. | √ | | |
| | 4.9. Excess components and materials are disposed of based on WEEE directives and 3Rs waste management program. | | √ | |
| 5. Reassemble and test repaired industrial electronic products | 5.1. Repaired units are reassembled according to procedures. | √ | | |
| | 5.2. Reassembled units are subjected to final testing and cleaning in conformity with manufacturer's specifications. | √ | | |
| | 5.3. Service completion procedures and documentations are complied with based on manual. | | | √ |
| | 5.4. Waste materials are disposed of in accordance with environmental requirements. | √ | | |

PART B – THE CANDIDATE

Instructions to Candidate

To be assessed as competent, you must provide evidence which demonstrates that you can perform to the necessary standard the various elements of this units of competency that comprise of the Certificate in Electronics. Assessment of competency requires you to consistently demonstrate skill, knowledge and aptitude (through a variety of assessment tools such as multiple choice, short-answer questions, oral questioning, workplace observation, and practical demonstration) that enables confident completion of workplace tasks in a variety of situations.

In judging the evidence, your assessor must ensure that the evidence is:

- authentic (your own work)
- valid (directly related to the current version of the units of competency)
- reliable (consistently demonstrates of your knowledge and skill)
- current (shows your current capacity to perform the work)
- sufficient (covers the full range of elements comprised within the units of competency)

Furthermore, the assessment process must:

- provide for valid, reliable, flexible and fair assessment
- provide for judgment to be made on the basis of sufficient evidence
- offer valid, authentic and current evidence
- include workplace requirements

There are two types of assessment:

1. Knowledge Assessment - is designed to enable assessment against the various *elements* contained within the units of competency through a variety of activities such as multiple choice, short-answer questions, oral questioning. It is essentially examining your theoretical knowledge.

This provides the assessor with substantial evidence of your knowledge and aptitude to perform the work relating to the specific unit of competency, in conjunction with other assessment tools such as workplace observation.

You should complete the knowledge assessment as directed by the assessor and follow all instructions as and when given. If you are unable to complete the knowledge assessment, please speak to the assessor about alternative assessment solutions.

2. Skill Assessment - is designed to enable assessment against the various *performance criteria* contained within the units of competency through, for example, demonstration of skill in a simulated or actual work environment. In essence, it is an examination of your practical ability.

This provides the assessor with substantial evidence of your ability to perform the work relating to the specific unit of competency to the standard expected by industry (the benchmark).

You should complete the skill assessment as directed by the assessor and follow all instructions as and when given, ensuring your own health and safety.

Once you have been assessed as competent against all of the units of competency comprising of the qualification being undertaken, you will be awarded your certificate.

You assessor will discuss in more detail the requirements for assessment for each unit of competency at the appropriate time.

And please do not panic if you are not assessed as competent on any part of your qualification at your first attempt. Your assessor will discuss with you any identified skill and knowledge gaps, work through those with you and assist you as much as possible in attaining competency.

Self-Assessment Guide

Before undertaking any assessment, you should review the list of skills, knowledge and aptitudes relating to the assessment (drawn from the units of competency, its various elements and performance criteria) to determine whether you have current competency in these areas.

If you believe you can demonstrate the skills and knowledge required and can successfully complete the various assessment activities, you should then proceed to discuss your assessment with the assessor and complete Assessment Agreement.

However, should you not believe, for whatever reason, that you are not able to successfully complete the various assessment activities, then speak with the assessor. The assessor will assist you in identifying any skill and knowledge gaps, work through those with you and assist you as much as possible in attaining competency.

Please complete the self-assessment checklist below and discuss with the assessor.

| | | |
|---|--|-----------|
| Qualification: | Electronics | |
| Units of competency: | <p>Generic units:</p> <p>Use basic mathematical concepts</p> <p>Carry out workplace interaction</p> <p>Operate in a team environment</p> <p>Apply basic IT skills</p> <p>Sector-specific units:</p> <p>Apply Occupational health and safety (OSH) practice in the workplace</p> <p>Read and interpret sketches and drawings</p> <p>Use hand and power tools</p> <p>Apply quality system</p> <p>Occupation-specific units:</p> <p>Terminate and connect electrical wiring and electronics circuit</p> <p>Test electronic components</p> <p>Assemble electronic products</p> <p>Service consumer electronic products and systems</p> <p>Service industrial electronic modules, products and systems</p> | |
| Instructions: | | |
| <ul style="list-style-type: none"> ▪ Read each of the questions in the left-hand column of the chart ▪ Place a tick (√) in the appropriate box opposite each question to indicate your answer | | |
| Can I? | YES | NO |
| <ul style="list-style-type: none"> ▪ Identify and calculate requirements of workplace information | | |
| <ul style="list-style-type: none"> ▪ Construct mathematical problems from workplace information | | |

| | | |
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| ▪ Construct and solve mathematical problems with appropriate method | | |
| ▪ Select appropriate method to carry out the calculation requirement | | |
| ▪ Identify required tools and instrument for computation | | |
| ▪ Perform calculation using appropriate tools and instruments accurately | | |
| ▪ Interpret workplace code of conduct as per organisational guidelines | | |
| ▪ Maintain appropriate lines of communication with supervisors and colleagues | | |
| ▪ Conduct workplace interactions in a courteous manner to gather and convey information | | |
| ▪ Comprehend Workplace procedures and matters | | |
| ▪ Interpret workplace documents are correctly | | |
| ▪ Follow and understand visual information/symbols/signage correctly | | |
| ▪ Access specific and relevant information from appropriate sources | | |
| ▪ Use appropriate medium to transfer information and ideas | | |
| ▪ Attend team meeting on time | | |
| ▪ Follow Meeting procedures and etiquette | | |
| ▪ Ensure active participation, express and heard opinions | | |
| ▪ Interpret and provide inputs in line with the meeting purpose | | |
| ▪ Perform responsibilities as a team member | | |
| ▪ Perform tasks in accordance with workplace procedures | | |
| ▪ Maintain confidentiality | | |
| ▪ Avoid inappropriate and conflicting situation | | |
| ▪ Identify and interpret roles, responsibility and objectives of the team | | |
| ▪ Identify personal roles and responsibilities within the team environment | | |
| ▪ Report and interpret relationships within the team and external to team | | |
| ▪ Identify other teammate's task and support provide when requested | | |
| ▪ Encourage the team through sharing information or expertise, working together to solve problems, and putting team success first | | |
| ▪ Interpret and respect views and opinions of other team members | | |
| ▪ Identify and show problems faced at the individual and team level insight into the root-causes of the problems | | |

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| ▪ Identify together a range of solutions and courses of action with benefits, costs, and risks associated with each | | |
| ▪ Recognise and advice the good ideas of others to help develop solutions sought from those who have solved similar problems | | |
| ▪ Look it is beyond the obvious and not stops at the first answers | | |
| ▪ Identify and summarise history of information technology | | |
| ▪ Identify and describe commonly used IT tools | | |
| ▪ Identify basic parts of a computer | | |
| ▪ Perform turning on and off technique of a computer | | |
| ▪ Interpret working environment, functions and features of operating system | | |
| ▪ Apply simple trouble shooting techniques | | |
| ▪ Perform activity operate appropriate word processing application | | |
| ▪ Apply basic typing technique to document | | |
| ▪ Employ word processing techniques to document | | |
| ▪ Practice personal CV writing using suitable word processing techniques | | |
| ▪ Use saving and retrieving technique of a document | | |
| ▪ Identify and interpret spreadsheet working environment, functions and features | | |
| ▪ Perform data entry on spread sheet appropriate to perform activity | | |
| ▪ Apply data manipulation techniques to spread sheet document | | |
| ▪ Create and save spread sheet document | | |
| ▪ Explain use of email account in online | | |
| ▪ Complete writing and sending of workplace emails | | |
| ▪ Identify and select different browsers to work online | | |
| ▪ Browse different web portals and apply proper search techniques | | |
| ▪ Interpret OSH policies and safe operating procedures | | |
| ▪ Identify, interpret and follow safety signs and symbols | | |
| ▪ Interpret correctly to response, evacuation procedures and other contingency measures | | |
| ▪ Apply OSH policies and procedures in the workplace including personal protective equipment (PPE) | | |
| ▪ Recognise and identify common health and safety issues | | |
| ▪ Identify hazards and risks | | |
| ▪ Interpret hazards and risks assessment and control | | |

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| ▪ Respond to alarms and warning devices | | |
| ▪ Respond to emergency response plans and procedures | | |
| ▪ Identify first aid procedures during emergency situations | | |
| ▪ Identify and collect appropriate manuals for work activity | | |
| ▪ Interpret and apply information and specifications in the manuals | | |
| ▪ Identify relevant sketches and drawings for job requirement | | |
| ▪ Identify and interpret key terms and abbreviations | | |
| ▪ Correctly read and interpret | | |
| ▪ Identify appropriate hand and power tools | | |
| ▪ Recognize application of hand and power tools | | |
| ▪ Check and verify usability of hand and power tools | | |
| ▪ Select appropriate hand tools | | |
| ▪ Ensure safety precautions before using hand tools | | |
| ▪ Identify unsafe or faulty hand tools and mark for repair | | |
| ▪ Check and calibrate measuring tools before use | | |
| ▪ Use hand tools properly and safely to perform work activity | | |
| ▪ Select appropriate power tools | | |
| ▪ Inspect power supply outlet and electrical cord and confirm safe for use in accordance with established workplace safety requirements | | |
| ▪ Ensure safety precautions before using power tools in accordance with manufacturer's operating specification | | |
| ▪ Apply proper sequence of operation for using power tools | | |
| ▪ Identify and mark unsafe or faulty power tools and marked for repair | | |
| ▪ Operate power tools properly and safely to perform work activity | | |
| ▪ Remove dust and foreign matter from hand and power tools in accordance to workplace standards | | |
| ▪ Check and report condition of hand and power tools after use | | |
| ▪ Apply appropriate lubricant after use and prior to storage | | |
| ▪ Check and calibrate measuring tools after use | | |
| ▪ Inspect defective hand and power tools and repair or replace | | |
| ▪ Store and secure hand and power tools in accordance with workplace requirements | | |

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| <ul style="list-style-type: none"> ▪ Observe safe work practices and wear personal protective equipment (PPE) as required for the work performed | | |
| <ul style="list-style-type: none"> ▪ Follow instructions and procedures strictly and perform duties in accordance with demand of quality improvement system. | | |
| <ul style="list-style-type: none"> ▪ Ensure conformance to specifications | | |
| <ul style="list-style-type: none"> ▪ Detect defects and report to authority according to standard operating procedures | | |
| <ul style="list-style-type: none"> ▪ Ensure satisfaction of customer in performing an operation or quality of product or services | | |
| <ul style="list-style-type: none"> ▪ Identify performance measurement systems | | |
| <ul style="list-style-type: none"> ▪ Assess performance at regular intervals | | |
| <ul style="list-style-type: none"> ▪ Establish and identify specifications and standard operating procedures | | |
| <ul style="list-style-type: none"> ▪ Detect and report defects according to standard operating procedures | | |
| <ul style="list-style-type: none"> ▪ Participate on process improvement procedures | | |
| <ul style="list-style-type: none"> ▪ Participate on the improvement of internal/external customer/supplier relationships | | |
| <ul style="list-style-type: none"> ▪ Monitor performance of operation or quality of product or service to ensure customer satisfaction | | |
| <ul style="list-style-type: none"> ▪ Understand concept of supplying product or service to meet the customer's requirements and apply accordingly | | |
| <ul style="list-style-type: none"> ▪ Take responsibility for quality of own work | | |
| <ul style="list-style-type: none"> ▪ Follow quality system procedures for each job | | |
| <ul style="list-style-type: none"> ▪ Ensure conformance to specification in every case at all situations | | |
| <ul style="list-style-type: none"> ▪ Identify different components | | |
| <ul style="list-style-type: none"> ▪ Interpret different component's symbols | | |
| <ul style="list-style-type: none"> ▪ Identify different terminals | | |
| <ul style="list-style-type: none"> ▪ Mount and solder components in accordance with soldering principles | | |
| <ul style="list-style-type: none"> ▪ Check soldered components to ensure compliance with international standards and job requirement | | |
| <ul style="list-style-type: none"> ▪ Obtain and clarify work instructions based on client requirements | | |
| <ul style="list-style-type: none"> ▪ Consult responsible person for effective and proper work coordination | | |
| <ul style="list-style-type: none"> ▪ Obtain and interpret data sheets based on manufacturers specifications | | |

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| ▪ Define testing criteria to ensure components meet technical and quality requirements | | |
| ▪ Document and communicate testing criteria to relevant personnel | | |
| ▪ Identify testing method based on type of electronic component | | |
| ▪ Determine characteristics of testing method to be use | | |
| ▪ Select testing method pursuant to testing strategy | | |
| ▪ Develop and document plan for testing components | | |
| ▪ Prepare and check tools and testing devices as per standard operating procedure | | |
| ▪ Establish recording system to document testing results, including problems and faults | | |
| ▪ Carry out component testing to ensure products meet creative, production and technical requirements | | |
| ▪ Document problems, faults and remedial steps required in records system | | |
| ▪ Resolve problems and faults in accordance with standard operating procedure | | |
| ▪ Evaluate products against testing criteria | | |
| ▪ Report testing process to relevant personnel | | |
| ▪ Collect measuring devices and accessories | | |
| ▪ Check measuring devices and accessories | | |
| ▪ Check materials according to job specification | | |
| ▪ Select appropriate tools and testing devices as per job requirement | | |
| ▪ Plan job requirement as per standard operating procedure | | |
| ▪ Prepare electrical wiring and electronic circuits for connection/termination as per job requirement | | |
| ▪ Employ appropriate ranges of methods in connection/termination as per job and manufacturers specification | | |
| ▪ Follow correct sequence of operation according to job specification and standard operating procedure | | |
| ▪ Adjust accessories as per job specification, if necessary | | |
| ▪ Undertake confirmation of connection/termination to ensure quality completion of job as per job specification | | |
| ▪ Carry out testing of completed connections/terminations to ensure compliance | | |
| ▪ Check wiring and circuits using specified testing procedures | | |

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| <ul style="list-style-type: none"> ▪ Respond to unplanned events or conditions in accordance with standard operating procedure | | |
| <ul style="list-style-type: none"> ▪ Prepare assembly workplace in accordance with OHS policies and procedures | | |
| <ul style="list-style-type: none"> ▪ Follow established risk control measures for work preparation | | |
| <ul style="list-style-type: none"> ▪ Obtain and clarify work instructions based on job order or client requirements | | |
| <ul style="list-style-type: none"> ▪ Consult responsible person for effective and proper work coordination | | |
| <ul style="list-style-type: none"> ▪ Prepare required materials, tools and equipment and check in accordance with established procedures | | |
| <ul style="list-style-type: none"> ▪ Identify parts and components needed to complete the work prepared and obtained according to requirements | | |
| <ul style="list-style-type: none"> ▪ Verify PCB layout for conformity with the schematic diagram in accordance with the layout rules | | |
| <ul style="list-style-type: none"> ▪ Transfer PCB layout to copper-cladded board following acceptable methods and standards | | |
| <ul style="list-style-type: none"> ▪ Perform visual inspection based on standards procedures | | |
| <ul style="list-style-type: none"> ▪ Drill thru-hole based on standards procedures | | |
| <ul style="list-style-type: none"> ▪ Clean PCB based on standards procedures | | |
| <ul style="list-style-type: none"> ▪ Test functionality of PCB and perform visual inspection based on standards procedures | | |
| <ul style="list-style-type: none"> ▪ Apply knowledge of lead and lead-free soldering characteristics and requirements to mounting and soldering process in accordance with OHS standards | | |
| <ul style="list-style-type: none"> ▪ Mount and solder components in accordance with soldering principles | | |
| <ul style="list-style-type: none"> ▪ Apply soldering/de-soldering techniques and procedures in accordance with established standards and requirements | | |
| <ul style="list-style-type: none"> ▪ Check soldered products and comply with international standards and task specifications | | |
| <ul style="list-style-type: none"> ▪ Follow work instructions based on job order or client requirements | | |
| <ul style="list-style-type: none"> ▪ Perform assembly procedures in accordance with OHS policies and work instructions | | |
| <ul style="list-style-type: none"> ▪ Connect/integrate modules and accessories into the final product based on the client specifications | | |
| <ul style="list-style-type: none"> ▪ Dispose excess components and materials based on WEEE directives and 3Rs waste management program | | |

