



Skills for Employment Investment Program (SEIP)

ASSESSMENT TOOL FOR REFRIGERATION AND AIR CONDITIONING *(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 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 **Refrigeration and Air Conditioning**, 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-REF-01-G	Use basic mathematical concepts
SEIP-LE-REF-02-G	Carry out workplace interaction
SEIP-LE-REF-03-G	Operate in a team environment
SEIP-LE-REF-04-G	Apply basic IT skills
Sector-specific Competencies	
SEIP-LE-REF-01-S	Apply occupational health and safety (OHS) practice in the workplace
SEIP-LE-REF-02-S	Read and interpret sketches and drawings
SEIP-LE-REF-03-S	Use hand and power tools
SEIP-LE-REF-04-S	Apply quality system
Occupation-specific Competencies	
SEIP-LE-REF-01-O	Perform tube processing operation
SEIP-LE-REF-02-O	Apply electrical and electronic fundamentals
SEIP-LE-REF-03-O	Service and maintain refrigerators and freezers
SEIP-LE-REF-04-O	Service and maintain window type air conditioning system
SEIP-LE-REF-05-O	Service and maintain split and package type air conditioning units
SEIP-LE-REF-06-O	Repair refrigeration compressor

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

Occupation:	Refrigeration and Air-conditioning					
Unit Name:	Use basic mathematical concepts					
Unit Code:	SEIP-LE-REF-01-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 calculation requirements in the workplace	1.1. Calculation requirements are identified from workplace information.			✓		
	1.2. Mathematical problems are constructed from workplace.			✓		
2. Select appropriate mathematical methods/concepts for the calculation	2.1. Appropriate method is selected to carry out calculation requirements.			✓		✓
	2.2. Constructed mathematical problems are solved with appropriate method.			✓		✓
3. Use tools and instrument to perform calculations	3.1. Tools and instruments required for computation are identified.			✓		
	3.2. Calculation is performed using appropriate tools and equipment accurately.			✓		

Occupation:	Refrigeration and Air-conditioning					
Unit Name:	Carry out workplace interaction					
Unit Code:	SEIP-LE-REF-02-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. Interpret workplace communication and etiquette	1.1. Workplace codes of conduct are interpreted as per organisational guidelines.				✓	
	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.		✓	

Occupation:	Refrigeration and Air-conditioning					
Unit Name:	Operate in a team environment					
Unit Code:	SEIP-LE-REF-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.				✓	

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.		✓	

Occupation:	Refrigeration and Air-conditioning					
Unit Name:	Apply basic IT skills					
Unit Code:	SEIP-LE-REF-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.	✓				

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. Access email and search the internet	4.1. Use of email account in online environment is explained.	✓		
	4.2. Writing and sending of workplace emails is completed.	✓		
	4.3. Different browsers to work online are identified and selected.		✓	
	4.4. Browse different web portals and apply proper search techniques.		✓	

Occupation:	Refrigeration and Air-conditioning					
Unit Name:	Apply occupational health and safety (OHS) practice in the workplace					
Unit Code:	SEIP-LE-REF-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.		✓			
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.		✓	

Occupation:	Refrigeration and Air-conditioning					
Unit Name:	Read and interpret sketches and drawings					
Unit Code:	SEIP-LE-REF-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.			✓		

Occupation:	Refrigeration and Air-conditioning					
Unit Name:	Use hand and power tools					
Unit Code:	SEIP-LE-REF-03-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 and inspect hand and power tools	1.1. Appropriate hand and power tools are identified.			✓		
	1.2. Application of hand and power tools is recognised.				✓	

	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.	✓		
	4.6. Hand and power tools are stored and secured in accordance with workplace requirements.	✓		

Occupation:	Refrigeration and Air-conditioning
Unit Name:	Apply quality system
Unit Code:	SEIP-LE-REF-04-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. Work within a quality system	1.1. Instructions and procedures are strictly followed in accordance with quality improvement system.		✓			
	1.2. Duties are performed in accordance with demand of quality improvement system.		✓			
	1.3. Defects are detected and reported according to standard operating procedures.		✓			
	1.4. Quality service is ensured and delivered to customer in providing a product or service.		✓			
2. Apply and monitor quality system improvement	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 applied accordingly.		✓	✓		
	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.		✓			

Occupation:	Refrigeration and Air-conditioning		
Unit Name:	Perform tube processing operation		
Unit Code:	SEIP-LE-REF-01-O		
Assessment Method:	P	O	W
	Performance (including	Oral questioning	Written examination (including short-answer,