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| <ul style="list-style-type: none"> ▪ Subject finished products to final visual/sensory inspection and testing in accordance with quality standards, procedures and requirements | | |
| <ul style="list-style-type: none"> ▪ Perform mechanical and electrical/electronic testing in accordance with quality standards, procedures and requirements | | |
| <ul style="list-style-type: none"> ▪ Document work completion and inform responsible person in accordance with established procedures | | |
| <ul style="list-style-type: none"> ▪ Observe housekeeping procedures in accordance with 5S discipline and established procedures | | |
| <ul style="list-style-type: none"> ▪ Conduct complete check-up of consumer electronic products and systems and identify, verify and document defects against customer description | | |
| <ul style="list-style-type: none"> ▪ Acquire manuals and service information required for installation as per standard procedure | | |
| <ul style="list-style-type: none"> ▪ Verify repair/maintenance history in line with the company procedures | | |
| <ul style="list-style-type: none"> ▪ Set/prepare workplace for installation job in line with the client's requirements | | |
| <ul style="list-style-type: none"> ▪ Prepare necessary tools, test instruments and personal protective equipment in line with job requirements | | |
| <ul style="list-style-type: none"> ▪ Obtain materials necessary to complete the work in accordance with job requirements | | |
| <ul style="list-style-type: none"> ▪ Install consumer electronic products and systems in accordance with manufacturer's instructions, requirements, and without damage to the surrounding place or environment | | |
| <ul style="list-style-type: none"> ▪ Test devices in accordance with standard procedures | | |
| <ul style="list-style-type: none"> ▪ Undertake final inspections to ensure that the installed devices conforms to technical requirements | | |
| <ul style="list-style-type: none"> ▪ Respond to unplanned events or conditions in accordance with established procedures | | |
| <ul style="list-style-type: none"> ▪ Clean work site and clear of all debris and left safe in accordance with the company requirements | | |
| <ul style="list-style-type: none"> ▪ Prepare report on installation and testing of equipment according to company's procedures/policies | | |
| <ul style="list-style-type: none"> ▪ Observe systematic pre-testing procedure in accordance with manufacturer's instructions | | |
| <ul style="list-style-type: none"> ▪ Identify system defects/fault symptoms using appropriate tools and equipment and troubleshooting techniques and in accordance with safety procedures | | |
| <ul style="list-style-type: none"> ▪ Use test instruments required for the job are used in accordance with user manuals | | |

| | | |
|--|--|--------------|
| ▪ Check circuits and isolate using specified testing procedures | | |
| ▪ Explain identified defects and faults to the responsible person in accordance with enterprise or company policy and procedures | | |
| ▪ Check control settings/adjustments in conformity with service-manual specifications | | |
| ▪ Document results of diagnosis and testing accurately and completely within the specified time | | |
| ▪ Advise/inform customers regarding the status and serviceability of the unit according to procedures | | |
| ▪ Use personal protective equipment in accordance with Occupational Health and Safety practices | | |
| ▪ Follow electro-static discharge (ESD) protection procedure in accordance with current industry standards | | |
| ▪ Replace defective parts/components with identical or recommended appropriate equivalent ratings | | |
| ▪ Solder/mount repaired or replaced parts/components in accordance with the current industry standards | | |
| ▪ Perform control settings/adjustments in conformity with service-manual specifications | | |
| ▪ Perform repair activity within the required timeframe | | |
| ▪ Observe care and extreme precaution in handling the unit/product as per OHS procedures | | |
| ▪ Perform cleaning of unit in accordance with standard procedures | | |
| ▪ Dispose excess components and materials based on WEEE directives and 3Rs waste management program | | |
| ▪ Reassemble repaired units according to procedures | | |
| ▪ Subject reassembled units to final testing and cleaning in conformity with manufacturer's specifications | | |
| ▪ Comply service completion procedures and documentations with based on manual | | |
| ▪ Disposed of waste materials in accordance with environmental requirements | | |
| I agree to undertake assessment in the knowledge that the information gathered will only be used for educational and professional development purposes and can only be accessed by concerned assessment personnel and my manager/supervisor. | | |
| Candidate's signature: | | Date: |

PART C – THE ASSESSMENT

Assessment Agreement - Electronics

The purpose of assessment is to confirm that you can perform to the standards expected in the workplace of an occupation, as expressed in the competency standards (after completion of self-assessment and in agreement with assessor).

To help achieve this, an assessment agreement is required to navigate both you and the assessor through the assessment process.

The assessment agreement is designed to provide a clear understanding of what and how you will be assessed and to nominate the tools that may be used to collect the assessment evidence.

You, the assessor and/or workplace supervisor should agree on the assessment requirements, dates and deadlines.

Therefore, to attain the Certificate of Electronics, you must demonstrate competence in the following units, as established in the assessment agreement:

| CODE | UNIT OF COMPETENCY |
|---|--|
| Generic Competencies | |
| SEIP-LE-ELC-01-G | Use basic mathematical concepts |
| SEIP-LE-ELC-02-G | Carry out workplace interaction |
| SEIP-LE-ELC-03-G | Operate in a team environment |
| SEIP-LE-ELC-04-G | Apply basic IT skills |
| Sector-specific Competencies | |
| SEIP-LE-ELC-01-S | Apply occupational health and safety (OHS) practice in the workplace |
| SEIP-LE-ELC-02-S | Read and interpret sketches and drawings |
| SEIP-LE-ELC-03-S | Use hand and power tool |
| SEIP-LE-ELC-04-S | Apply quality system |
| Occupation-specific Competencies | |
| SEIP-LE-ELC-01-O | Terminate and connect electrical wiring and electronic circuits |
| SEIP-LE-ELC-02-O | Test electronic components |
| SEIP-LE-ELC-03-O | Assemble electronic products |
| SEIP-LE-ELC-04-O | Service consumer electronic products and systems |
| SEIP-LE-ELC-05-O | Service industrial electronic modules, products and systems |

After successful completion of learning and assessment, you shall be awarded with a certificate.

| Assessment Agreement | |
|---|--|
| Occupation: | Electronics |
| Assessment Centre: | |
| Candidate Name: | |
| Assessor Name: | |
| Unit of Competency | |
| Generic Competencies | |
| SEIP-LE-ELC-01-G | Use basic mathematical concepts |
| SEIP-LE-ELC-02-G | Carry out workplace interaction |
| SEIP-LE-ELC-03-G | Operate in a team environment |
| SEIP-LE-ELC-04-G | Apply basic IT skills |
| Sector-specific Competencies | |
| SEIP-LE-ELC-01-S | Apply occupational health and safety (OHS) practice in the workplace |
| SEIP-LE-ELC-02-S | Read and interpret sketches and drawings |
| SEIP-LE-ELC-03-S | Use hand and power tool |
| SEIP-LE-ELC-04-S | Apply quality system |
| Occupation-specific Competencies | |
| SEIP-LE-ELC-01-O | Terminate and connect electrical wiring and electronic circuits |
| SEIP-LE-ELC-02-O | Test electronic components |
| SEIP-LE-ELC-03-O | Assemble electronic products |
| SEIP-LE-ELC-04-O | Service consumer electronic products and systems |
| SEIP-LE-ELC-05-O | Service industrial electronic modules, products and systems |
| Resources Required for Assessment | |
| <p>Candidates must have access to the following:</p> <ul style="list-style-type: none"> ▪ copies of activities, questions, projects nominated by the assessor ▪ relevant organisational policies, protocols and procedural documents (if required) ▪ devices or tools to record answers ▪ appropriate actual or simulated workplace ▪ all necessary tools and equipment used in performance of the work-based task ▪ any other resources normally used in the workplace | |
| Assessment Instructions | |

Candidates should respond to the formative and summative assessments either verbally or in writing as agreed with the assessor. Written responses can be recorded in the spaces provided (if more space is required attach additional pages) or submitted in a word-processed document.

If candidates answer verbally, the assessor should record their answers in detail.

Candidates should also undertake observable tasks that provide evidence of performance. The assessor must provide instruction to candidates on what is expected during observation and arrange a suitable time and location for demonstration of these skills.

Candidates must fully understand what they are required to do to complete these assessment tasks successfully, then sign the declaration.

Performance Standards

To receive a **satisfactory** result for the assessments, candidates must complete all activities, questions, projects, and tasks nominated by the assessor, to the required standard.

Completion of all tasks for a unit of competency, to a satisfactory level, will contribute to an assessment of competence for that specific individual unit (or units if holistic assessment approach is taken).

Successful completion of all units of competency that comprise of the qualification Electronics will result in the candidate being issued with the relevant, nationally recognised certificate.

Assessors must clearly explain the required performance standards.

Declaration

I declare that:

- the assessment requirements have been clearly explained to me
- all the work completed towards assessment will be my own
- cheating and plagiarism are unacceptable

Candidate Name:

Date:

Assessor Name:

Date:

PART D – ASSESSMENT TOOLS

Specific Instructions to Assessor

Please read carefully and prepare as necessary:

1. The assessor shall (practical demonstration assessment activities):
 - provide the candidate with the necessary tools, equipment, machinery and materials for completion of one (1) set of the following practical demonstration activities:
 - Set A:
 - measure the value of resistor using colour code
 - assemble electronic components on bread board
 - maintain and repair motor controllers and drives
 - Set B:
 - test active and passive component with the help of CRO (cathode-ray oscilloscope) and digital multi-metre
 - perform soldering and de-soldering for the given electronic circuit purpose printed circuit board (PCB)
 - maintain and repair sensors
 - Set C:
 - maintain and repair microwave oven
 - assemble electronic product (stove)
 - interface proximity sensor
 - provide the candidate with the copy of the specific instruction to candidate
 - allow each practical demonstration to be performed within two (2) hours including preparation of the materials
 - ensure that the candidate **FULLY** understands the instructions before proceeding to the performance of the assessment activity
 - allow fifteen (15) minutes for the candidate to familiarise themselves with the resources to be used during the practical demonstrations
 - ensure that the candidate is wearing appropriate personal protective equipment (PPE) before allowing them to proceed with the assessment activity
2. Assessment shall be based on the performance criteria in each of the units of competency. The evidence gathering method shall be comprised of:
 - (a) Written Test (1 hour) – **knowledge evidence**
 - (b) Practical Demonstration (6 hours) – **performance evidence**

The practical demonstration activities will be divided into three (3) tasks (contained in one set):

 - (i) Practical Demonstration 1 (2 hours)
 - (ii) Practical Demonstration 2 (2 hours)
 - (iii) Practical Demonstration 3 (2 hours)
3. Final assessment is your responsibility as the accredit/certified assessor.

4. At the conclusion of each assessment activity, you will provide feedback to the candidate of the assessment result. The feedback will indicate whether the candidate is:

COMPETENT

NOT YET COMPETENT

5. The list of tools, equipment, machinery and materials to be provided for completion of the practical demonstration assessment activities can be found at:
- Set A – Practical Demonstration 1: pages 49-50
 - Set A – Practical Demonstration 2: pages 54-55
 - Set A – Practical Demonstration 3: pages 60-61
 - Set B – Practical Demonstration 1: pages 66-67
 - Set B – Practical Demonstration 2: page 72
 - Set B – Practical Demonstration 3: pages 76-78
 - Set C – Practical Demonstration 1: pages 83-84
 - Set C – Practical Demonstration 2: page 90
 - Set C – Practical Demonstration 3: pages 94-95

Special instruction for the assessor:

1. *Prepare a circuit diagram per candidate for Set A: Practical Demonstration 2 (to be installed in the bread board).*
2. *Prepare a device with motor controller and drives. Ensure that a defect is created for the device for Set A: Practical Demonstration 3.*

Specific Instructions to Candidate

You should respond to the assessment either in writing or verbally as agreed with the assessor. Written responses can be recorded in the spaces provided; if more space is required attach additional pages or submit a word-processed document.

If you answer verbally, the assessor should record your answers in detail. Please check your recorded answers carefully and thoroughly to ensure that they are accurate.

You may also be undertaking observable activities (i.e. practical demonstration) that provide evidence of performance. The assessor must provide you with clear instructions on what is expected during this type of assessment and arrange a suitable time and location for demonstration of these skills.

To receive a satisfactory result for the assessments, you must complete all of the assessment activities; including questions, projects and tasks nominated by the assessor, to the required standard.

This assessment is based upon the units of competency in Electronics. Using the performance criteria as a benchmark, evidence will be gathered through:

1. Written Test (1 hour) – a variety of multiple-choice, true or false and short answer theory questions to support your competence with regard to the required knowledge (**knowledge evidence**).
2. Practical Demonstration (6 hours) – observable tasks outlined in the elements and performance criteria of the units of competency, completed to support a judgement of satisfactory performance to the required standard (**performance evidence**).

There will be one (1) set of practical demonstration activities to complete. The assessor will direct you as to which 'set' you will be required to complete out of the following:

- Set A:
 - measure the value of resistor using colour code (2 hours)
 - assemble electronic components on bread board (2 hours)
 - maintain and repair motor controllers and drives (2 hours)
 - Set B:
 - test active and passive component with the help of CRO (cathode-ray oscilloscope) and digital multi-metre (2 hours)
 - perform soldering and de-soldering for the given electronic circuit purpose printed circuit board (PCB) (2 hours)
 - maintain and repair sensors (2 hours)
 - Set C:
 - maintain and repair microwave oven (2 hours)
 - assemble electronic product (stove) (2 hours)
 - interface proximity sensor (2 hours)
3. The assessor will provide all necessary tools, equipment, machinery and materials required to complete each assessment activity.
 4. These assessments cover all units of competency for Electronics.
 5. The assessor will provide you with feedback of your performance after completion of each assessment activity. This feedback shall indicate whether you are:

COMPETENT

NOT YET COMPETENT

6. Complete of all assessment activities, to a satisfactory level, will contribute to a final assessment of competence.

Written Test

| WRITTEN TEST - INSTRUCTIONS | |
|---|--|
| Candidate Name: | |
| Assessor Name: | |
| Qualification: | Certificate in Electronics |
| Unit of Competency | |
| Generic Competencies | |
| SEIP-LE-ELC-01-G | Use basic mathematical concepts |
| SEIP-LE-ELC-02-G | Carry out workplace interaction |
| SEIP-LE-ELC-03-G | Operate in a team environment |
| SEIP-LE-ELC-04-G | Apply basic IT skills |
| Sector-specific Competencies | |
| SEIP-LE-ELC-01-S | Apply occupational health and safety (OHS) practice in the workplace |
| SEIP-LE-ELC-02-S | Read and interpret sketches and drawings |
| SEIP-LE-ELC-03-S | Use hand and power tool |
| SEIP-LE-ELC-04-S | Apply quality system |
| Occupation-specific Competencies | |
| SEIP-LE-ELC-01-O | Terminate and connect electrical wiring and electronic circuits |
| SEIP-LE-ELC-02-O | Test electronic components |
| SEIP-LE-ELC-03-O | Assemble electronic products |
| SEIP-LE-ELC-04-O | Service consumer electronic products and systems |
| SEIP-LE-ELC-05-O | Service industrial electronic modules, products and systems |
| Assessment Centre: | |
| Date of Assessment: | |
| Time of Assessment: | |
| Instructions: | |
| <p>Read and understand the directions carefully:</p> <ul style="list-style-type: none"> ▪ this written examination is based on the performance criteria from all the units of competency in Electronics ▪ this assessment activity will be used to measure your underpinning knowledge ▪ write your answers on the paper provided ▪ answer all the questions as best as possible ▪ you have 1 (one) hour to complete this test | |

WRITTEN TEST**Multiple Choice**

This is a **multiple-choice** of test. Choose the appropriate answer and circle the letter that corresponds with your answer.

| | | |
|-----|--|---|
| 1. | Which of the following is a unit of electrical resistance? | a. Volt b. Amp c. Ohm d. Coulomb |
| 2. | In a simple DC circuit with a constant voltage, where the resistance increases; current will? | a. Decrease b. Stop c. Increase d. Remain constant |
| 3. | Zener diodes are most commonly used in? | a. Voltage amplifier circuits b. Oscillator circuits c. Power supply circuits d. Current limiting circuits |
| 4. | Activating input of some electronic devices and circuits are termed as? | a. Clock b. Trigger c. Trimmer d. State |
| 5. | Find the resistors value of following colour – red, violet, brown, golden: | a. 27r + 5% b. 270r + 5% c. 2.7kr + 5% d. 2.7Mr + 5% |
| 6. | Copper is preferred for electrical conductors because it has following feature? | a. High conductivity b. Resistance to corrosion c. Low resistance d. All of these |
| 7. | The ampere rating of insulated wire depends on which of the following properties? | a. Its gauge b. Metal composition c. Thermal properties of its insulation d. All of these |
| 8. | Which of the following conductors will have reddish brown colour? | a. Copper-clad aluminium wire b. Aluminium c. Copper d. All of these |
| 9. | An ohm meter is used to measure which of the following quantities? | a. Circuit resistance b. Reactive power c. Power factor d. Insulation resistance |
| 10. | Which of the following meters is used to measure the relationship between the generator frequencies? | a. Synchro scope b. Watt meter c. Rotameter d. Tachometer |

True of False Quiz

| | | |
|--|---|--|
| Tick (✓) the box corresponding to the correct answer. | | |
| 11. | A watt meter is used to measure AC power only. | True <input type="checkbox"/> False <input type="checkbox"/> |
| 12. | Ampere-hour meter is used to measure electric charge in a battery. | True <input type="checkbox"/> False <input type="checkbox"/> |
| 13. | Megger is used to measure insulation resistance. | True <input type="checkbox"/> False <input type="checkbox"/> |
| Fill in the Missing Blanks | | |
| Write the word or group of words needed to complete the following sentences. | | |
| 14. | _____ cannot be measured by using multi-meter. | |
| 15. | Galvanometer is used to measure _____. | |
| Short Answer | | |
| Write a short answer in the space provided (not to exceed more than approximately twenty-five (25) words). | | |
| 16. | List different types of electronic components. What are the characteristics of passive components? | |
| 17. | Define resistor, capacitor, inductor and diode. | |
| 18. | How are connections made between the various wire ends of components inserted into <i>printed circuit boards</i> (PCB)? | |
| 19. | How do you test an LCD TV power supply? | |

| | | | |
|--|-------------------------------------|--------------|--|
| 20. | How do you repair a microwave oven? | | |
| Feedback to candidate: | | | |
| Assessment decision for this assessment activity: <input type="checkbox"/> Competent <input type="checkbox"/> Not Yet Competent | | | |
| Candidate's Signature: | | Date: | |
| Assessor's Signature: | | Date: | |

Written Test - Answers

Answers are highlighted in **bold** and *italics*.

| Multiple Choice | | |
|--------------------|--|---|
| 1. | Which of the following is a unit of electrical resistance? | a. Volt b. Amp c. <i>Ohm</i> d. Coulomb |
| 2. | In a simple DC circuit with a constant voltage, where the resistance increases; current will? | a. <i>Decrease</i> b. Stop c. Increase d. Remain constant |
| 3. | Zener diodes are most commonly used in? | a. Voltage amplifier circuits b. Oscillator circuits c. <i>Power supply circuits</i> d. Current limiting circuits |
| 4. | Activating input of some electronic devices and circuits are termed as? | a. Clock b. <i>Trigger</i> c. Trimmer d. State |
| 5. | Find the resistors value of following colour – red, violet, brown, golden: | a. 27r + 5% b. 270r + 5% c. 2.7kr + 5% d. 2.7Mr + 5% |
| 6. | Copper is preferred for electrical conductors because it has following feature? | a. High conductivity b. Resistance to corrosion c. Low resistance d. <i>All of these</i> |
| 7. | The ampere rating of insulated wire depends on which of the following properties? | a. Its gauge b. Metal composition c. Thermal properties of its insulation. d. <i>All of these</i> |
| 8. | Which of the following conductors will have reddish brown colour? | a. copper-clad aluminium wire b. Aluminium c. <i>Copper</i> d. All of these |
| 9. | An ohm meter is used to measure which of the following quantities? | a. <i>Circuit resistance</i> b. Reactive power c. Power factor d. Insulation resistance |
| 10. | Which of the following meters is used to measure the relationship between the generator frequencies? | a. <i>Synchro scope</i> b. Wattmeter c. Rotameter d. Tachometer |
| True of False Quiz | | |

| | | |
|-----------------------------------|---|--|
| 11. | A watt meter is used to measure AC power only. | True <input type="checkbox"/> False <input checked="" type="checkbox"/> |
| 12. | Ampere-hour meter is used to measure electric charge in a battery. | True <input checked="" type="checkbox"/> False <input type="checkbox"/> |
| 13. | Megger is used to measure insulation resistance. | True <input checked="" type="checkbox"/> False <input type="checkbox"/> |
| Fill in the Missing Blanks | | |
| 14. | <u>Power factor</u> cannot be measured by using multi-meter. | |
| 15. | Galvanometer is used to measure <u>current</u> . | |
| Short Answer | | |
| 16. | List different types of electronic components. What are the characteristics of passive components? | <p><i>Electronic components are mainly classified into two types: Passive and active components:</i></p> <ol style="list-style-type: none"> <i>1. Passive components cannot increase the power of an electrical signal.</i> <i>2. Passive components temporarily store the electrical energy in the form of <u>electric field</u> or magnetic field.</i> <i>3. Passive components do not depend on the external source of voltage to perform a specific task.</i> |
| 17. | Define resistor, capacitor, inductor and diode. | <p><i>Resistor is a passive component that restricts the flow of electric current.</i></p> <p><i>Capacitor is an electronic component that stores electrical energy in the form of static electric field.</i></p> <p><i>Inductor is an electronic component that stores electrical energy in the form of magnetic field.</i></p> <p><i>A diode is a two terminal device that allows electric current in one direction and blocks electric current in another direction.</i></p> |
| 18. | How are connections made between the various wire ends of components inserted into <i>printed circuit boards</i> (PCB)? | <i>Component wire ends are typically soldered onto strips of copper metal (called "traces") affixed on the surface of the printed circuit board material, which itself is electrically insulating.</i> |
| 19. | How do you test an LCD TV power supply? | <ul style="list-style-type: none"> ➤ <i>Check to make sure that your LCD TV is not plugged into any overloaded household circuit.</i> ➤ <i>Connect the power cord of the LCD TV snugly into the power source or socket.</i> ➤ <i>Inspect the power cord for any cuts or nicks.</i> |

| | | |
|-----|-------------------------------------|---|
| | | <ul style="list-style-type: none"> ➤ <i>Test the incoming flow of AC power by connecting your LCD TV to an independent power source.</i> ➤ <i>Plug a lamp into the socket and see if your LCD screen flickers while testing your power supply.</i> |
| 20. | How do you repair a microwave oven? | <p><i>The following steps should be followed to repair a microwave oven:</i></p> <p><i>Step 1: Unplug power and remove moving parts</i></p> <p><i>Step 2: Open the back cover</i></p> <p><i>Step 3: Check the fuse first</i></p> <p><i>Step 4: Inspect door switches</i></p> <p><i>Step 5: See inside of the switch</i></p> <p><i>Step 6: Buy a replacement part</i></p> <p><i>Step 7: Install the new switch</i></p> <p><i>Step 8: About discharge capacitor</i></p> |

Set A: Practical Demonstration 1

| PRACTICAL DEMONSTRATION 1 | |
|--|---|
| Candidate Name: | |
| Assessor Name: | |
| Qualification: | Certificate in Electronics |
| Task: | Measure the value of resistor using colour code |
| Assessment Centre: | |
| Date of Assessment: | |
| Time of Assessment: | |
| Instructions: | |
| <p>Read and understand the directions carefully:</p> <ul style="list-style-type: none"> ▪ this practical demonstration is based on the performance criteria from all or some of the units of competency in Electronics ▪ this assessment activity will be used to measure your underpinning skills ▪ you will have fifteen (15) minutes to familiarise yourself with the resources to be used ▪ you have two (2) hours to complete this demonstration | |
| Procedure: | |
| <ul style="list-style-type: none"> ▪ observe and wear personal protective equipment (PPE) as required for the task to be performed ▪ read the specification information provided ▪ collect all materials needed to complete the task ▪ perform the task within the given time ▪ observe and follow all health and safety (OHS) requirements at all times | |
| Job Specification Information: | |
| <ol style="list-style-type: none"> 1. Collect tools and materials required for the task (refer to the list provided to you by the assessor). 2. Given resistor of different colours, compare with the colour band table. 3. Using the colour band table and value of resistor's, calculate and denote R_1. 4. Find the tolerance value of higher range and lower range. 5. Take multi-meter and use connecting wires, get the value of resistor id and denote as R_2. 6. Calculate for the Error as, $err=(R_1-R_2)$. 7. Calculate for the error percentage as, $\%err = ((R_1-R_2)/R_T) * 100$, where, $R_T = R_1+R_2$. 8. Show your calculations to your assessor. 9. Clean tools, equipment, machinery and work area. 10. Dispose of waste materials and excess materials. | |
| Drawing, Plan, Diagram or Sketch: | |
| N/A | |
| Resources Required: | |
| Tools: | Resistor and digital multi-meter Colour band table |

| | |
|------------|---|
| | Calculator |
| Equipment: | N/A |
| Machinery: | N/A |
| Materials: | Writing materials Hand and power tools |
| PPE: | Apron Mask Gloves Safety shoes |

Set A: Practical Demonstration 1 – Observation Checklist

| PRACTICAL DEMONSTRATION 1 – OBSERVATION CHECKLIST | | |
|--|---|--------------------------|
| Candidate Name: | | |
| Assessor Name: | | |
| Qualification: | Certificate in Electronics | |
| Task: | Measure the value of resistor using colour code | |
| Assessment Centre: | | |
| Date of Assessment: | | |
| Instructions: | <p>The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate.</p> <p>Performance can be observed in an actual workplace or in a simulated working environment.</p> <p>If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject.</p> <p>The assessment activity (practical demonstration) should:</p> <ul style="list-style-type: none"> ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate | |
| OBSERVATION RECORD | | |
| Performance Criteria | Place a ✓ to show if evidence has been demonstrated competently | |
| | Yes | No |
| Comprehended workplace procedures and matters | <input type="checkbox"/> | <input type="checkbox"/> |
| Understood correctly and followed visual information/symbols/signage | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed responsibilities as a team member | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed tasks in accordance with workplace procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Maintained confidentiality | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified personal role and responsibilities within the team environment | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified safety signs and symbols | <input type="checkbox"/> | <input type="checkbox"/> |
| Applied OHS policies and procedures in the workplace including personal protective equipment | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified common safety issues | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified hazards and risks | <input type="checkbox"/> | <input type="checkbox"/> |

| | | |
|--|--------------------------|--------------------------|
| Responded to alarms and warning devices | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified and collected appropriate manuals for work activity | <input type="checkbox"/> | <input type="checkbox"/> |
| Interpreted and applied information and specifications in the manuals | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified relevant sketches and drawings for the job | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified appropriate hand and power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and verified usability of hand and power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Selected appropriate hand tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured safety precaution before using hand tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified unsafe or faulty hand tools and marked for repair | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and calibrated measuring tools before use | <input type="checkbox"/> | <input type="checkbox"/> |
| Selected appropriate power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Inspected power supply outlet and electrical cord and confirmed safe for use with manufacturer's operating specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified unsafe or faulty power tools and marked for repair | <input type="checkbox"/> | <input type="checkbox"/> |
| Operated power tools properly and safely to perform work activity | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed instructions and procedures strictly and performed duties in accordance with demand of quality improvement system | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured conformance of specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Detected defects and reported to authority according to standard operating procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured satisfaction of customer in performing an operation or quality of product services | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified performance measurement system | <input type="checkbox"/> | <input type="checkbox"/> |
| Assessed performance at regular intervals | <input type="checkbox"/> | <input type="checkbox"/> |
| Established and identified specifications and standard operating procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Participated process improvement procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Monitored performance of operation or quality of product or service to ensure customer satisfaction | <input type="checkbox"/> | <input type="checkbox"/> |
| Taken responsibility for quality of own work | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed quality system procedures for each job | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified different components | <input type="checkbox"/> | <input type="checkbox"/> |
| Interpreted different component's symbols | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified different terminals | <input type="checkbox"/> | <input type="checkbox"/> |
| Mounted and soldered components in accordance with soldering principles | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked soldered components to ensure compliance with soldering principles | <input type="checkbox"/> | <input type="checkbox"/> |

| | | |
|--|--------------------------|--------------------------|
| Checked soldered components to ensure compliance with international standards and job requirement | <input type="checkbox"/> | <input type="checkbox"/> |
| Obtained and clarified work instructions based on client requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Consulted responsible person for effective and proper work coordination | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified testing method based on type of electronic component | <input type="checkbox"/> | <input type="checkbox"/> |
| Selected testing method pursuant to testing strategy | <input type="checkbox"/> | <input type="checkbox"/> |
| Prepared and checked tools and testing devices as per standard operating procedure | <input type="checkbox"/> | <input type="checkbox"/> |
| Carried out component testing to ensure products meet creative, production and technical requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Resolved problems and faults in accordance with standard operating procedure | <input type="checkbox"/> | <input type="checkbox"/> |
| Evaluated products against testing criteria | <input type="checkbox"/> | <input type="checkbox"/> |
| Collected measuring devices and accessories | <input type="checkbox"/> | <input type="checkbox"/> |
| Employed appropriate ranges of methods in connection/termination as per job and manufacturer's specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed correct sequence of operation according to job specification and standard operating procedure | <input type="checkbox"/> | <input type="checkbox"/> |
| Adjusted accessories as per job specification, if necessary | <input type="checkbox"/> | <input type="checkbox"/> |
| Undertaken confirmation of connection/termination to ensure quality completion of job as per job specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Carried out testing of completed connections/terminations to ensure compliance | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked wiring and circuits using specified testing procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Responded unplanned events or conditions in accordance with standard operating procedure | <input type="checkbox"/> | <input type="checkbox"/> |
| Feedback to candidate: | | |
| Assessment decision for this assessment activity: | | |
| <input type="checkbox"/> Competent <input type="checkbox"/> Not Yet Competent | | |
| Candidate's Signature: | | Date: |
| Assessor's Signature: | | Date: |

Set A: Practical Demonstration 2

| PRACTICAL DEMONSTRATION 2 | |
|---|--|
| Candidate Name: | |
| Assessor Name: | |
| Qualification: | Certificate in Electronics |
| Task: | Assemble electronic components on bread board |
| Assessment Centre: | |
| Date of Assessment: | |
| Time of Assessment: | |
| Instructions: | |
| <p>Read and understand the directions carefully:</p> <ul style="list-style-type: none"> ▪ this practical demonstration is based on the performance criteria from all or some of the units of competency in Electronics ▪ this assessment activity will be used to measure your underpinning skills ▪ you will have fifteen (15) minutes to familiarise yourself with the resources to be used ▪ you have two (2) hours to complete this demonstration | |
| Procedure: | |
| <ul style="list-style-type: none"> ▪ observe and wear personal protective equipment (PPE) as required for the task to be performed ▪ read the specification information provided ▪ collect all materials needed to complete the task ▪ perform the task within the given time ▪ observe and follow all health and safety (OHS) requirements at all times | |
| Job Specification Information: | |
| <ol style="list-style-type: none"> 1. Collect required tools and materials required for the task. 2. Study the given electronic circuit. 3. Study the Bread Board internal connections. 4. As per circuit diagram (which will be given to you by your assessor), assemble the components on the bread board. 5. Check all the connections. 6. Clean tools, equipment, machinery and work area. 7. Dispose of waste materials and excess materials. | |
| Drawing, Plan, Diagram or Sketch: | |
| N/A | |
| Resources Required: | |
| Tools: | Bread board x 1 Resistors x 3 Capacitors x 3 Diode (AL 100) x 1 Tools for assembling and disassembling |

| | |
|------------|---|
| Equipment: | N/A |
| Machinery: | N/A |
| Materials: | Wires (as needed) |
| PPE: | Apron Mask Gloves Safety shoes |