	<i>demonstration and observation)</i>		<i>multiple choice, and true or false questions)</i>		
Element	Performance Criteria		P	O	W
1. Prepare for tube processing operations	1.1.	PPE are selected and used.	✓		
	1.2.	Tools, equipment and materials are gathered.	✓		
	1.3.	Tools, equipment and materials are checked for usability and operability.	✓		
	1.4.	Tube dimensions and fittings are identified and gathered.	✓		
	1.5.	Measurements and pipe runs are identified in accordance with workplace requirements/specifications.	✓		
2. Cut tubes	2.1.	Tubes are measured and marked in accordance with specification.	✓		
	2.2.	Tubes are cut using by appropriate cutting method and tool.	✓		
	2.3.	Tubes are reamed on its ends after cutting to remove burrs.	✓		
	2.4.	Tube ends are sealed to ensure non contamination with dirt and foreign materials.	✓		
	2.5.	Appropriate sealing material is used on tube ends.	✓		
3. Flare tube ends	3.1.	Tube ends are flared using appropriate flaring tool.	✓		
	3.2.	Flared tube end is checked for quality.	✓		
	3.3.	Flared tube ends are sealed to ensure non-contamination with dirt and foreign materials.	✓		
4. Swage tube end	4.1.	Tube ends are swaged using appropriate swaging tool.	✓		
	4.2.	Swaged tube end is checked for quality.	✓		
	4.3.	Swaged tube end is sealed to ensure non-contamination with dirt and foreign materials.	✓		
5. Bend tube	5.1.	Tube is bended using appropriate bending tool.	✓		
	5.2.	Bended copper/aluminium tube is checked for quality in accordance with specifications.	✓		
	5.3.	Bended copper/aluminium tubes are sealed to ensure non contamination with dirt and foreign materials.	✓		
6. Braze tubes	6.1.	Brazing equipment is checked for usability and safety condition.	✓		
	6.2.	Tubes are brazed using appropriate brazing equipment.	✓		

	6.3. Brazed joints are checked for quality.	✓		
	6.4. Brazed connection is tested in accordance with workplace requirements/specification.	✓		
7. Clean/maintain workplace, tools and equipment	7.1. Workplace is cleaned and materials are stored in accordance with workplace requirements.	✓		
	7.2. Tools and equipment are cleaned, checked for damaged and lubricated (if necessary) and stored in accordance with workplace conditions.	✓		
	7.3. Damaged/defective tools and equipment are reported for repair/replacement.	✓		

Occupation:	Refrigeration and Air-conditioning				
Unit Name:	Apply electrical and electronics fundamentals				
Unit Code:	SEIP-LE-REF-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)		
Element	Performance Criteria	P	O	W	
1. Explain fundamental principles of electricity and electronics	1.1. Fundamental principles/theories of electricity and electronics are described.		✓		
	1.2. Application of OHM's law is explained	✓			
	1.3. Electrical and electronic devices are described.		✓		
	1.4. Basic electrical circuit wiring is carried out.	✓			
	1.5. Soldering is performed.	✓			
	1.6. Electrical problems in application to electrical fundamentals are solved.	✓			
2. Use electrical switch, socket, cables, circuit breaker, magnetic contactor and electronics device, instruments and equipment	2.1. Electrical switch, socket, cables, circuit breaker, magnetic contactor, auto control panel (ACP) and electronics device are identified, used and interpreted.	✓	✓		
	2.2. Electrical/electronic properties/parameters are measured using appropriate measuring tool/instrument.	✓			
	2.3. Electrical/electronic tools and testing instruments are used safely/properly.	✓			
3. Test power supply and electrical components	3.1. Electrical/electronic measuring Instruments are tested for usability and accuracy.	✓			
	3.2. Power supply and electrical/electronic components are tested in accordance with manufacturer's specifications.	✓			

	3.3. Defects of power supply and electrical/electronic components are identified and repaired where possible.	✓		
	3.4. Safe working habits are maintained.	✓		
4. Perform basic electrical/ electronic circuit connections	4.1. Electrical/electronic circuit diagram is evaluated and analysed.	✓		
	4.2. Series-parallel circuits are made, connected and tested.	✓		
	4.3. Electrical/electronic circuit components (diode, bridge rectifier, transistor, resistor etc.) are identified and gathered.	✓		
	4.4. Electrical/electronic components (diode, bridge rectifier, transistor, register etc.) are tested, repaired and replaced where necessary.	✓		
	4.5. Electrical/electronic circuit components are terminated in accordance with given circuit diagram.	✓		
	4.6. Work instructions are followed to ensure safety at work.	✓		
	4.7. Circuit is tested for proper operation in accordance with work instruction/circuit design.	✓		
	4.8. Faults are identified and corrected.	✓		
5. Maintain and store electrical/electronic tools/instruments	5.1. Electrical/electronic tools/instruments are checked for proper operation.	✓		
	5.2. Electrical/electronic tools/instruments are maintained in accordance to manufacturer's specification.	✓		
	5.3. Electrical/electronic tools/instruments stored in accordance to workplace procedures/policy.	✓		

Occupation:	Refrigeration and Air-conditioning					
Unit Name:	Service and maintain refrigerators and freezers					
Unit Code:	SEIP-LE-REF-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 for servicing and maintenance works	1.1. Safe work practices are maintained and personal protective equipment (PPE) are used.				✓	
	1.2. Workplace area is inspected and hazards are eliminated.				✓	