Set A: Practical Demonstration 2 – Observation Checklist

| PRACTICAL DEMONSTRATION 2 – OBSERVATION CHECKLIST | | |
|--|---|--------------------------|
| Candidate Name: | | |
| Assessor Name: | | |
| Qualification: | Certificate in Electronics | |
| Task: | Assemble electronic components on bread board | |
| Assessment Centre: | | |
| Date of Assessment: | | |
| Instructions: | <p>The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate.</p> <p>Performance can be observed in an actual workplace or in a simulated working environment.</p> <p>If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject.</p> <p>The assessment activity (practical demonstration) should:</p> <ul style="list-style-type: none"> ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate | |
| OBSERVATION RECORD | | |
| Performance Criteria | Place a ✓ to show if evidence has been demonstrated competently | |
| | Yes | No |
| Comprehended workplace procedures and matters | <input type="checkbox"/> | <input type="checkbox"/> |
| Understood correctly and followed visual information/symbols/signage | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed responsibilities as a team member | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed tasks in accordance with workplace procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Maintained confidentiality | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified personal role and responsibilities within the team environment | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified safety signs and symbols | <input type="checkbox"/> | <input type="checkbox"/> |
| Applied OHS policies and procedures in the workplace including personal protective equipment | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified common safety issues | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified hazards and risks | <input type="checkbox"/> | <input type="checkbox"/> |

| | | |
|--|--------------------------|--------------------------|
| Responded to alarms and warning devices | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified and collected appropriate manuals for work activity | <input type="checkbox"/> | <input type="checkbox"/> |
| Interpreted and applied information and specifications in the manuals | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified relevant sketches and drawings for the job | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified appropriate hand and power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and verified usability of hand and power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Selected appropriate hand tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured safety precaution before using hand tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified unsafe or faulty hand tools and marked for repair | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and calibrated measuring tools before use | <input type="checkbox"/> | <input type="checkbox"/> |
| Selected appropriate power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Inspected power supply outlet and electrical cord and confirmed safe for use with manufacturer's operating specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified unsafe or faulty power tools and marked for repair | <input type="checkbox"/> | <input type="checkbox"/> |
| Operated power tools properly and safely to perform work activity | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed instructions and procedures strictly and performed duties in accordance with demand of quality improvement system | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured conformance o specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Detected defects and reported to authority according to standard operating procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured satisfaction of customer in performing an operation or quality of product services | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified performance measurement system | <input type="checkbox"/> | <input type="checkbox"/> |
| Assessed performance at regular intervals | <input type="checkbox"/> | <input type="checkbox"/> |
| Established and identified specifications and standard operating procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Participated process improvement procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Monitored performance of operation or quality of product or service to ensure customer satisfaction | <input type="checkbox"/> | <input type="checkbox"/> |
| Taken responsibility for quality of own work | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed quality system procedures for each job | <input type="checkbox"/> | <input type="checkbox"/> |
| Collected measuring devices and accessories | <input type="checkbox"/> | <input type="checkbox"/> |
| Employed appropriate ranges of methods in connection/termination as per job and manufacturer's specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed correct sequence of operation according to job specification and standard operating procedure | <input type="checkbox"/> | <input type="checkbox"/> |
| Adjusted accessories as per job specification, if necessary | <input type="checkbox"/> | <input type="checkbox"/> |

| | | |
|--|--------------------------|--------------------------|
| Undertaken confirmation of connection/termination to ensure quality completion of job as per job specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Carried out testing of completed connections/terminations to ensure compliance | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked wiring and circuits using specified testing procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Responded unplanned events or conditions in accordance with standard operating procedure | <input type="checkbox"/> | <input type="checkbox"/> |
| Prepared assembly workplace in accordance with OHS policies and procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified and checked required materials, tools and equipment in accordance with established procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified, prepared and obtained parts and components needed to complete the work | <input type="checkbox"/> | <input type="checkbox"/> |
| Verified for conformity PCB layout with the schematic diagram in accordance with the layout rules | <input type="checkbox"/> | <input type="checkbox"/> |
| Transferred PCB layout to copper-cladded board following acceptable methods and standards procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Drilled thru-hole based on standards procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Cleaned PCB based on standards procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Tested functionality of PCB and performed visual inspection based on standards procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Mounted and soldered components in accordance with soldering components | <input type="checkbox"/> | <input type="checkbox"/> |
| Applied soldering/de-soldering techniques and procedures in accordance with established standards and requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and complied soldered products with international standards and task specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Connected/integrated modules and accessories into the final product based on the client specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Disposed excess components and materials based on WEEE directives and 3Rs waste management program | <input type="checkbox"/> | <input type="checkbox"/> |
| Subjected finished products to final/sensory inspection and testing in accordance with quality standards, procedures and requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed mechanical and electrical/electronic testing in accordance with quality standards, procedures and requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Conducted complete check-up of consumer electronic products and systems and identified, verified and documented defects against customer description | <input type="checkbox"/> | <input type="checkbox"/> |
| Installed consumer electronic products and systems in accordance with manufacturer's instructions, requirements and without damage to the surrounding place or environment | <input type="checkbox"/> | <input type="checkbox"/> |
| Responded to unplanned events or conditions in accordance with established procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Cleaned and cleared of all debris and left safe in accordance with the company requirements | <input type="checkbox"/> | <input type="checkbox"/> |

| | | |
|--|--------------------------|---|
| Observed systematic pre-testing procedure in accordance with manufacturer's instructions | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified system defect/faults symptoms using appropriate tools and equipment and troubleshooting techniques and in accordance with safety procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Used test instruments required for the job in accordance with user manuals | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked circuits and isolated using specified testing procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Explained identified defects and faults to the responsible person in accordance with enterprise or company policy and procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked control settings/adjustments in conformity with service-manual specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Documented results of diagnosis and testing accurately and completely within the specified time | <input type="checkbox"/> | <input type="checkbox"/> |
| Advised/ informed customers regarding the status and serviceability of the unit according to procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed electro-static discharge (ESD) protection procedure in accordance with current industry standards | <input type="checkbox"/> | <input type="checkbox"/> |
| Replaced defective parts/components with identical or recommended appropriate equivalent ratings | <input type="checkbox"/> | <input type="checkbox"/> |
| Soldered/mounted repaired or replaced parts/components in accordance with the current industry standards. | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed control settings/adjustments in conformity with service-manual specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed repair activity within the required time frame | <input type="checkbox"/> | <input type="checkbox"/> |
| Observed care and extreme precaution in handling the unit/product as per procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed cleaning of unit in accordance with standard procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Reassembled repaired units according to procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Disposed of waste materials in accordance with environmental requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Feedback to candidate: | | |
| Assessment decision for this assessment activity: | | |
| <input type="checkbox"/> Competent | | <input type="checkbox"/> Not Yet Competent |
| Candidate's Signature: | | Date: |
| Assessor's Signature: | | Date: |

Set A: Practical Demonstration 3

| PRACTICAL DEMONSTRATION 3 | |
|---|--|
| Candidate Name: | |
| Assessor Name: | |
| Qualification: | Certificate in Electronics |
| Task: | Maintain and repair motor controllers and drives |
| Assessment Centre: | |
| Date of Assessment: | |
| Time of Assessment: | |
| Instructions: | |
| <p>Read and understand the directions carefully:</p> <ul style="list-style-type: none"> ▪ this practical demonstration is based on the performance criteria from all or some of the units of competency in Electronics ▪ this assessment activity will be used to measure your underpinning skills ▪ you will have fifteen (15) minutes to familiarise yourself with the resources to be used ▪ you have two (2) hours to complete this demonstration | |
| Procedure: | |
| <ul style="list-style-type: none"> ▪ observe and wear personal protective equipment (PPE) as required for the task to be performed ▪ read the specification information provided ▪ collect all materials needed to complete the task ▪ perform the task within the given time ▪ observe and follow all health and safety (OHS) requirements at all times | |
| Job Specification Information: | |
| <ol style="list-style-type: none"> 1. Given the tools, equipment and materials, check for the defect/s of the unit. 2. Disassemble the unit for any defect detected. 3. Repair the unit according to the requirement. 4. Test run the unit for functionality. 5. Clean tools, equipment, machinery and work area. 6. Dispose of waste materials and excess materials. | |
| Drawing, Plan, Diagram or Sketch: | |
| N/A | |
| Resources Required: | |
| Tools: | Screwdrivers Wrenches Allen keys Soldering iron De-soldering tools Multi-testers (analog/digital) Utility knife/stripper Pliers |

| | |
|------------|---|
| | Ball been hammer Test jig Cleaning brush High-grade magnifying glass (with lamp) |
| Equipment: | Variable power supply Step-down transformer Hot air soldering station Table top reflow oven Function/signal generator ESD-free work bench with mirror Oscilloscope (digital) Multi-testers Flashlight/headlamp High voltage probe Assorted wires Assorted electronic sensors |
| Machinery: | N/A |
| Materials: | N/A |
| PPE: | Apron Mask Gloves Safety shoes |

Set A: Practical Demonstration 3– Observation Checklist

| PRACTICAL DEMONSTRATION 3 – OBSERVATION CHECKLIST | | |
|--|---|--------------------------|
| Candidate Name: | | |
| Assessor Name: | | |
| Qualification: | Certificate in Electronics | |
| Task: | Maintain and repair motor controllers and drives | |
| Assessment Centre: | | |
| Date of Assessment: | | |
| Instructions: | <p>The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate.</p> <p>Performance can be observed in an actual workplace or in a simulated working environment.</p> <p>If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject.</p> <p>The assessment activity (practical demonstration) should:</p> <ul style="list-style-type: none"> ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate | |
| OBSERVATION RECORD | | |
| Performance Criteria | Place a ✓ to show if evidence has been demonstrated competently | |
| | Yes | No |
| Comprehended workplace procedures and matters | <input type="checkbox"/> | <input type="checkbox"/> |
| Understood correctly and followed visual information/symbols/signage | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed responsibilities as a team member | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed tasks in accordance with workplace procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Maintained confidentiality | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified personal role and responsibilities within the team environment | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified safety signs and symbols | <input type="checkbox"/> | <input type="checkbox"/> |
| Applied OHS policies and procedures in the workplace including personal protective equipment | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified common safety issues | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified hazards and risks | <input type="checkbox"/> | <input type="checkbox"/> |

| | | |
|--|--------------------------|--------------------------|
| Responded to alarms and warning devices | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified and collected appropriate manuals for work activity | <input type="checkbox"/> | <input type="checkbox"/> |
| Interpreted and applied information and specifications in the manuals | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified relevant sketches and drawings for the job | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified appropriate hand and power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and verified usability of hand and power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Selected appropriate hand tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured safety precaution before using hand tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified unsafe or faulty hand tools and marked for repair | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and calibrated measuring tools before use | <input type="checkbox"/> | <input type="checkbox"/> |
| Selected appropriate power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Inspected power supply outlet and electrical cord and confirmed safe for use with manufacturer's operating specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified unsafe or faulty power tools and marked for repair | <input type="checkbox"/> | <input type="checkbox"/> |
| Operated power tools properly and safely to perform work activity | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed instructions and procedures strictly and performed duties in accordance with demand of quality improvement system | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured conformance of specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Detected defects and reported to authority according to standard operating procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured satisfaction of customer in performing an operation or quality of product services | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified performance measurement system | <input type="checkbox"/> | <input type="checkbox"/> |
| Assessed performance at regular intervals | <input type="checkbox"/> | <input type="checkbox"/> |
| Established and identified specifications and standard operating procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Participated process improvement procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Monitored performance of operation or quality of product or service to ensure customer satisfaction | <input type="checkbox"/> | <input type="checkbox"/> |
| Taken responsibility for quality of own work | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed quality system procedures for each job | <input type="checkbox"/> | <input type="checkbox"/> |
| Collected measuring devices and accessories | <input type="checkbox"/> | <input type="checkbox"/> |
| Employed appropriate ranges of methods in connection/termination as per job and manufacturer's specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed correct sequence of operation according to job specification and standard operating procedure | <input type="checkbox"/> | <input type="checkbox"/> |
| Adjusted accessories as per job specification, if necessary | <input type="checkbox"/> | <input type="checkbox"/> |

| | | |
|---|--------------------------|--------------------------|
| Undertaken confirmation of connection/termination to ensure quality completion of job as per job specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Carried out testing of completed connections/terminations to ensure compliance | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked wiring and circuits using specified testing procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Responded unplanned events or conditions in accordance with standard operating procedure | <input type="checkbox"/> | <input type="checkbox"/> |
| Prepared assembly workplace in accordance with OHS policies and procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified and checked required materials, tools and equipment in accordance with established procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified, prepared and obtained parts and components needed to complete the work | <input type="checkbox"/> | <input type="checkbox"/> |
| Verified for conformity PCB layout with the schematic diagram in accordance with the layout rules | <input type="checkbox"/> | <input type="checkbox"/> |
| Transferred PCB layout to copper-cladded board following acceptable methods and standards procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Drilled thru-hole based on standards procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Cleaned PCB based on standards procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Tested functionality of PCB and performed visual inspection based on standards procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Mounted and soldered components in accordance with soldering components | <input type="checkbox"/> | <input type="checkbox"/> |
| Applied soldering/de-soldering techniques and procedures in accordance with established standards and requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and complied soldered products with international standards and task specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Connected/integrated modules and accessories into the final product based on the client specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Disposed excess components and materials based on WEEE directives and 3Rs waste management program | <input type="checkbox"/> | <input type="checkbox"/> |
| Subjected finished products to final/sensory inspection and testing in accordance with quality standards, procedures and requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed mechanical and electrical/electronic testing in accordance with quality standards, procedures and requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Conducted check of products and systems and identified defects, verified and documented against customer description | <input type="checkbox"/> | <input type="checkbox"/> |
| Installed industrial electronic modules/products/systems in accordance with manufacturer's instructions, requirements, and without damage to the surrounding place or environment | <input type="checkbox"/> | <input type="checkbox"/> |
| Tested devices in accordance with standard procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Undertake final inspections to ensure that the installed devices conforms to technical requirements | <input type="checkbox"/> | <input type="checkbox"/> |

| | | |
|---|--------------------------|---|
| Observed systematic pre-testing procedure in accordance with manufacturer's instructions | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified system defects/faults symptoms using appropriate tools and equipment and troubleshooting techniques in accordance with safety procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Used test instruments required of the job in accordance with user manuals | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and isolated circuits using specified testing procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Explained identified defects and faults to the responsible person in accordance with enterprise or company policy and procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked control settings/adjustments in conformity with service-manual specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Documented results of diagnosis and testing accurately and completely within the specified time | <input type="checkbox"/> | <input type="checkbox"/> |
| Advised/informed customers regarding the status and serviceability of the unit according to procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed electro-static discharge (ESD) protection procedure in accordance with current industry standards | <input type="checkbox"/> | <input type="checkbox"/> |
| Disposed waste materials in accordance with environmental requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Feedback to candidate: | | |
| Assessment decision for this assessment activity: | | |
| <input type="checkbox"/> Competent | | <input type="checkbox"/> Not Yet Competent |
| Candidate's Signature: | | Date: |
| Assessor's Signature: | | Date: |

Set B: Practical Demonstration 1

| PRACTICAL DEMONSTRATION 1 | |
|---|---|
| Candidate Name: | |
| Assessor Name: | |
| Qualification: | Certificate in Electronics |
| Task: | Test active and passive component with the help of CRO (cathode-ray oscilloscope) and digital multi-meter |
| Assessment Centre: | |
| Date of Assessment: | |
| Time of Assessment: | |
| Instructions: | |
| <p>Read and understand the directions carefully:</p> <ul style="list-style-type: none"> ▪ this practical demonstration is based on the performance criteria from all or some of the units of competency in Electronics ▪ this assessment activity will be used to measure your underpinning skills ▪ you will have fifteen (15) minutes to familiarise yourself with the resources to be used ▪ you have two (2) hours to complete this demonstration | |
| Procedure: | |
| <ul style="list-style-type: none"> ▪ observe and wear personal protective equipment (PPE) as required for the task to be performed ▪ read the specification information provided ▪ collect all materials needed to complete the task ▪ perform the task within the given time ▪ observe and follow all health and safety (OHS) requirements at all times | |
| Job Specification Information: | |
| <ol style="list-style-type: none"> 1. Collect required tools and materials required for the task (refer to the list provided to you by the assessor). 2. Set up the component in the breadboard which has to be tested & probed by the multi-meter as well as C.R.O. 3. Calculate the theoretical value of resistor through colour coding and then obtain practical value through multi-meter. 4. Find the I-V characteristic curve i.e. forward and reverse characteristics of diode with the help of C.R.O. 5. Clean tools, equipment, machinery and work area. 6. Dispose of waste materials and excess materials. | |
| Drawing, Plan, Diagram or Sketch: | |
| n/a | |
| Resources Required: | |
| Tools: | Resistor Capacitor Diode |

| | |
|------------|---|
| | Transistors |
| Equipment: | N/A |
| Machinery: | N/A |
| Materials: | Writing materials |
| PPE: | Apron Mask Gloves Safety shoes |