	1.3. Tools, equipment and materials are gathered.	✓		
	1.4. Tools, equipment and materials are checked for usability and quality.	✓		
	1.5. Workplace is prepared for servicing activities.	✓		
	1.6. Domestic refrigerator/freezer is inspected and corresponding technical information is identified and interpreted.	✓		
2. Troubleshoot refrigerator/freezer	2.1. Relevant information regarding trouble/problem is asked from user/owner of unit.	✓		
	2.2. Electrical wiring circuit is checked and traced.	✓		
	2.3. Refrigerator/freezer is started and operated, if possible, and observed operation.	✓		
	2.4. Electrical, electronic and technical parameters are observed and recorded.	✓		
	2.5. System trouble/problem is identified and results/findings are recorded.	✓		
	2.6. Electronic soldering circuit is checked and traced.	✓		
3. Maintain and repair refrigerator/freezer	3.1. Refrigerant is recovered, leaked tested and vacuumed.	✓		
	3.2. Electrical/electronic trouble/problem is identified.	✓		
	3.3. Faulty electrical and electronic component/s are tested and repaired/replaced where necessary.	✓		
	3.4. Specifications of electrical/electronic component for replacement is checked and recorded.	✓		
	3.5. Electrical/electronic maintenance activities are carried out in accordance with manufacturer's instructions/specification.	✓		
	3.6. Operation of electrical components and system is checked and tested for proper operation in accordance with manufacturer's specification.	✓		
4. Service mechanical refrigeration system	4.1. Compressor operation fault is identified.	✓		
	4.2. Refrigerant compressor fault is repaired and tested for normal operation.	✓		
	4.3. Mechanical refrigeration system fault is identified and repaired/serviced in accordance with manufacturer's instructions/specifications.	✓		
	4.4. Servicing procedures of refrigeration system components are carried out in accordance with manufacturer's instructions/specifications.	✓		
	4.5. Refrigerator/freezer is tested for acceptable operating performance in accordance with manufacturer's specifications.	✓		

5. Clean/maintain workplace, tools and equipment	5.1. Workplace is cleaned and materials are stored in accordance with workplace requirements.	✓		
	5.2. Tools and equipment are cleaned, checked for damaged and lubricated (if necessary) and stored in accordance with workplace conditions.	✓		
	5.3. Damaged/defective tools and equipment are reported for repair/replacement.	✓		

Occupation:	Refrigeration and Air-conditioning					
Unit Name:	Service and maintain window type air-conditioning system					
Unit Code:	SEIP-LE-REF-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 for servicing and maintenance works	1.1. Safe work practices are maintained and personal protective equipment (PPE) are used			✓		
	1.2. Workplace area is inspected and hazards are eliminated.			✓		
	1.3. Tools, equipment and materials are gathered.			✓		
	1.4. Tools, equipment and materials are checked for usability and quality.			✓		
	1.5. Workplace is prepared for servicing activities.			✓		
	1.6. Window type air conditioner is inspected and corresponding technical information is identified and interpreted.			✓		
2. Troubleshoot window air conditioner	2.1. Relevant information regarding trouble/problem is asked from user/owner of unit.			✓		
	2.2. Electrical wiring circuit is checked and traced.			✓		
	2.3. Electronic circuit is checked and traced.			✓		
	2.4. Window air conditioner is started and operated, if possible, and observed operation			✓		
	2.5. Electrical, electronic and mechanical parameters are observed and recorded.			✓		
	2.6. System trouble/problem is identified and results/findings are recorded.			✓		
3. Maintain/repair electrical/electronic system	3.1. Electrical trouble/problem is identified.			✓		
	3.2. Faulty electrical and electronic component/s is tested and repaired/replaced where necessary.			✓		

	3.3. Specifications of electrical/electronic component for replacement is checked and recorded.	✓		
	3.4. Electrical maintenance activities are carried out in accordance with manufacturer's instructions/specification.	✓		
	3.5. Operation of electrical/electronic components and system is checked and tested for proper operation in accordance with manufacturer's specification .	✓		
4. Service mechanical refrigeration system	4.1. Compressor operation fault is identified.	✓		
	4.2. Compressor fault is repaired and tested for normal operation.	✓		
	4.3. Mechanical refrigeration system fault is identified and repaired/serviced in accordance with manufacturer's instructions/specifications.	✓		
	4.4. Servicing procedures of window type air conditioning system components are carried out in accordance with manufacturer's instructions/specifications.	✓		
	4.5. Window air conditioner is tested for acceptable operating performance in accordance with manufacturer's specifications.	✓		
5. Clean/maintain workplace, tools and equipment	5.1. Workplace is cleaned and materials are stored in accordance with workplace requirements.	✓		
	5.2. Tools and equipment are cleaned, checked for damaged and lubricated (if necessary) and stored in accordance with workplace conditions.	✓		
	5.3. Damaged/defective tools and equipment are reported for repair/replacement.	✓		

Occupation:	Refrigeration and Air-conditioning			
Unit Name:	Service and maintain split and package type air-conditioning units			
Unit Code:	SEIP-LE-REF-05-O			
Assessment Method:		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 for servicing and maintenance works	1.1. Safe work practices are observed and personal protective equipment (PPE) are used.	✓		
	1.2. Workplace area is inspected and hazards are eliminated.	✓		
	1.3. Tools, equipment and materials are gathered.	✓		

	1.4. Tools, equipment and materials are checked for usability and quality.	✓		
	1.5. Workplace is prepared for servicing activities.	✓		
	1.6. Window type air conditioner is inspected and corresponding technical information is identified.	✓		
2. Troubleshoot split and package type air conditioning units	2.1. Relevant information regarding trouble/problem is asked from user/owner of unit.	✓		
	2.2. Electrical wiring circuit is checked and traced.	✓		
	2.3. Split and package type air conditioning units are started and operated, if possible, and observed operation.	✓		
	2.4. Electrical/electronic and mechanical parameters are observed and recorded.	✓		
	2.5. System trouble/problem is identified and results/findings are recorded.	✓		
3. Maintain/repair electrical and electronic system	3.1. Electrical trouble/problem is identified.	✓		
	3.2. Faulty electrical/electronic component/s is tested and repaired/replaced where necessary.	✓		
	3.3. Specifications of electrical component for replacement is checked and recorded.	✓		
	3.4. Electrical/electronic maintenance activities are carried out in accordance with manufacturer's instructions/specification.	✓		
	3.5. Operation of electrical components and system is checked and tested for proper operation in accordance with manufacturer's specification.	✓		
4. Service mechanical system and components	4.1. Compressor operation fault is identified and interpreted.	✓		
	4.2. Compressor fault is repaired and tested for normal operation.	✓		
	4.3. Mechanical refrigeration system fault is identified and repaired/serviced in accordance with manufacturer's instructions/specifications.	✓		
	4.4. Servicing procedures of split type air conditioning system components are carried out in accordance with manufacturer's instructions/specification.	✓		
	4.5. Split and package type air conditioning units are tested for acceptable operating performance in accordance with manufacturer's specifications.	✓		
5. Clean/maintain workplace, tools and equipment	5.1. Workplace is cleaned and materials are stored in accordance with workplace requirements.	✓		
	5.2. Tools and equipment are cleaned, checked for damaged and lubricated (if necessary) and stored in accordance with workplace conditions.	✓		

	5.3. Damaged/defective tools and equipment are reported for repair/replacement.	✓		
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Occupation:	Refrigeration and Air-conditioning			
Unit Name:	Repair refrigeration compressor			
Unit Code:	SEIP-LE-REF-06-O			
Assessment Method:		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 for refrigeration compressor servicing/repairing	1.1. Safe work practices are maintained and personal protective equipment (PPE) are used.	✓		
	1.2. Workplace area is inspected and hazards are eliminated.	✓		
	1.3. Tools, equipment and materials are gathered and interpreted.	✓		
	1.4. Tools, equipment and materials are checked for usability and quality.	✓		
	1.5. Workplace is prepared for repairing of refrigeration compressor.	✓		
	1.6. Compressor technical information is identified interpreted and recorded.	✓		
2. Diagnose fault of compressor	2.1. Type of faulty compressor is identified.	✓		
	2.2. Relevant information regarding trouble/problem is asked from user/owner of unit.	✓		
	2.3. Refrigerant is recovered appropriately.	✓		
	2.4. Compressor is removed from refrigeration unit in accordance with workplace/manufacture's instruction.	✓		
	2.5. Compressor is disassembled in accordance with manufacturer's instruction/specification.	✓		
	2.6. Compressor parts/components are checked and faults identified.	✓		
3. Repair compressor	3.1. Repair procedure is planned and necessary parts/components are gathered.	✓		
	3.2. Faulty parts/components are repaired or replaced where necessary in accordance with workplace.	✓		
	3.3. Compressor parts/components are assembled in accordance with manufacturer's instruction/specification.	✓		

	3.4. Compressor is tested for normal operation in accordance with manufacturer's specifications.	✓		
	3.5. Compressor is installed back into the refrigeration system and oil level is tested.	✓		
	3.6. Compressor leak is checked and operated.	✓		
4. Clean/maintain workplace, tools and equipment	4.1. Workplace is cleaned and materials are stored in accordance with workplace requirements.	✓		
	4.2. Tools and equipment are cleaned, checked for damaged and lubricated (if necessary) and stored in accordance with workplace conditions.	✓		
	4.3. Damaged/defective tools and equipment are reported for repair/replacement.	✓		

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 unit of competency that comprise of the Certificate in Refrigeration and Air-conditioning. 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.

Your 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, and 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:	Refrigeration and Air-conditioning	
Units of competency:	<p>Generic units:</p> <ul style="list-style-type: none"> Use basic mathematical concepts Carry out workplace interaction Operate in a team environment Apply basic IT skills <p>Sector-specific units:</p> <ul style="list-style-type: none"> Apply occupational health and safety (OHS) practice in the workplace Read and interpret sketches and drawings Use hand and power tools Apply quality system <p>Occupation-specific units:</p> <ul style="list-style-type: none"> Perform tube processing operation Apply electrical and electronic fundamentals Service and maintain refrigerators and freezers Service and maintain window type air conditioning system Service and maintain split and package type air conditioning units Repair refrigeration compressor 	
<p>Instructions:</p> <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
▪ Identify calculation requirements from workplace information		
▪ Construct mathematical problems from workplace		
▪ Select appropriate method to carry out calculation requirement		