Set B: Practical Demonstration 1 – Observation Checklist

| PRACTICAL DEMONSTRATION 1 – OBSERVATION CHECKLIST | | |
|--|---|--------------------------|
| Candidate Name: | | |
| Assessor Name: | | |
| Qualification: | Certificate in Electronics | |
| Task: | Testing of active and passive component with the help of CRO (cathode-ray oscilloscope) and digital multi-meter | |
| Assessment Centre: | | |
| Date of Assessment: | | |
| Instructions: | <p>The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate.</p> <p>Performance can be observed in an actual workplace or in a simulated working environment.</p> <p>If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject.</p> <p>The assessment activity (practical demonstration) should:</p> <ul style="list-style-type: none"> ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate | |
| OBSERVATION RECORD | | |
| Performance Criteria | Place a ✓ to show if evidence has been demonstrated competently | |
| | Yes | No |
| Comprehended workplace procedures and matters | <input type="checkbox"/> | <input type="checkbox"/> |
| Understood correctly and followed visual information/symbols/signage | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed responsibilities as a team member | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed tasks in accordance with workplace procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Maintained confidentiality | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified personal role and responsibilities within the team environment | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified safety signs and symbols | <input type="checkbox"/> | <input type="checkbox"/> |
| Applied OHS policies and procedures in the workplace including personal protective equipment | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified common safety issues | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified hazards and risks | <input type="checkbox"/> | <input type="checkbox"/> |

| | | |
|--|--------------------------|--------------------------|
| Responded to alarms and warning devices | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified and collected appropriate manuals for work activity | <input type="checkbox"/> | <input type="checkbox"/> |
| Interpreted and applied information and specifications in the manuals | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified relevant sketches and drawings for the job | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified appropriate hand and power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and verified usability of hand and power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Selected appropriate hand tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured safety precaution before using hand tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified unsafe or faulty hand tools and marked for repair | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and calibrated measuring tools before use | <input type="checkbox"/> | <input type="checkbox"/> |
| Selected appropriate power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Inspected power supply outlet and electrical cord and confirmed safe for use with manufacturer's operating specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified unsafe or faulty power tools and marked for repair | <input type="checkbox"/> | <input type="checkbox"/> |
| Operated power tools properly and safely to perform work activity | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed instructions and procedures strictly and performed duties in accordance with demand of quality improvement system | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured conformance of specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Detected defects and reported to authority according to standard operating procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured satisfaction of customer in performing an operation or quality of product services | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified performance measurement system | <input type="checkbox"/> | <input type="checkbox"/> |
| Assessed performance at regular intervals | <input type="checkbox"/> | <input type="checkbox"/> |
| Established and identified specifications and standard operating procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Participated process improvement procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Monitored performance of operation or quality of product or service to ensure customer satisfaction | <input type="checkbox"/> | <input type="checkbox"/> |
| Taken responsibility for quality of own work | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed quality system procedures for each job | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified different components | <input type="checkbox"/> | <input type="checkbox"/> |
| Interpreted different component's symbols | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified different terminals | <input type="checkbox"/> | <input type="checkbox"/> |
| Mounted and soldered components in accordance with soldering principles | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked soldered components to ensure compliance with soldering principles | <input type="checkbox"/> | <input type="checkbox"/> |

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| Checked soldered components to ensure compliance with international standards and job requirement | <input type="checkbox"/> | <input type="checkbox"/> |
| Obtained and clarified work instructions based on client requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Consulted responsible person for effective and proper work coordination | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified testing method based on type of electronic component | <input type="checkbox"/> | <input type="checkbox"/> |
| Selected testing method pursuant to testing strategy | <input type="checkbox"/> | <input type="checkbox"/> |
| Prepared and checked tools and testing devices as per standard operating procedure | <input type="checkbox"/> | <input type="checkbox"/> |
| Carried out component testing to ensure products meet creative, production and technical requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Resolved problems and faults in accordance with standard operating procedure | <input type="checkbox"/> | <input type="checkbox"/> |
| Evaluated products against testing criteria | <input type="checkbox"/> | <input type="checkbox"/> |
| Collected measuring devices and accessories | <input type="checkbox"/> | <input type="checkbox"/> |
| Employed appropriate ranges of methods in connection/termination as per job and manufacturer's specification. | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed correct sequence of operation according to job specification and standard operating procedure | <input type="checkbox"/> | <input type="checkbox"/> |
| Adjusted accessories as per job specification, if necessary | <input type="checkbox"/> | <input type="checkbox"/> |
| Undertaken confirmation of connection/termination to ensure quality completion of job as per job specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Carried out testing of completed connections/terminations to ensure compliance | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked wiring and circuits using specified testing procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Responded unplanned events or conditions in accordance with standard operating procedure | <input type="checkbox"/> | <input type="checkbox"/> |
| Feedback to candidate: | | |
| Assessment decision for this assessment activity: | | |
| <input type="checkbox"/> Competent <input type="checkbox"/> Not Yet Competent | | |
| Candidate's Signature: | | Date: |
| Assessor's Signature: | | Date: |

Set B: Practical Demonstration 2

| PRACTICAL DEMONSTRATION 2 | |
|---|---|
| Candidate Name: | |
| Assessor Name: | |
| Qualification: | Certificate in Electronics |
| Task: | Perform soldering and de-soldering for the given electronic circuit purpose printed circuit board (PCB) |
| Assessment Centre: | |
| Date of Assessment: | |
| Time of Assessment: | |
| Instructions: | |
| Read and understand the directions carefully: | |
| <ul style="list-style-type: none">▪ this practical demonstration is based on the performance criteria from all or some of the units of competency in Electronics▪ this assessment activity will be used to measure your underpinning skills▪ you will have fifteen (15) minutes to familiarise yourself with the resources to be used▪ you have two (2) hours to complete this demonstration | |
| Procedure: | |
| <ul style="list-style-type: none">▪ observe and wear personal protective equipment (PPE) as required for the task to be performed▪ read the specification information provided▪ collect all materials needed to complete the task▪ perform the task within the given time▪ observe and follow all health and safety (OHS) requirements at all times | |
| Job Specification Information: | |
| <ol style="list-style-type: none">1. Collect required tools, equipment, machinery and materials required for the task (refer to the list provided to you by the assessor)2. Clean the given PCB board.3. Clean the tip of the soldering iron before heating and also clean the components which are to be soldered.4. Heat the soldering iron and apply solder to the tip as soon as it is hot to melt on it.5. Trim excess component lead with side cutter.6. If the mirror image alone is considered, then the copper plate is ready to be drilled and a considered component for the circuit is taken.7. Clean tools, equipment, machinery and work area.8. Dispose of waste materials and excess materials. <p>DESOLDERING:</p> <ol style="list-style-type: none">1. Hold the component to be unsoldered by a nose plier.2. Place the tip of the soldering iron on the joint until the solder is melt.3. When the solder is melted, removed the component with a tweezer and brush away the molten solder.4. Clean the components so that they can be used to make other circuits. | |
| Drawing, Plan, Diagram or Sketch: | |

| | |
|----------------------------|--|
| N/A | |
| Resources Required: | |
| Tools: | N/A |
| Equipment: | N/A |
| Machinery: | N/A |
| Materials: | PCB board for given circuit x 1 Soldering iron (10W or 35W) x 1 Solder (60/40 grade) x 1 Copper plate x 1 Flux x 1 Connecting wires Lead Nose plier |
| PPE: | Apron Mask Gloves Safety shoes |

Set B: Practical Demonstration 2 – Observation Checklist

| PRACTICAL DEMONSTRATION 2 – OBSERVATION CHECKLIST | | |
|--|---|--------------------------|
| Candidate Name: | | |
| Assessor Name: | | |
| Qualification: | Certificate in Electronics | |
| Task: | Perform soldering and de-soldering for the given electronic circuit purpose printed circuit board (PCB) | |
| Assessment Centre: | | |
| Date of Assessment: | | |
| Instructions: | <p>The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate.</p> <p>Performance can be observed in an actual workplace or in a simulated working environment.</p> <p>If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject.</p> <p>The assessment activity (practical demonstration) should:</p> <ul style="list-style-type: none"> ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate | |
| OBSERVATION RECORD | | |
| Performance Criteria | Place a ✓ to show if evidence has been demonstrated competently | |
| | Yes | No |
| Comprehended workplace procedures and matters | <input type="checkbox"/> | <input type="checkbox"/> |
| Understood correctly and followed visual information/symbols/signage | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed responsibilities as a team member | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed tasks in accordance with workplace procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Maintained confidentiality | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified personal role and responsibilities within the team environment | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified safety signs and symbols | <input type="checkbox"/> | <input type="checkbox"/> |
| Applied OHS policies and procedures in the workplace including personal protective equipment | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified common safety issues | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified hazards and risks | <input type="checkbox"/> | <input type="checkbox"/> |

| | | |
|--|--------------------------|--------------------------|
| Responded to alarms and warning devices | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified and collected appropriate manuals for work activity | <input type="checkbox"/> | <input type="checkbox"/> |
| Interpreted and applied information and specifications in the manuals | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified relevant sketches and drawings for the job | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified appropriate hand and power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and verified usability of hand and power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Selected appropriate hand tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured safety precaution before using hand tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified unsafe or faulty hand tools and marked for repair | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and calibrated measuring tools before use | <input type="checkbox"/> | <input type="checkbox"/> |
| Selected appropriate power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Inspected power supply outlet and electrical cord and confirmed safe for use with manufacturer's operating specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified unsafe or faulty power tools and marked for repair | <input type="checkbox"/> | <input type="checkbox"/> |
| Operated power tools properly and safely to perform work activity | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed instructions and procedures strictly and performed duties in accordance with demand of quality improvement system | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured conformance of specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Detected defects and reported to authority according to standard operating procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured satisfaction of customer in performing an operation or quality of product services | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified performance measurement system | <input type="checkbox"/> | <input type="checkbox"/> |
| Assessed performance at regular intervals | <input type="checkbox"/> | <input type="checkbox"/> |
| Established and identified specifications and standard operating procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Participated process improvement procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Monitored performance of operation or quality of product or service to ensure customer satisfaction | <input type="checkbox"/> | <input type="checkbox"/> |
| Taken responsibility for quality of own work | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed quality system procedures for each job | <input type="checkbox"/> | <input type="checkbox"/> |
| Collected measuring devices and accessories | <input type="checkbox"/> | <input type="checkbox"/> |
| Employed appropriate ranges of methods in connection/termination as per job and manufacturer's specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed correct sequence of operation according to job specification and standard operating procedure | <input type="checkbox"/> | <input type="checkbox"/> |
| Adjusted accessories as per job specification, if necessary | <input type="checkbox"/> | <input type="checkbox"/> |

| | | |
|--|--------------------------|--------------------------|
| Undertaken confirmation of connection/termination to ensure quality completion of job as per job specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Carried out testing of completed connections/terminations to ensure compliance | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked wiring and circuits using specified testing procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Responded unplanned events or conditions in accordance with standard operating procedure | <input type="checkbox"/> | <input type="checkbox"/> |
| Prepared assembly workplace in accordance with OHS policies and procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified and checked required materials, tools and equipment in accordance with established procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified, prepared and obtained parts and components needed to complete the work | <input type="checkbox"/> | <input type="checkbox"/> |
| Verified for conformity PCB layout with the schematic diagram in accordance with the layout rules | <input type="checkbox"/> | <input type="checkbox"/> |
| Transferred PCB layout to copper-cladded board following acceptable methods and standards procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Drilled thru-hole based on standards procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Cleaned PCB based on standards procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Tested functionality of PCB and performed visual inspection based on standards procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Mounted and soldered components in accordance with soldering components | <input type="checkbox"/> | <input type="checkbox"/> |
| Applied soldering/de-soldering techniques and procedures in accordance with established standards and requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and complied soldered products with international standards and task specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Connected/integrated modules and accessories into the final product based on the client specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Disposed excess components and materials based on WEEE directives and 3Rs waste management program | <input type="checkbox"/> | <input type="checkbox"/> |
| Subjected finished products to final/sensory inspection and testing in accordance with quality standards, procedures and requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed mechanical and electrical/electronic testing in accordance with quality standards, procedures and requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Conducted complete check-up of consumer electronic products and systems and identified, verified and documented defects against customer description | <input type="checkbox"/> | <input type="checkbox"/> |
| Installed consumer electronic products and systems in accordance with manufacturer's instructions, requirements and without damage to the surrounding place or environment | <input type="checkbox"/> | <input type="checkbox"/> |
| Responded to unplanned events or conditions in accordance with established procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Cleaned and cleared of all debris and left safe in accordance with the company requirements | <input type="checkbox"/> | <input type="checkbox"/> |

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|--|--------------------------|---|
| Observed systematic pre-testing procedure in accordance with manufacturer's instructions | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified system defect/faults symptoms using appropriate tools and equipment and troubleshooting techniques and in accordance with safety procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Used test instruments required for the job in accordance with user manuals | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked circuits and isolated using specified testing procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Explained identified defects and faults to the responsible person in accordance with enterprise or company policy and procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked control settings/adjustments in conformity with service-manual specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Documented results of diagnosis and testing accurately and completely within the specified time | <input type="checkbox"/> | <input type="checkbox"/> |
| Advised/ informed customers regarding the status and serviceability of the unit according to procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed electro-static discharge (ESD) protection procedure in accordance with current industry standards | <input type="checkbox"/> | <input type="checkbox"/> |
| Replaced defective parts/components with identical or recommended appropriate equivalent ratings | <input type="checkbox"/> | <input type="checkbox"/> |
| Soldered/mounted repaired or replaced parts/components in accordance with the current industry standards. | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed control settings/adjustments in conformity with service-manual specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed repair activity within the required time frame | <input type="checkbox"/> | <input type="checkbox"/> |
| Observed care and extreme precaution in handling the unit/product as per procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed cleaning of unit in accordance with standard procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Reassembled repaired units according to procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Disposed of waste materials in accordance with environmental requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Feedback to candidate: | | |
| Assessment decision for this assessment activity: | | |
| <input type="checkbox"/> Competent | | <input type="checkbox"/> Not Yet Competent |
| Candidate's Signature: | | Date: |
| Assessor's Signature: | | Date: |

Set B: Practical Demonstration 3

| PRACTICAL DEMONSTRATION 3 | |
|---|--|
| Candidate Name: | |
| Assessor Name: | |
| Qualification: | Certificate in Electronics |
| Task: | Maintain and repair sensors |
| Assessment Centre: | |
| Date of Assessment: | |
| Time of Assessment: | |
| Instructions: | |
| <p>Read and understand the directions carefully:</p> <ul style="list-style-type: none"> ▪ this practical demonstration is based on the performance criteria from all or some of the units of competency in Electronics ▪ this assessment activity will be used to measure your underpinning skills ▪ you will have fifteen (15) minutes to familiarise yourself with the resources to be used ▪ you have two (2) hours to complete this demonstration | |
| Procedure: | |
| <ul style="list-style-type: none"> ▪ observe and wear personal protective equipment (PPE) as required for the task to be performed ▪ read the specification information provided ▪ collect all materials needed to complete the task ▪ perform the task within the given time ▪ observe and follow all health and safety (OHS) requirements at all times | |
| Job Specification Information: | |
| <ol style="list-style-type: none"> 1. Obtain a unit for this activity from your assessor. 2. Given the tools, equipment and materials, check for the defect/s of the unit. 3. Disassemble the unit for any defect detected. 4. Repair the unit according to the requirement. 5. Test run the unit for functionality. 6. Clean tools, equipment, machinery and work area. 7. Dispose of waste materials and excess materials. | |
| Drawing, Plan, Diagram or Sketch: | |
| N/A | |
| Resources Required: | |
| Tools: | Screwdrivers Wrenches Allen keys Soldering iron De-soldering tools Multi-testers (analog/digital) Utility knife/stripper Pliers |

| | |
|------------|---|
| | Ball been hammer Test jig Cleaning brush High-grade magnifying glass (with lamp) |
| Equipment: | Variable power supply Step-down transformer Hot air soldering station Table top reflow oven Function/signal generator ESD-free work bench with mirror Oscilloscope (digital) Multi-testers Flashlight/headlamp High voltage probe Assorted wires Assorted electronic sensors |
| Machinery: | N/A |
| Materials: | N/A |
| PPE: | Apron Mask Gloves Safety shoes |