▪ Solve constructed mathematical problems with appropriate method		
▪ Identify tools and instruments required for computation		
▪ Perform calculation using appropriate tools and equipment		
▪ Interpret workplace codes of conduct as per organizational 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 correctly workplace documents		
▪ Understand correctly and follow visual information/symbol/signage		
▪ Access specific and relevant information from appropriate sources		
▪ Use appropriate medium to transfer information and ideas		
▪ Attend team meetings on time to ensure active participation		
▪ Follow meeting procedures and etiquette		
▪ Ensure active participation, express and hear opinions		
▪ Respect opinions and ideas of others and their importance in the development of relationships		
▪ Provide and interpret 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 situations		
▪ Interpret roles and objectives of the team		
▪ Interpret roles and responsibilities of the team members		
▪ Identify personal role and responsibilities within the team environment		
▪ Interpret reporting relationships within team and external to team		
▪ Identify and provide support to other teammates' tasks		
▪ Encourage the team through sharing information or expertise, working together to solve problems putting team success first		
▪ Interpret and respect views and opinions of other team members		
▪ Identify problems faced at the individual and team level and shows insight into the root-causes of the problems		
▪ Identify a range of solutions and courses of action together with benefits, costs, and risks associated with each		

▪ Recognise the good ideas of others to help develop solutions and seek advice from those who've solved similar problems		
▪ Look beyond the obvious and not stop at the first answers		
▪ Identify and summarise history of information technology (IT)		
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		
▪ Operate word processing application appropriate to perform activity		
▪ 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 techniques of a document		
▪ Explain use of email account in online environment		
▪ Complete writing and sending of workplace emails		
▪ Identify different browsers to work online		
▪ Browse different web portals and apply proper search techniques		
▪ Interpret OHS policies and safe operating procedures		
▪ Identify and follow safety signs and symbols		
▪ Interpret response, evacuation procedures and other contingency measures correctly		
▪ Apply OHS policies and procedures in the workplace including personal protective equipment (PPE)		
▪ Recognise common health issues		
▪ Identify common safety issues		
▪ Identify hazards and risks		
▪ Interpret hazards and risks assessment		
▪ 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		
▪ Identify and interpret key terms and techniques		
▪ Read and interpret schedules, dimensions, sketches, drawings and specification correctly		
▪ Identify appropriate hand and power tools		
▪ Recognise application of hand and power tools		
▪ Read and interpret specifications and instructions.		
▪ Identify and select appropriate personal protective equipment		
▪ Select and use PPE		
▪ Gather tools, equipment and materials		
▪ Check tools, equipment and materials for usability and operability		
▪ Identify and gather tube dimensions and fittings		
▪ Identify measurements and pipe runs in accordance with workplace requirements/specifications		
▪ Measure and mark tubes in accordance with specification		
▪ Cut tubes using by appropriate cutting method and tool.		
▪ Ream tubes on its ends after cutting to remove burrs.		
▪ Seal tube ends to ensure non contamination with dirt and foreign materials		
▪ Use appropriate sealing material on tube ends		
▪ Flare tube ends using appropriate flaring tool		
▪ Check flared tube end for quality		
▪ Seal flared tube ends to ensure non-contamination with dirt and foreign materials		
▪ Swage tube ends using appropriate swaging tool		
▪ Check swaged tube end for quality		
▪ Seal swaged tube end to ensure non-contamination with dirt and foreign materials		
▪ Bend tube using appropriate bending tool		
▪ Check bended copper/aluminium tube for quality in accordance with specifications		
▪ Seal bended copper/aluminium tubes to ensure non contamination with dirt and foreign materials		
▪ Check brazing equipment for usability and safety condition		
▪ Braze tubes using appropriate brazing equipment		
▪ Check brazed joints for quality		
▪ Test brazed connection in accordance with workplace requirements/specification		

<ul style="list-style-type: none"> ▪ Clean workplace and materials are store in accordance with workplace requirements 		
<ul style="list-style-type: none"> ▪ Clean tools and equipment, check for damaged and lubricate (if necessary) and stored in accordance with workplace conditions 		
<ul style="list-style-type: none"> ▪ Report damaged/defective tools and equipment for repair/replacement 		
<ul style="list-style-type: none"> ▪ Describe fundamental principles/theories of electricity and electronics 		
<ul style="list-style-type: none"> ▪ Explain application of ohm's law 		
<ul style="list-style-type: none"> ▪ Describe electrical and electronic devices 		
<ul style="list-style-type: none"> ▪ Carry out basic electrical circuit wiring 		
<ul style="list-style-type: none"> ▪ Perform soldering 		
<ul style="list-style-type: none"> ▪ Solve electrical problems in application to electrical fundamentals 		
<ul style="list-style-type: none"> ▪ Identify, use and interpret electrical switch, socket, cables, circuit breaker, magnetic contactor, auto control panel (ACP) and electronics device 		
<ul style="list-style-type: none"> ▪ Measure electrical/electronic properties/parameters using appropriate measuring tool/instrument 		
<ul style="list-style-type: none"> ▪ Use electrical/electronic tools and testing instruments safely/properly 		
<ul style="list-style-type: none"> ▪ Test electrical/electronic measuring instruments for usability and accuracy 		
<ul style="list-style-type: none"> ▪ Test power supply and electrical/electronic components in accordance with manufacturer's specifications 		
<ul style="list-style-type: none"> ▪ Identify and repair defects of power supply and electrical/electronic components where possible 		
<ul style="list-style-type: none"> ▪ Maintain safe working habits 		
<ul style="list-style-type: none"> ▪ Evaluate and analyse electrical/electronic circuit diagram 		
<ul style="list-style-type: none"> ▪ Make, connect and test series-parallel circuits 		
<ul style="list-style-type: none"> ▪ Identify and gather electrical/electronic circuit components (diode, bridge rectifier, transistor, resister etc.) 		
<ul style="list-style-type: none"> ▪ Test, repair and replace electrical/electronic components (diode, bridge rectifier, transistor, register etc.) where necessary 		
<ul style="list-style-type: none"> ▪ Terminate electrical/electronic circuit components in accordance with given circuit diagram 		
<ul style="list-style-type: none"> ▪ Follow work instructions to ensure safety at work 		
<ul style="list-style-type: none"> ▪ Test circuit for proper operation in accordance with work instruction/circuit design 		
<ul style="list-style-type: none"> ▪ Identify and correct faults 		
<ul style="list-style-type: none"> ▪ Check electrical/ electronic tools/instruments for proper operation 		