Set B: Practical Demonstration 3– Observation Checklist

| PRACTICAL DEMONSTRATION 3 – OBSERVATION CHECKLIST | | |
|--|---|--------------------------|
| Candidate Name: | | |
| Assessor Name: | | |
| Qualification: | Certificate in Electronics | |
| Task: | Maintain and repair sensors | |
| Assessment Centre: | | |
| Date of Assessment: | | |
| Instructions: | <p>The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate.</p> <p>Performance can be observed in an actual workplace or in a simulated working environment.</p> <p>If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject.</p> <p>The assessment activity (practical demonstration) should:</p> <ul style="list-style-type: none"> ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate | |
| OBSERVATION RECORD | | |
| Performance Criteria | Place a ✓ to show if evidence has been demonstrated competently | |
| | Yes | No |
| Comprehended workplace procedures and matters | <input type="checkbox"/> | <input type="checkbox"/> |
| Understood correctly and followed visual information/symbols/signage | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed responsibilities as a team member | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed tasks in accordance with workplace procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Maintained confidentiality | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified personal role and responsibilities within the team environment | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified safety signs and symbols | <input type="checkbox"/> | <input type="checkbox"/> |
| Applied OHS policies and procedures in the workplace including personal protective equipment | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified common safety issues | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified hazards and risks | <input type="checkbox"/> | <input type="checkbox"/> |

| | | |
|--|--------------------------|--------------------------|
| Responded to alarms and warning devices | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified and collected appropriate manuals for work activity | <input type="checkbox"/> | <input type="checkbox"/> |
| Interpreted and applied information and specifications in the manuals | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified relevant sketches and drawings for the job | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified appropriate hand and power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and verified usability of hand and power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Selected appropriate hand tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured safety precaution before using hand tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified unsafe or faulty hand tools and marked for repair | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and calibrated measuring tools before use | <input type="checkbox"/> | <input type="checkbox"/> |
| Selected appropriate power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Inspected power supply outlet and electrical cord and confirmed safe for use with manufacturer's operating specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified unsafe or faulty power tools and marked for repair | <input type="checkbox"/> | <input type="checkbox"/> |
| Operated power tools properly and safely to perform work activity | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed instructions and procedures strictly and performed duties in accordance with demand of quality improvement system | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured conformance of specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Detected defects and reported to authority according to standard operating procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured satisfaction of customer in performing an operation or quality of product services | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified performance measurement system | <input type="checkbox"/> | <input type="checkbox"/> |
| Assessed performance at regular intervals | <input type="checkbox"/> | <input type="checkbox"/> |
| Established and identified specifications and standard operating procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Participated process improvement procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Monitored performance of operation or quality of product or service to ensure customer satisfaction | <input type="checkbox"/> | <input type="checkbox"/> |
| Taken responsibility for quality of own work | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed quality system procedures for each job | <input type="checkbox"/> | <input type="checkbox"/> |
| Collected measuring devices and accessories | <input type="checkbox"/> | <input type="checkbox"/> |
| Employed appropriate ranges of methods in connection/termination as per job and manufacturer's specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed correct sequence of operation according to job specification and standard operating procedure | <input type="checkbox"/> | <input type="checkbox"/> |
| Adjusted accessories as per job specification, if necessary | <input type="checkbox"/> | <input type="checkbox"/> |

| | | |
|---|--------------------------|--------------------------|
| Undertaken confirmation of connection/termination to ensure quality completion of job as per job specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Carried out testing of completed connections/terminations to ensure compliance | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked wiring and circuits using specified testing procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Responded unplanned events or conditions in accordance with standard operating procedure | <input type="checkbox"/> | <input type="checkbox"/> |
| Prepared assembly workplace in accordance with OHS policies and procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified and checked required materials, tools and equipment in accordance with established procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified, prepared and obtained parts and components needed to complete the work | <input type="checkbox"/> | <input type="checkbox"/> |
| Verified for conformity PCB layout with the schematic diagram in accordance with the layout rules | <input type="checkbox"/> | <input type="checkbox"/> |
| Transferred PCB layout to copper-cladded board following acceptable methods and standards procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Drilled thru-hole based on standards procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Cleaned PCB based on standards procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Tested functionality of PCB and performed visual inspection based on standards procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Mounted and soldered components in accordance with soldering components | <input type="checkbox"/> | <input type="checkbox"/> |
| Applied soldering/de-soldering techniques and procedures in accordance with established standards and requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and complied soldered products with international standards and task specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Connected/integrated modules and accessories into the final product based on the client specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Disposed excess components and materials based on WEEE directives and 3Rs waste management program | <input type="checkbox"/> | <input type="checkbox"/> |
| Subjected finished products to final/sensory inspection and testing in accordance with quality standards, procedures and requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed mechanical and electrical/electronic testing in accordance with quality standards, procedures and requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Conducted check of products and systems and identified defects, verified and documented against customer description | <input type="checkbox"/> | <input type="checkbox"/> |
| Installed industrial electronic modules/products/systems in accordance with manufacturer's instructions, requirements, and without damage to the surrounding place or environment | <input type="checkbox"/> | <input type="checkbox"/> |
| Tested devices in accordance with standard procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Undertake final inspections to ensure that the installed devices conforms to technical requirements | <input type="checkbox"/> | <input type="checkbox"/> |

| | | |
|---|--------------------------|---|
| Observed systematic pre-testing procedure in accordance with manufacturer's instructions | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified system defects/faults symptoms using appropriate tools and equipment and troubleshooting techniques in accordance with safety procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Used test instruments required of the job in accordance with user manuals | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and isolated circuits using specified testing procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Explained identified defects and faults to the responsible person in accordance with enterprise or company policy and procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked control settings/adjustments in conformity with service-manual specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Documented results of diagnosis and testing accurately and completely within the specified time | <input type="checkbox"/> | <input type="checkbox"/> |
| Advised/informed customers regarding the status and serviceability of the unit according to procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed electro-static discharge (ESD) protection procedure in accordance with current industry standards | <input type="checkbox"/> | <input type="checkbox"/> |
| Disposed waste materials in accordance with environmental requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Feedback to candidate: | | |
| Assessment decision for this assessment activity: | | |
| <input type="checkbox"/> Competent | | <input type="checkbox"/> Not Yet Competent |
| Candidate's Signature: | | Date: |
| Assessor's Signature: | | Date: |

Set C: Practical Demonstration 1

| PRACTICAL DEMONSTRATION 1 | |
|---|---|
| Candidate Name: | |
| Assessor Name: | |
| Qualification: | Certificate in Electronics |
| Task: | Maintain and repair microwave oven |
| Assessment Centre: | |
| Date of Assessment: | |
| Time of Assessment: | |
| Instructions: | |
| <p>Read and understand the directions carefully:</p> <ul style="list-style-type: none"> ▪ this practical demonstration is based on the performance criteria from all or some of the units of competency in Electronics ▪ this assessment activity will be used to measure your underpinning skills ▪ you will have fifteen (15) minutes to familiarise yourself with the resources to be used ▪ you have two (2) hours to complete this demonstration | |
| Procedure: | |
| <ul style="list-style-type: none"> ▪ observe and wear personal protective equipment (PPE) as required for the task to be performed ▪ read the specification information provided ▪ collect all materials needed to complete the task ▪ perform the task within the given time ▪ observe and follow all health and safety (OHS) requirements at all times | |
| Job Specification Information: | |
| <ol style="list-style-type: none"> 1. Identify the internal and external parts of micro wave oven. 2. Identify the different touch pad controls and their functions. 3. Test for high voltage diode. 4. Identify the HV capacitor and discharge it. 5. Rectify the fault leading to fuse blows off when cooking is initiated. 6. Rectify the fault leading to not responding of touch switches. 7. Rectify the fault leading to dead set. 8. Rectify the fault leading to long cooking time. 9. Clean tools, equipment, machinery and work area. 10. Dispose of waste materials and excess materials. | |
| Drawing, Plan, Diagram or Sketch: | |
| N/A | |
| Resources Required: | |
| Tools: | Hammer Bench vice Files Wrenches |

| | |
|------------|--|
| | Pliers Screwdrivers Wire cutters Clamps |
| Equipment: | N/A |
| Machinery: | N/A |
| Materials: | Microwave oven |
| PPE: | Apron Mask Gloves Safety shoes |

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Set C: Practical Demonstration 1 – Observation Checklist

| PRACTICAL DEMONSTRATION 1 – OBSERVATION CHECKLIST | | |
|--|---|--------------------------|
| Candidate Name: | | |
| Assessor Name: | | |
| Qualification: | Certificate in Electronics | |
| Task: | Maintain and repair microwave oven | |
| Assessment Centre: | | |
| Date of Assessment: | | |
| Instructions: | <p>The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate.</p> <p>Performance can be observed in an actual workplace or in a simulated working environment.</p> <p>If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject.</p> <p>The assessment activity (practical demonstration) should:</p> <ul style="list-style-type: none"> ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate | |
| OBSERVATION RECORD | | |
| Performance Criteria | Place a ✓ to show if evidence has been demonstrated competently | |
| | Yes | No |
| Comprehended workplace procedures and matters | <input type="checkbox"/> | <input type="checkbox"/> |
| Understood correctly and followed visual information/symbols/signage | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed responsibilities as a team member | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed tasks in accordance with workplace procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Maintained confidentiality | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified personal role and responsibilities within the team environment | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified safety signs and symbols | <input type="checkbox"/> | <input type="checkbox"/> |
| Applied OHS policies and procedures in the workplace including personal protective equipment | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified common safety issues | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified hazards and risks | <input type="checkbox"/> | <input type="checkbox"/> |

| | | |
|--|--------------------------|--------------------------|
| Responded to alarms and warning devices | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified and collected appropriate manuals for work activity | <input type="checkbox"/> | <input type="checkbox"/> |
| Interpreted and applied information and specifications in the manuals | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified relevant sketches and drawings for the job | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified appropriate hand and power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and verified usability of hand and power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Selected appropriate hand tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured safety precaution before using hand tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified unsafe or faulty hand tools and marked for repair | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and calibrated measuring tools before use | <input type="checkbox"/> | <input type="checkbox"/> |
| Selected appropriate power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Inspected power supply outlet and electrical cord and confirmed safe for use with manufacturer's operating specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified unsafe or faulty power tools and marked for repair | <input type="checkbox"/> | <input type="checkbox"/> |
| Operated power tools properly and safely to perform work activity | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed instructions and procedures strictly and performed duties in accordance with demand of quality improvement system | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured conformance of specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Detected defects and reported to authority according to standard operating procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured satisfaction of customer in performing an operation or quality of product services | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified performance measurement system | <input type="checkbox"/> | <input type="checkbox"/> |
| Assessed performance at regular intervals | <input type="checkbox"/> | <input type="checkbox"/> |
| Established and identified specifications and standard operating procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Participated process improvement procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Monitored performance of operation or quality of product or service to ensure customer satisfaction | <input type="checkbox"/> | <input type="checkbox"/> |
| Taken responsibility for quality of own work | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed quality system procedures for each job | <input type="checkbox"/> | <input type="checkbox"/> |
| Collected measuring devices and accessories | <input type="checkbox"/> | <input type="checkbox"/> |
| Employed appropriate ranges of methods in connection/termination as per job and manufacturer's specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed correct sequence of operation according to job specification and standard operating procedure | <input type="checkbox"/> | <input type="checkbox"/> |
| Adjusted accessories as per job specification, if necessary | <input type="checkbox"/> | <input type="checkbox"/> |

| | | |
|--|--------------------------|--------------------------|
| Undertaken confirmation of connection/termination to ensure quality completion of job as per job specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Carried out testing of completed connections/terminations to ensure compliance | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked wiring and circuits using specified testing procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Responded unplanned events or conditions in accordance with standard operating procedure | <input type="checkbox"/> | <input type="checkbox"/> |
| Prepared assembly workplace in accordance with OHS policies and procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified and checked required materials, tools and equipment in accordance with established procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified, prepared and obtained parts and components needed to complete the work | <input type="checkbox"/> | <input type="checkbox"/> |
| Verified for conformity PCB layout with the schematic diagram in accordance with the layout rules | <input type="checkbox"/> | <input type="checkbox"/> |
| Transferred PCB layout to copper-cladded board following acceptable methods and standards procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Drilled thru-hole based on standards procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Cleaned PCB based on standards procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Tested functionality of PCB and performed visual inspection based on standards procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Mounted and soldered components in accordance with soldering components | <input type="checkbox"/> | <input type="checkbox"/> |
| Applied soldering/de-soldering techniques and procedures in accordance with established standards and requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and complied soldered products with international standards and task specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Connected/integrated modules and accessories into the final product based on the client specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Disposed excess components and materials based on WEEE directives and 3Rs waste management program | <input type="checkbox"/> | <input type="checkbox"/> |
| Subjected finished products to final/sensory inspection and testing in accordance with quality standards, procedures and requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed mechanical and electrical/electronic testing in accordance with quality standards, procedures and requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Conducted complete check-up of consumer electronic products and systems and identified, verified and documented defects against customer description | <input type="checkbox"/> | <input type="checkbox"/> |
| Installed consumer electronic products and systems in accordance with manufacturer's instructions, requirements and without damage to the surrounding place or environment | <input type="checkbox"/> | <input type="checkbox"/> |
| Responded to unplanned events or conditions in accordance with established procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Cleaned and cleared of all debris and left safe in accordance with the company requirements | <input type="checkbox"/> | <input type="checkbox"/> |

| | | |
|--|--------------------------|---|
| Observed systematic pre-testing procedure in accordance with manufacturer's instructions | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified system defect/faults symptoms using appropriate tools and equipment and troubleshooting techniques and in accordance with safety procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Used test instruments required for the job in accordance with user manuals | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked circuits and isolated using specified testing procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Explained identified defects and faults to the responsible person in accordance with enterprise or company policy and procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked control settings/adjustments in conformity with service-manual specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Documented results of diagnosis and testing accurately and completely within the specified time | <input type="checkbox"/> | <input type="checkbox"/> |
| Advised/ informed customers regarding the status and serviceability of the unit according to procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed electro-static discharge (ESD) protection procedure in accordance with current industry standards | <input type="checkbox"/> | <input type="checkbox"/> |
| Replaced defective parts/components with identical or recommended appropriate equivalent ratings | <input type="checkbox"/> | <input type="checkbox"/> |
| Soldered/mounted repaired or replaced parts/components in accordance with the current industry standards. | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed control settings/adjustments in conformity with service-manual specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed repair activity within the required time frame | <input type="checkbox"/> | <input type="checkbox"/> |
| Observed care and extreme precaution in handling the unit/product as per procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed cleaning of unit in accordance with standard procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Reassembled repaired units according to procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Disposed of waste materials in accordance with environmental requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Feedback to candidate: | | |
| Assessment decision for this assessment activity: | | |
| <input type="checkbox"/> Competent | | <input type="checkbox"/> Not Yet Competent |
| Candidate's Signature: | | Date: |
| Assessor's Signature: | | Date: |

Set C: Practical Demonstration 2

| PRACTICAL DEMONSTRATION 2 | |
|--|-------------------------------------|
| Candidate Name: | |
| Assessor Name: | |
| Qualification: | Certificate in Electronics |
| Task: | Assemble electronic product (stove) |
| Assessment Centre: | |
| Date of Assessment: | |
| Time of Assessment: | |
| Instructions: | |
| <p>Read and understand the directions carefully:</p> <ul style="list-style-type: none"> ▪ this practical demonstration is based on the performance criteria from all or some of the units of competency in Electronics ▪ this assessment activity will be used to measure your underpinning skills ▪ you will have fifteen (15) minutes to familiarise yourself with the resources to be used ▪ you have two (2) hours to complete this demonstration | |
| Procedure: | |
| <ul style="list-style-type: none"> ▪ observe and wear personal protective equipment (PPE) as required for the task to be performed ▪ read the specification information provided ▪ collect all materials needed to complete the task ▪ perform the task within the given time ▪ observe and follow all health and safety (OHS) requirements at all times | |
| Job Specification Information: | |
| <ol style="list-style-type: none"> 1. Collect required tools, equipment, machinery and materials required for the task (refer to the list provided to you by the assessor). 2. Check that all electric connections and contacts to terminals, coils, switches and junctions are tight. 3. Measure the individual phase currents with a clamp-on ammeter on the power supply immediately before the connection terminals with the appliance switched on full and compare the currents with the 'technical data'. 4. Inspect internal wiring 5. Check the cooking zones for continuous operation. Check power consumption with the largest possible pan filled with water. 6. Check the generator and cooling block for internal contamination. 7. Check the fan for operation and dirt. Note when the fan cuts in (should cut in after approx. 1-2 min. under full load). Fan must spin freely and should turn when subjected to a current of air. 8. Check switch for easy movement and correct function and check the power switch steps. 9. Check the green operating lamp located on the control panel. The lamp must be on at all switch settings from 1 to 10. 10. Check the pan detection system by turning the switch to 9 and placing a metal pan containing water onto the cooking zone. 11. Check the ceramic plate and wok bowl for any splits, cracks or wear and tear. 12. Check the mechanical fixation of the induction coil and ferrite parts. | |

- 13. Check the seal between the ceramic plate/bowl and the cover.
- 14. Clean tools, equipment, machinery and work area.
- 15. Dispose of waste materials and excess materials.