<ul style="list-style-type: none"> ▪ Maintain electrical/ electronic tools/instruments in accordance to manufacturer's specification 		
<ul style="list-style-type: none"> ▪ Store electrical/ electronic tools/instruments in accordance to workplace procedures/policy 		
<ul style="list-style-type: none"> ▪ Check tools, equipment and materials for usability and quality 		
<ul style="list-style-type: none"> ▪ Prepare workplace for servicing activities 		
<ul style="list-style-type: none"> ▪ Inspect domestic refrigerator/freezer and identify and interpret corresponding technical information 		
<ul style="list-style-type: none"> ▪ Ask relevant information regarding trouble/problem from user/owner of unit 		
<ul style="list-style-type: none"> ▪ Check and trace electrical wiring circuit 		
<ul style="list-style-type: none"> ▪ Start and operate refrigerator/freezer, if possible, and observed operation 		
<ul style="list-style-type: none"> ▪ Observe and record electrical, electronic and technical parameters 		
<ul style="list-style-type: none"> ▪ Record system trouble/problem is identified and results/findings 		
<ul style="list-style-type: none"> ▪ Check and trace electronic soldering circuit 		
<ul style="list-style-type: none"> ▪ Recover refrigerant, leaked tested and vacuumed 		
<ul style="list-style-type: none"> ▪ Identify electrical/electronic trouble/problem 		
<ul style="list-style-type: none"> ▪ Test and repair/replace faulty electrical and electronic component/s where necessary 		
<ul style="list-style-type: none"> ▪ Check and record specifications of electrical/electronic component for replacement 		
<ul style="list-style-type: none"> ▪ Carry out electrical/electronic maintenance activities in accordance with manufacturer's instructions/specification 		
<ul style="list-style-type: none"> ▪ Check and test operation of electrical components and system for proper operation in accordance with manufacturer's specification 		
<ul style="list-style-type: none"> ▪ Identify compressor operation fault 		
<ul style="list-style-type: none"> ▪ Repair and test refrigerant compressor fault for normal operation 		
<ul style="list-style-type: none"> ▪ Identify and repair/service mechanical refrigeration system fault in accordance with manufacturer's instructions/specifications 		
<ul style="list-style-type: none"> ▪ Carry out servicing procedures of refrigeration system components in accordance with manufacturer's instructions/specifications 		
<ul style="list-style-type: none"> ▪ Test refrigerator/freezer for acceptable operating performance in accordance with manufacturer's specifications 		
<ul style="list-style-type: none"> ▪ Store workplace is cleaned and materials in accordance with workplace requirements 		
<ul style="list-style-type: none"> ▪ Clean, check and lubricate tools and equipment for damaged (if necessary) and stored in accordance with workplace conditions 		

▪ Report damaged/defective tools and equipment for repair/replacement		
▪ Prepare workplace for servicing activities		
▪ Inspect window type air conditioner and identify and interpret corresponding technical information		
▪ Ask relevant information regarding trouble/problem from user/owner of unit		
▪ Check and trace electrical wiring circuit and electronic circuit		
▪ Start and operate window air conditioner, if possible, and observed operation		
▪ Observe and record electrical, electronic and mechanical parameters		
▪ Identify system trouble/problem and record results/findings		
▪ Identify electrical trouble/problem		
▪ Test and repair/replace faulty electrical and electronic component/s where necessary		
▪ Check and record specifications of electrical/electronic component for replacement		
▪ Carry out electrical maintenance activities in accordance with manufacturer's instructions/specification		
▪ Check and test operation of electrical/electronic components and system for proper operation in accordance with manufacturer's specification		
▪ Identify compressor operation fault		
▪ Repair and test compressor fault for normal operation		
▪ Identify and repair/service mechanical refrigeration system fault in accordance with manufacturer's instructions/specifications		
▪ Carry out servicing procedures of window type air conditioning system components in accordance with manufacturer's instructions/ specifications		
▪ Test window air conditioner for acceptable operating performance in accordance with manufacturer's specifications.		
▪ Clean workplace and store materials in accordance with workplace requirements		
▪ Clean, check tools and equipment for damaged and lubricate (if necessary) and stored in accordance with workplace conditions		
▪ Report damaged/defective tools and equipment for repair/replacement		
▪ Inspect window type air conditioner and identify corresponding technical information		
▪ Ask relevant information regarding trouble/problem from user/owner of unit		
▪ Check and trace electrical wiring circuit		

<ul style="list-style-type: none"> ▪ Start and operate split and package type air conditioning units, if possible, and observed operation 		
<ul style="list-style-type: none"> ▪ Observe and record electrical/electronic and mechanical parameters 		
<ul style="list-style-type: none"> ▪ Identify system trouble/problem and record results/findings. 		
<ul style="list-style-type: none"> ▪ Identify electrical trouble/problem 		
<ul style="list-style-type: none"> ▪ Test and repair/replace faulty electrical/electronic component/s where necessary 		
<ul style="list-style-type: none"> ▪ check and record specifications of electrical component for replacement 		
<ul style="list-style-type: none"> ▪ Carry out electrical/electronic maintenance activities in accordance with manufacturer's instructions/specification 		
<ul style="list-style-type: none"> ▪ Check and test operation of electrical components and system for proper operation in accordance with manufacturer's specification 		
<ul style="list-style-type: none"> ▪ Identify and interpret compressor operation fault 		
<ul style="list-style-type: none"> ▪ Repair and test compressor fault for normal operation 		
<ul style="list-style-type: none"> ▪ Identify and repair/service mechanical refrigeration system fault in accordance with manufacturer's instructions/specifications 		
<ul style="list-style-type: none"> ▪ Carry out servicing procedures of split type air conditioning system components in accordance with manufacturer's instructions/specification 		
<ul style="list-style-type: none"> ▪ Test split and package type air conditioning units for acceptable operating performance in accordance with manufacturer's specifications. 		
<ul style="list-style-type: none"> ▪ Clean workplace and store materials in accordance with workplace requirements 		
<ul style="list-style-type: none"> ▪ Clean and check tools and equipment for damaged and lubricate (if necessary) and stored in accordance with workplace conditions 		
<ul style="list-style-type: none"> ▪ Report damaged/defective tools and equipment for repair/replacement 		
<ul style="list-style-type: none"> ▪ Prepare workplace for repairing of refrigeration compressor 		
<ul style="list-style-type: none"> ▪ Identify, interpret and record compressor technical information 		
<ul style="list-style-type: none"> ▪ Identify type of faulty compressor 		
<ul style="list-style-type: none"> ▪ Ask relevant information regarding trouble/problem from user/owner of unit 		
<ul style="list-style-type: none"> ▪ Recover refrigerant appropriately 		
<ul style="list-style-type: none"> ▪ Remove compressor from refrigeration unit in accordance with workplace/manufacturer's instruction 		
<ul style="list-style-type: none"> ▪ Disassemble compressor in accordance with manufacturer's instruction/specification 		
<ul style="list-style-type: none"> ▪ Check compressor parts/components and identify faults 		

▪ Gather repair procedure is planned and necessary parts/ components		
▪ Repair or replace faulty parts/components where necessary in accordance with workplace		
▪ Assemble compressor parts/components in accordance with manufacturer's instruction/specification		
▪ Test compressor for normal operation in accordance with manufacturer's specifications		
▪ Install compressor back into the refrigeration system and oil level is tested		
▪ Check and operate compressor leak		
▪ Clean workplace and store materials in accordance with workplace requirements		
▪ Clean and check tools and equipment for damaged and lubricate (if necessary) and store in accordance with workplace conditions		
▪ Report damaged/defective tools and equipment for repair/ replacement		
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 – Refrigeration and Air-conditioning

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 Refrigeration and Air-conditioning, you must demonstrate competence in the following units, as established in the assessment agreement:

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

CODE	UNIT OF COMPETENCY
Generic Competencies	
SEIP-LE-REF-01-G	Use basic mathematical concepts
SEIP-LE-REF-02-G	Carry out workplace interaction
SEIP-LE-REF-03-G	Operate in a team environment
SEIP-LE-REF-04-G	Apply basic IT skills
Sector-specific Competencies	
SEIP-LE-REF-01-S	Apply occupational health and safety (OHS) practice in the workplace
SEIP-LE-REF-02-S	Read and interpret sketches and drawings
SEIP-LE-REF-03-S	Use hand and power tools
SEIP-LE-REF-04-S	Apply quality system
Occupation-specific Competencies	
SEIP-LE-REF-01-O	Perform tube processing operation
SEIP-LE-REF-02-O	Apply electrical and electronic fundamentals
SEIP-LE-REF-03-O	Service and maintain refrigerators and freezers
SEIP-LE-REF-04-O	Service and maintain window type air conditioning system
SEIP-LE-REF-05-O	Service and maintain split and package type air conditioning units
SEIP-LE-REF-06-O	Repair refrigeration compressor

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

Assessment Agreement	
Occupation:	Refrigeration and Air-conditioning
Assessment Centre:	
Candidate Name:	
Assessor Name:	
Unit of Competency	
Generic Competencies	
SEIP-LE-REF-01-G	Use basic mathematical concepts
SEIP-LE-REF-02-G	Carry out workplace interaction
SEIP-LE-REF-03-G	Operate in a team environment
SEIP-LE-REF-04-G	Apply basic IT skills
Sector-specific Competencies	
SEIP-LE-REF-01-S	Apply occupational health and safety (OHS) practice in the workplace
SEIP-LE-REF-02-S	Read and interpret sketches and drawings
SEIP-LE-REF-03-S	Use hand and power tools
SEIP-LE-REF-04-S	Apply quality system
Occupation-specific Competencies	
SEIP-LE-REF-01-O	Perform tube processing operation
SEIP-LE-REF-02-O	Apply electrical and electronic fundamentals
SEIP-LE-REF-03-O	Service and maintain refrigerators and freezers
SEIP-LE-REF-04-O	Service and maintain window type air conditioning system
SEIP-LE-REF-05-O	Service and maintain split and package type air conditioning units
SEIP-LE-REF-06-O	Repair refrigeration compressor
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	
<p>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.</p>	