Drawing, Plan, Diagram or Sketch:

N/A

Resources Required:

| | |
|------------|---|
| Tools: | Screwdrivers Wrenches Allen keys Soldering iron De-soldering tools Multi-testers (analog/digital) Utility knife/stripper Pliers Cleaning brush High-grade magnifying glass (with lamp) |
| Equipment: | Induction stove |
| Machinery: | N/A |
| Materials: | N/A |
| PPE: | Apron Mask Gloves Safety shoes |

Set C: Practical Demonstration 2 – Observation Checklist

| PRACTICAL DEMONSTRATION 1 – OBSERVATION CHECKLIST | | |
|--|---|--------------------------|
| Candidate Name: | | |
| Assessor Name: | | |
| Qualification: | Certificate in Electronics | |
| Task: | Assemble electronic product (stove) | |
| Assessment Centre: | | |
| Date of Assessment: | | |
| Instructions: | <p>The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate.</p> <p>Performance can be observed in an actual workplace or in a simulated working environment.</p> <p>If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject.</p> <p>The assessment activity (practical demonstration) should:</p> <ul style="list-style-type: none"> ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate | |
| OBSERVATION RECORD | | |
| Performance Criteria | Place a ✓ to show if evidence has been demonstrated competently | |
| | Yes | No |
| Comprehended workplace procedures and matters | <input type="checkbox"/> | <input type="checkbox"/> |
| Understood correctly and followed visual information/symbols/signage | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed responsibilities as a team member | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed tasks in accordance with workplace procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Maintained confidentiality | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified personal role and responsibilities within the team environment | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified safety signs and symbols | <input type="checkbox"/> | <input type="checkbox"/> |
| Applied OHS policies and procedures in the workplace including personal protective equipment | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified common safety issues | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified hazards and risks | <input type="checkbox"/> | <input type="checkbox"/> |

| | | |
|--|--------------------------|--------------------------|
| Responded to alarms and warning devices | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified and collected appropriate manuals for work activity | <input type="checkbox"/> | <input type="checkbox"/> |
| Interpreted and applied information and specifications in the manuals | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified relevant sketches and drawings for the job | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified appropriate hand and power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and verified usability of hand and power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Selected appropriate hand tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured safety precaution before using hand tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified unsafe or faulty hand tools and marked for repair | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and calibrated measuring tools before use | <input type="checkbox"/> | <input type="checkbox"/> |
| Selected appropriate power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Inspected power supply outlet and electrical cord and confirmed safe for use with manufacturer's operating specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified unsafe or faulty power tools and marked for repair | <input type="checkbox"/> | <input type="checkbox"/> |
| Operated power tools properly and safely to perform work activity | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed instructions and procedures strictly and performed duties in accordance with demand of quality improvement system | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured conformance of specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Detected defects and reported to authority according to standard operating procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured satisfaction of customer in performing an operation or quality of product services | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified performance measurement system | <input type="checkbox"/> | <input type="checkbox"/> |
| Assessed performance at regular intervals | <input type="checkbox"/> | <input type="checkbox"/> |
| Established and identified specifications and standard operating procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Participated process improvement procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Monitored performance of operation or quality of product or service to ensure customer satisfaction | <input type="checkbox"/> | <input type="checkbox"/> |
| Taken responsibility for quality of own work | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed quality system procedures for each job | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified different components | <input type="checkbox"/> | <input type="checkbox"/> |
| Interpreted different component's symbols | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified different terminals | <input type="checkbox"/> | <input type="checkbox"/> |
| Mounted and soldered components in accordance with soldering principles | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked soldered components to ensure compliance with soldering principles | <input type="checkbox"/> | <input type="checkbox"/> |

| | | |
|--|--------------------------|--------------------------|
| Checked soldered components to ensure compliance with international standards and job requirement | <input type="checkbox"/> | <input type="checkbox"/> |
| Obtained and clarified work instructions based on client requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Consulted responsible person for effective and proper work coordination | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified testing method based on type of electronic component | <input type="checkbox"/> | <input type="checkbox"/> |
| Selected testing method pursuant to testing strategy | <input type="checkbox"/> | <input type="checkbox"/> |
| Prepared and checked tools and testing devices as per standard operating procedure | <input type="checkbox"/> | <input type="checkbox"/> |
| Carried out component testing to ensure products meet creative, production and technical requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Resolved problems and faults in accordance with standard operating procedure | <input type="checkbox"/> | <input type="checkbox"/> |
| Evaluated products against testing criteria | <input type="checkbox"/> | <input type="checkbox"/> |
| Collected measuring devices and accessories | <input type="checkbox"/> | <input type="checkbox"/> |
| Employed appropriate ranges of methods in connection/termination as per job and manufacturer's specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed correct sequence of operation according to job specification and standard operating procedure | <input type="checkbox"/> | <input type="checkbox"/> |
| Adjusted accessories as per job specification, if necessary | <input type="checkbox"/> | <input type="checkbox"/> |
| Undertaken confirmation of connection/termination to ensure quality completion of job as per job specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Carried out testing of completed connections/terminations to ensure compliance | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked wiring and circuits using specified testing procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Responded unplanned events or conditions in accordance with standard operating procedure | <input type="checkbox"/> | <input type="checkbox"/> |
| Feedback to candidate: | | |
| Assessment decision for this assessment activity: | | |
| <input type="checkbox"/> Competent <input type="checkbox"/> Not Yet Competent | | |
| Candidate's Signature: | | Date: |
| Assessor's Signature: | | Date: |

Set C: Practical Demonstration 3

| PRACTICAL DEMONSTRATION 3 | |
|---|--|
| Candidate Name: | |
| Assessor Name: | |
| Qualification: | Certificate in Electronics |
| Task: | Interface proximity sensor |
| Assessment Centre: | |
| Date of Assessment: | |
| Time of Assessment: | |
| Instructions: | |
| <p>Read and understand the directions carefully:</p> <ul style="list-style-type: none"> ▪ this practical demonstration is based on the performance criteria from all or some of the units of competency in Electronics ▪ this assessment activity will be used to measure your underpinning skills ▪ you will have fifteen (15) minutes to familiarise yourself with the resources to be used ▪ you have two (2) hours to complete this demonstration | |
| Procedure: | |
| <ul style="list-style-type: none"> ▪ observe and wear personal protective equipment (PPE) as required for the task to be performed ▪ read the specification information provided ▪ collect all materials needed to complete the task ▪ perform the task within the given time ▪ observe and follow all health and safety (OHS) requirements at all times | |
| Job Specification Information: | |
| <ol style="list-style-type: none"> 1. Obtain a unit for this activity from your assessor. 2. Given the tools, equipment and materials, check for the defect/s of the unit. 3. Disassemble the unit for any defect detected. 4. Repair the unit according to the requirement. 5. Test run the unit for functionality. 6. Clean tools, equipment, machinery and work area. 7. Dispose of waste materials and excess materials. | |
| Drawing, Plan, Diagram or Sketch: | |
| N/A | |
| Resources Required: | |
| Tools: | Screwdrivers Wrenches Allen keys Soldering iron De-soldering tools Multi-testers (analog/digital) Utility knife/stripper |

| | |
|------------|---|
| | <ul style="list-style-type: none"> Pliers Ball been hammer Test jig Cleaning brush High-grade magnifying glass (with lamp) |
| Equipment: | <ul style="list-style-type: none"> Variable power supply Step-down transformer Hot air soldering station Table top reflow oven Function/signal generator ESD-free work bench with mirror Oscilloscope (digital) Multi-testers Flashlight/headlamp High voltage probe Assorted wires Assorted electronic sensors |
| Machinery: | N/A |
| Materials: | N/A |
| PPE: | <ul style="list-style-type: none"> Apron Mask Gloves Safety shoes |

Set C: Practical Demonstration 3– Observation Checklist

| PRACTICAL DEMONSTRATION 3 – OBSERVATION CHECKLIST | | |
|--|---|--------------------------|
| Candidate Name: | | |
| Assessor Name: | | |
| Qualification: | Certificate in Electronics | |
| Task: | Interface proximity sensor | |
| Assessment Centre: | | |
| Date of Assessment: | | |
| Instructions: | <p>The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate.</p> <p>Performance can be observed in an actual workplace or in a simulated working environment.</p> <p>If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject.</p> <p>The assessment activity (practical demonstration) should:</p> <ul style="list-style-type: none"> ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate | |
| OBSERVATION RECORD | | |
| Performance Criteria | Place a ✓ to show if evidence has been demonstrated competently | |
| | Yes | No |
| Comprehended workplace procedures and matters | <input type="checkbox"/> | <input type="checkbox"/> |
| Understood correctly and followed visual information/symbols/signage | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed responsibilities as a team member | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed tasks in accordance with workplace procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Maintained confidentiality | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified personal role and responsibilities within the team environment | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified safety signs and symbols | <input type="checkbox"/> | <input type="checkbox"/> |
| Applied OHS policies and procedures in the workplace including personal protective equipment | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified common safety issues | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified hazards and risks | <input type="checkbox"/> | <input type="checkbox"/> |

| | | |
|--|--------------------------|--------------------------|
| Responded to alarms and warning devices | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified and collected appropriate manuals for work activity | <input type="checkbox"/> | <input type="checkbox"/> |
| Interpreted and applied information and specifications in the manuals | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified relevant sketches and drawings for the job | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified appropriate hand and power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and verified usability of hand and power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Selected appropriate hand tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured safety precaution before using hand tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified unsafe or faulty hand tools and marked for repair | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and calibrated measuring tools before use | <input type="checkbox"/> | <input type="checkbox"/> |
| Selected appropriate power tools | <input type="checkbox"/> | <input type="checkbox"/> |
| Inspected power supply outlet and electrical cord and confirmed safe for use with manufacturer's operating specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified unsafe or faulty power tools and marked for repair | <input type="checkbox"/> | <input type="checkbox"/> |
| Operated power tools properly and safely to perform work activity | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed instructions and procedures strictly and performed duties in accordance with demand of quality improvement system | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured conformance of specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Detected defects and reported to authority according to standard operating procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensured satisfaction of customer in performing an operation or quality of product services | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified performance measurement system | <input type="checkbox"/> | <input type="checkbox"/> |
| Assessed performance at regular intervals | <input type="checkbox"/> | <input type="checkbox"/> |
| Established and identified specifications and standard operating procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Participated process improvement procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Monitored performance of operation or quality of product or service to ensure customer satisfaction | <input type="checkbox"/> | <input type="checkbox"/> |
| Taken responsibility for quality of own work | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed quality system procedures for each job | <input type="checkbox"/> | <input type="checkbox"/> |
| Collected measuring devices and accessories | <input type="checkbox"/> | <input type="checkbox"/> |
| Employed appropriate ranges of methods in connection/termination as per job and manufacturer's specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed correct sequence of operation according to job specification and standard operating procedure | <input type="checkbox"/> | <input type="checkbox"/> |
| Adjusted accessories as per job specification, if necessary | <input type="checkbox"/> | <input type="checkbox"/> |

| | | |
|---|--------------------------|--------------------------|
| Undertaken confirmation of connection/termination to ensure quality completion of job as per job specification | <input type="checkbox"/> | <input type="checkbox"/> |
| Carried out testing of completed connections/terminations to ensure compliance | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked wiring and circuits using specified testing procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Responded unplanned events or conditions in accordance with standard operating procedure | <input type="checkbox"/> | <input type="checkbox"/> |
| Prepared assembly workplace in accordance with OHS policies and procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified and checked required materials, tools and equipment in accordance with established procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified, prepared and obtained parts and components needed to complete the work | <input type="checkbox"/> | <input type="checkbox"/> |
| Verified for conformity PCB layout with the schematic diagram in accordance with the layout rules | <input type="checkbox"/> | <input type="checkbox"/> |
| Transferred PCB layout to copper-cladded board following acceptable methods and standards procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Drilled thru-hole based on standards procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Cleaned PCB based on standards procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Tested functionality of PCB and performed visual inspection based on standards procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Mounted and soldered components in accordance with soldering components | <input type="checkbox"/> | <input type="checkbox"/> |
| Applied soldering/de-soldering techniques and procedures in accordance with established standards and requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and complied soldered products with international standards and task specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Connected/integrated modules and accessories into the final product based on the client specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Disposed excess components and materials based on WEEE directives and 3Rs waste management program | <input type="checkbox"/> | <input type="checkbox"/> |
| Subjected finished products to final/sensory inspection and testing in accordance with quality standards, procedures and requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Performed mechanical and electrical/electronic testing in accordance with quality standards, procedures and requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Conducted check of products and systems and identified defects, verified and documented against customer description | <input type="checkbox"/> | <input type="checkbox"/> |
| Installed industrial electronic modules/products/systems in accordance with manufacturer's instructions, requirements, and without damage to the surrounding place or environment | <input type="checkbox"/> | <input type="checkbox"/> |
| Tested devices in accordance with standard procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Undertake final inspections to ensure that the installed devices conforms to technical requirements | <input type="checkbox"/> | <input type="checkbox"/> |

| | | |
|---|--------------------------|---|
| Observed systematic pre-testing procedure in accordance with manufacturer's instructions | <input type="checkbox"/> | <input type="checkbox"/> |
| Identified system defects/faults symptoms using appropriate tools and equipment and troubleshooting techniques in accordance with safety procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Used test instruments required of the job in accordance with user manuals | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked and isolated circuits using specified testing procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Explained identified defects and faults to the responsible person in accordance with enterprise or company policy and procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Checked control settings/adjustments in conformity with service-manual specifications | <input type="checkbox"/> | <input type="checkbox"/> |
| Documented results of diagnosis and testing accurately and completely within the specified time | <input type="checkbox"/> | <input type="checkbox"/> |
| Advised/informed customers regarding the status and serviceability of the unit according to procedures | <input type="checkbox"/> | <input type="checkbox"/> |
| Followed electro-static discharge (ESD) protection procedure in accordance with current industry standards | <input type="checkbox"/> | <input type="checkbox"/> |
| Disposed waste materials in accordance with environmental requirements | <input type="checkbox"/> | <input type="checkbox"/> |
| Feedback to candidate: | | |
| Assessment decision for this assessment activity: | | |
| <input type="checkbox"/> Competent | | <input type="checkbox"/> Not Yet Competent |
| Candidate's Signature: | | Date: |
| Assessor's Signature: | | Date: |

Oral Questions (Optional)

| ORAL QUESTIONS - INSTRUCTIONS | |
|--|--|
| Candidate Name: | |
| Assessor Name: | |
| Qualification: | Certificate in Electronics |
| Unit of Competency | |
| Generic Competencies | |
| SEIP-LE-ELC-01-G | Use basic mathematical concepts |
| SEIP-LE-ELC-02-G | Carry out workplace interaction |
| SEIP-LE-ELC-03-G | Operate in a team environment |
| SEIP-LE-ELC-04-G | Apply basic IT skills |
| Sector-specific Competencies | |
| SEIP-LE-ELC-01-S | Apply occupational health and safety (OHS) practice in the workplace |
| SEIP-LE-ELC-02-S | Read and interpret sketches and drawings |
| SEIP-LE-ELC-03-S | Use hand and power tool |
| SEIP-LE-ELC-04-S | Apply quality system |
| Occupation-specific Competencies | |
| SEIP-LE-ELC-01-O | Terminate and connect electrical wiring and electronic circuits |
| SEIP-LE-ELC-02-O | Test electronic components |
| SEIP-LE-ELC-03-O | Assemble electronic products |
| SEIP-LE-ELC-04-O | Service consumer electronic products and systems |
| SEIP-LE-ELC-05-O | Service industrial electronic modules, products and systems |
| Assessment Centre: | |
| Date of Assessment: | |
| Time of Assessment: | |
| Instructions: | |
| <p>Read and understand the directions carefully:</p> <ul style="list-style-type: none"> ▪ these oral questions are based on the performance criteria from all the units of competency in Electronics ▪ oral questions are designed to enable additional assessment of your underpinning knowledge ▪ you should present your responses as directed by the assessor ▪ answer all the questions asked by the assessor as best as possible | |

| ORAL QUESTIONS | | | |
|-------------------------------|--|--|--------------------------|
| Question | | Place a ✓ in the appropriate box to show if evidence has been demonstrated competently | |
| | | Yes | No |
| 1. | What is the basic unit used to measure the resistance of a resistor? What are the advantages of resistors? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. | What are the different types of variable resistors? What are the various applications of variable resistors? | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. | What is <i>soldering</i> ? What is <i>solder</i> ? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. | What type of electrical test would be the most direct means of checking the integrity of an electrical connection between two conductors? | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. | What is the difference between a <i>plug</i> and a <i>jack</i> ? What are these two devices used for? | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. | What is a <i>terminal block</i> , or <i>terminal strip</i> ? How are these devices used to make electrical connections between different conductors? | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. | What do you do if your TV will not turn on? | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. | How to check for Bad SMD capacitors? | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. | What silicones are utilized in high brightness LED packages? | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. | Which instrument is used in Wein bridge oscillator for fault finding purpose? | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. | Electric drive is becoming more and more popular because? | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. | What action will you do in case an earthquake occurs while you were on duty? | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. | The basic elements of an electric drive are? | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. | What are your duties and responsibilities as an Electrician? | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. | What is the short cut to copy a text in word file? | <input type="checkbox"/> | <input type="checkbox"/> |
| 16. | What will you do to get the sum of a set of numbers? | <input type="checkbox"/> | <input type="checkbox"/> |
| 17. | “Dear Sir or Madam” is necessary in email conversation. Why? | <input type="checkbox"/> | <input type="checkbox"/> |
| Feedback to candidate: | | | |

| | | | |
|---|--|---|--|
| | | | |
| Assessment decision for this assessment activity: | | | |
| <input type="checkbox"/> Competent | | <input type="checkbox"/> Not Yet Competent | |
| Candidate's Signature: | | Date: | |
| Assessor's Signature: | | Date: | |

Oral Questioning Guideline

| General Guidelines For Effective Questioning | |
|---|---|
| ▪ | Keep questions short and focused on one key concept |
| ▪ | Ensure that questions are structured |
| ▪ | Test the questions to check that they are not ambiguous |
| ▪ | Use `open-ended questions such as `what if...?' and `why...?' questions, rather than closed questions |
| ▪ | Keep questions clear and straight forward and ask one at a time |
| ▪ | Use words that the candidate is able to understand |
| ▪ | Look at the candidate when asking questions |
| ▪ | Check to ensure that the candidate fully understands the questions |
| ▪ | Ask the candidate to clarify or re-phrase their answer if the assessor does not understand the initial response |
| ▪ | Confirm the candidate's response by repeating the answer back in his/her own words |
| ▪ | Encourage a conversational approach with the candidate when appropriate, to put him or her at ease |
| ▪ | Use questions or statements as prompts for keeping focused on the purpose of the questions and the kind of evidence being collected |
| ▪ | Use language at a suitable level for the candidate |
| ▪ | Listen carefully to the answers for opportunities to find unexpected evidence |
| ▪ | Follow up responses with further questions, if useful, to draw out more evidence or to make links between knowledge areas |
| ▪ | Compile a list of acceptable responses to ensure reliability of assessments |

Oral Questions (Optional) - Answers

Answers are highlighted in **bold** and *italics*.

| ORAL QUESTIONS | | |
|----------------|--|--|
| Question | | Answer |
| 1. | What is the basic unit used to measure the resistance of a resistor? What are the advantages of resistors? | <p><i>Ohm is the basic unit used to measure the resistance of a resistor.</i></p> <ul style="list-style-type: none"> • <i>Resistors are very small in size.</i> • <i>It is very easy to carry resistors from one place to another place.</i> • <i>Resistors are very cheap.</i> |
| 2. | What are the different types of variable resistors? What are the various applications of variable resistors? | <p><i>The different types of variable resistors include:</i></p> <ol style="list-style-type: none"> 1. <i>Rheostat</i> 2. <i>Potentiometer</i> 3. <i>Trimmer</i> <p><i>The applications of variable resistors are:</i></p> <ul style="list-style-type: none"> • <i>Oscillators</i> • <i>Audio control</i> • <i>TV receivers</i> • <i>Transducers</i> |
| 3. | What is <i>soldering</i> ? What is <i>solder</i> ? | <p><i>Soldering is a low-temperature form of welding commonly used to join electrical conductors together for permanent connections.</i></p> <p><i>Solder is a special alloy of metals designed to melt at a low temperature, to make permanent electrical connections.</i></p> |
| 4. | What type of electrical test would be the most direct means of checking the integrity of an electrical connection between two conductors? | <i>An electrical resistance test.</i> |
| 5. | What is the difference between a <i>plug</i> and a <i>jack</i> ? What are these two devices used for? | <i>A “plug” is the male half of a temporary electrical connector, while the “jack” is the female half. Electrical connectors are used to make convenient connections between individual wires or sets of wires.</i> |
| 6. | What is a <i>terminal block</i> , or <i>terminal strip</i> ? How are these devices used to make electrical connections between different conductors? | <p><i>Terminal “blocks” or “strips” are rows of short, metal blocks with screws or other fastener devices used to make firm mechanical bonds to conductors.</i></p> <p><i>Sometimes, terminal blocks also go by the name of “barrier strips.”</i></p> |

| | | |
|-----|---|--|
| 7. | What do you do if your TV will not turn on? | Power cycling can solve a lot of odd problems with Vizio TVs. First disconnect the TV's power cord from the power outlet and leave it unplugged. Then press and hold the power button on the TV for 10 seconds. After you have held the button for 10 seconds, let go then try to power the TV on. |
| 8. | How to check for bad SMD capacitors? | Capacitors are a common source of failures in electronic equipment. They can fail in different ways. Some fail due to over-voltage or voltage spikes. Electrolytic capacitors experience failures that begin as tiny current paths through the dielectric and progress to eventual shorts between the plates. There are three approaches to troubleshooting suspected capacitor problems -- visual inspection, in-circuit testing and out-of-circuit testing. |
| 9. | What silicones are utilized in high brightness LED packages? | Analog oscilloscope |
| 10. | Which instrument is used in Wein bridge oscillator for fault finding purpose? | May include but are not limited to: It is simple and reliable, it provides smooth and easy control, it is cheaper in cost. |
| 11. | Electric drive is becoming more and more popular because? | It has part number abbreviations, it comes in package size and good to use in lead spacing. |
| 12. | What action will you do in case an earthquake occurs while you were on duty? | Follow company policies and procedures in responding to emergencies. |
| 13. | What is an example of the basic element of an electric drive: | Analog oscilloscope |
| 14. | What are your duties and responsibilities of an Electrician? | Install and maintain wiring, control, and lighting systems. Inspect electrical components, such as transformers and circuit breakers. Identify electrical problems with a variety of testing devices. Repair or replace wiring, equipment, or fixtures using hand tools and power tools |
| 15. | What is the short cut to copy a text in word file? | 'Control V' |
| 16. | What will you do to get the sum of a set of numbers? | Press the icon of 'summation'. |
| 17. | "Dear Sir or Madam" is necessary in email conversation. Why? | It is a sign of respect to the one you are sending your email to. |

Assessment Evidence Summary Sheet

| EVIDENCE SUMMARY SHEET | | | |
|--|---|---|--|
| Candidate Name: | | | |
| Assessor Name: | | | |
| Qualification: | Certificate in Electronics | | |
| Assessment Centre: | | | |
| Date(s) of Assessment: | | | |
| The performance of the candidate in the following unit or units of competency and the methods engaged to assess performance are as follows: | | | |
| Unit of Competency | Assessment Method | Competent | Not Yet Competent |
| All units of competency comprising of the qualification | Written Test | <input type="checkbox"/> | <input type="checkbox"/> |
| | Practical Demonstration (Set) | <input type="checkbox"/> | <input type="checkbox"/> |
| | Practical Demonstration (Set) | <input type="checkbox"/> | <input type="checkbox"/> |
| | Practical Demonstration (Set) | <input type="checkbox"/> | <input type="checkbox"/> |
| | Oral Questioning (optional) | <input type="checkbox"/> | <input type="checkbox"/> |
| Note: Issuance of a certificate will only be given to a candidate who has successfully been assessed as competent for ALL units of competency. | | | |
| Recommendation | | | |
| <input type="checkbox"/> Issuance of Statement of Achievement (<i>indicate title of SOA if full Certificate is not met</i>) | <input type="checkbox"/> Submission of additional documents Specify: | <input type="checkbox"/> Reassessment Specify: | |
| Did the candidate overall performance meet the required evidence/standard? | | | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Overall Evaluation: | <input type="checkbox"/> Competent <input type="checkbox"/> Not Yet Competent | | |
| General Comments: | | | |
| Candidate Signature: | | Date: | |
| Assessor Signature: | | Date: | |

| | | | |
|-----------------------------------|--|-------|--|
| Institution Manager Signature: | | Date: | |
|-----------------------------------|--|-------|--|

CANDIDATES COPY
(Please presents this form when you claim your Certificate)

| ASSESSMENT RESULTS SUMMARY | | | |
|--|---|--------------|--|
| Qualification: | Certificate in Electronics | | |
| Name of Candidate: | | Date: | |
| Name at Assessment Centre: | | Date: | |
| Assessment Results: | <input type="checkbox"/> Competent <input type="checkbox"/> Not Yet Competent | | |
| Recommendation: | <input type="checkbox"/> Issuance of SOA (<i>indicate title of SOA, if full certificate is not met</i>) | | |
| | <input type="checkbox"/> Submission of additional documents – specify: | | |
| | <input type="checkbox"/> Reassessment - specify: | | |
| Assessed by: (name and signature) | | Date: | |
| Attested by: (name and signature): | | Date | |

Assessment Validation Map

This identifies how the assessment tools in this resource may assess:

- elements and performance criteria
- critical aspects of assessment
- skills and knowledge
- employability skills

| Unit of Competency: | SEIP-LE-ELC-01-G – Use basic mathematical concepts | | |
|--|--|------------------------|------|
| Element | Assessment Evidence Method | | |
| | Written | Practical | Oral |
| 1. Identify calculation requirements in the workplace. | | A1-3, B1-3, C1-3 | 1 |
| 2. Select appropriate mathematical methods/concepts for the calculation. | | A1-3, B1-3, C1-3 | 1 |
| 3. Use tools and instruments to perform calculation. | | A1-3, B1-3, C1-3 | 1 |
| Unit of Competency: | SEIP-LE-ELC-02-G – Carry out workplace interaction | | |
| Element | Assessment Method | | |
| | Written | Practical | Oral |
| 1. Interpret workplace communication and etiquette. | | A1-3, B1-3, C1-3 | 14 |
| 2. Read and understand workplace documents. | | A1-3, B1-3, C1-3 | |
| 3. Participate in workplace meetings and discussions. | | | 14 |
| 4. Practice professional ethics at work. | | A1-3, B1-3, C1-3 | 14 |
| Unit of Competency: | SEIP-LE-ELC-03-G – Operate in a team environment | | |
| Element | Assessment Method | | |

| | | Written | Practical | Oral |
|--|---|------------------------|------------------------|------|
| 1. Identify team goals and work processes. | | | | 14 |
| 2. Identify own role and responsibilities within team. | | | A1-3, B1-3, C1-3 | 14 |
| 3. Communicate and co-operate with team members. | | | A1-3, B1-3, C1-3 | |
| 4. Practice problem solving within the team. | | | A1-3, B1-3, C1-3 | |
| Unit of Competency: | SEIP-LE-ELC-04-G – Apply basic IT skills | | | |
| Element | Assessment Method | | | |
| | Written | Practical | Oral | |
| 1. Identify and use most commonly used IT tools. | | | 15 | |
| 2. Understand use of computer. | | | 15 | |
| 3. Work with word processing application. | | | 16 | |
| 4. Work with spreadsheets. | | | 17 | |
| 5. Access email and search the internet. | | | 18 | |
| Unit of Competency: | SEIP-LE-ELC-01-S – Apply occupational health and safety (OHS) practice in the workplace | | | |
| Element | Assessment Method | | | |
| | Written | Practical | Oral | |
| 1. Identify OHS policies and procedures. | | A1-3, B1-3, C1-3 | 12 | |
| 2. Apply personal health and safety practices. | | A1-3, B1-3, C1-3 | | |
| 3. Report hazards and risks. | | A1-3, B1-3, C1-3 | 12 | |
| 4. Respond to emergencies. | | A1-3, | 12 | |

| | | B1-3, C1-3 | |
|--|---|------------------------|------|
| Unit of Competency: | SEIP-LE-ELC-02-S – Read and interpret sketches and drawings | | |
| Element | Assessment Method | | |
| | Written | Practical | Oral |
| 1. Interpret information and specifications. | | A1-3, B1-3, C1-3 | |
| 2. Read and interpret sketches and drawings. | | A1-3, B1-3, C1-3 | |
| Unit of Competency: | SEIP-LE-ELC-03-S – Use hand and power tools | | |
| Element | Assessment Method | | |
| | Written | Practical | Oral |
| 1. Identify and inspect hand and power tools. | | A1-3, B1-3, C1-3 | |
| 2. Use hand tools properly and safely. | | A1-3, B1-3, C1-3 | |
| 3. Operate power tools properly and safely. | | A1-3, B1-3, C1-3 | |
| 4. Clean and maintain hand and power tools. | | A1-3, B1-3, C1-3 | |
| Unit of Competency: | SEIP-LE-ELC-04-S – Apply quality system | | |
| Element | Assessment Method | | |
| | Written | Practical | Oral |
| 1. Work within quality system. | | A1-3, B1-3, C1-3 | |
| 2. Apply and monitor quality improvement system. | | A1-3, B1-3, | |

| | | C1-3 | |
|--|---|------------------------|------|
| 3. Apply standard procedures for each job. | 8 | A1-3, B1-3, C1-3 | 1 |
| Unit of Competency: | SEIP-LE-ELC-01-O – Test electronic components | | |
| Element | Assessment Method | | |
| | Written | Practical | Oral |
| 1. Identify basic electronic components. | 1, 5, 16 | A1, B1, C2 | 1 |
| 2. Determine testing criteria. | 2 | A1, B1, C2 | |
| 3. Plan testing approach. | 7 | A1, B1, C2 | |
| 4. Test components. | 4 | A1, B1, C2 | |
| Unit of Competency: | SEIP-LE-ELC-02-O – Connect and terminate electrical wiring and circuits | | |
| Element | Assessment Method | | |
| | Written | Practical | Oral |
| 1. Identify measuring devices and accessories. | 3, 6 | A1-3, B1-3, C1-3 | |
| 2. Prepare for connection and termination. | | A1-3, B1-3, C1-3 | |
| 3. Perform connection and termination. | 3 | A1-3, B1-3, C1-3 | |
| 4. Carry out soldering. | | A1-3, B1-3, C1-3 | 3 |
| 5. Test connection and termination. | 4 | A1-3, B1-3, C1-3 | 4 |
| Unit of Competency: | SEIP-LE-ELC-03-O – Assemble electronic products | | |
| Element | Assessment Method | | |
| | Written | Practical | Oral |
| 1. Prepare for assemble products. | 16 | A2, A3 B2, B3, | |

| | | C1, C3 | |
|--|--|-----------------------------|------|
| 2. Prepare printed circuit boards (PCB) modules. | | A2, A3 B2, B3, C1, C3 | |
| 3. Mount and solder components. | 17 | A2, A3 B2, B3, C1, C3 | 4 |
| 4. Perform assembly. | 15 | A2, A3 B2, B3, C1, C3 | |
| 5. Test and inspect products. | 11. 12. 13 | A2, A3 B2, B3, C1, C3 | |
| Unit of Competency: | SEIP-LE-ELC-04-O – Service consumer products and systems | | |
| Element | Assessment Method | | |
| | Written | Practical | Oral |
| 1. Prepare for work. | 19 | A2, B2, C1 | 5 |
| 2. Install products and services. | 14, | A2, B2, C1 | 5 |
| 3. Diagnose faults and defects. | 18, 20 | A2, B2, C1 | 6, 7 |
| 4. Repair products and systems. | 18, 20 | A2, B2, C1 | 9 |
| 5. Test product and systems. | 11, 12, 13, 19 | A2, B2, C1 | 8 |
| Unit of Competency: | SEIP-LE-ELC-05-O – Service industrial products and systems | | |
| Element | Assessment Method | | |
| | Written | Practical | Oral |
| 1. Prepare for work. | | A3, B3, C3 | 11 |
| 2. Install products and services. | | A3, B3, C3 | 11 |
| 3. Diagnose faults and defects. | 9, 10 | A3, B3, C3 | 10 |

| | | | |
|---------------------------------|---------------|---------------|--------|
| 4. Repair products and systems. | | A3, B3, C3 | 11, 13 |
| 5. Test products and systems. | 11, 12, 13 | A3, B3, C3 | |