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 the units of competency that comprise of the qualification Refrigeration and Air-conditioning, 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 Signature:		Date:	
Assessor Signature:		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:
 - Service and maintain refrigerator and/or freezer
 - Service and maintain air-conditioning system (window)
 - Service and maintain split air-conditioning unit
 - Repair refrigeration compressor
 - Set B:
 - Service and maintain refrigerator and/or freezer
 - Service and maintain air-conditioning system (window)
 - Service and maintain split air-conditioning unit
 - Repair refrigeration compressor
 - Set C:
 - Service and maintain refrigerator and/or freezer
 - Service and maintain air-conditioning system (window)
 - Service and maintain split air-conditioning unit
 - Repair refrigeration compressor
 - 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 (8 hours) – **performance evidence**

The basic machine operation practical demonstration activities will be divided into four (4) tasks (contained in one set):

 - (i) Practical Demonstration 1 (2 hours)
 - (ii) Practical Demonstration 2 (2 hours)
 - (iii) Practical Demonstration 3 (2 hours)
 - (iv) Practical Demonstration 4 (2 hours)
3. Final assessment is your responsibility as the accredited/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: page 50
- Set A – Practical Demonstration 2: page 58
- Set A – Practical Demonstration 3: page 64
- Set A – Practical Demonstration 4: page 70
- Set B – Practical Demonstration 1: page 76
- Set B – Practical Demonstration 2: page 84
- Set B – Practical Demonstration 3: page 90
- Set B – Practical Demonstration 4: page 96
- Set C – Practical Demonstration 1: page 102
- Set C – Practical Demonstration 2: page 110
- Set C – Practical Demonstration 3: page 116
- Set C – Practical Demonstration 4: page 122

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 Refrigeration and Air-conditioning. 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 (8 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:
 - Service and maintain refrigerator and/or freezer (2 hours)
 - Service and maintain air-conditioning system (window) (2 hours)
 - Service and maintain split air-conditioning unit (2 hours)
 - Repair refrigeration compressor (2 hours)
 - Set B:
 - Service and maintain refrigerator and/or freezer (2 hours)
 - Service and maintain air-conditioning system (window) (2 hours)
 - Service and maintain split air-conditioning unit (2 hours)
 - Repair refrigeration compressor (2 hours)
 - Set C:
 - Service and maintain refrigerator and/or freezer (2 hours)
 - Service and maintain air-conditioning system (window) (2 hours)
 - Service and maintain split air-conditioning unit (2 hours)
 - Repair refrigeration compressor (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 Refrigeration and Air-conditioning.
 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 Refrigeration and Air-conditioning
Unit of Competency	
Generic Competencies	
SEIP-LE-REF-01-G	Use basic mathematical concepts
SEIP-LE-REF-02-G	Carry out workplace interaction
SEIP-LE-REF-03-G	Operate in a team environment
SEIP-LE-REF-04-G	Apply basic IT skills
Sector-specific Competencies	
SEIP-LE-REF-01-S	Apply occupational health and safety (OHS) practice in the workplace
SEIP-LE-REF-02-S	Read and interpret sketches and drawings
SEIP-LE-REF-03-S	Use hand and power tools
SEIP-LE-REF-04-S	Apply quality system
Occupation-specific Competencies	
SEIP-LE-REF-01-O	Perform tube processing operation
SEIP-LE-REF-02-O	Apply electrical and electronic fundamentals
SEIP-LE-REF-03-O	Service and maintain refrigerators and freezers
SEIP-LE-REF-04-O	Service and maintain window type air conditioning system
SEIP-LE-REF-05-O	Service and maintain split and package type air conditioning units
SEIP-LE-REF-06-O	Repair refrigeration compressor
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 Refrigeration and Air-conditioning ▪ 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** test. Choose the appropriate answer and circle the letter that corresponds with your answer.

1.	In a refrigeration system, the expansion device is connected between the?	<ul style="list-style-type: none"> a. Compressor and condenser b. Condenser and receiver c. Receiver and evaporator d. Evaporator and compressor
2.	Rating of a domestic refrigerator is of the order of?	<ul style="list-style-type: none"> a. 0.1 ton b. 5 tons c. 10 tons d. 40 tons
3.	The colour of the flame of a halide torch, in case of leakage of Freon refrigerant, will change to?	<ul style="list-style-type: none"> a. Bright green b. Yellow c. Red d. Orange
4.	How many grams of raw materials do you have in 25,000 kilograms?	<ul style="list-style-type: none"> a. 250,000,000 b. 250,000 c. 2,500,000 b. 25,000,000
5.	The bank of tubes at the back of a domestic refrigerator are called?	<ul style="list-style-type: none"> a. Condenser tubes b. Evaporator tubes c. Refrigerant cooling tubes d. Capillary tubes
6.	Which of the following refrigerant has the lowest boiling point?	<ul style="list-style-type: none"> a. Ammonia b. Carbon dioxide c. Sulphur dioxide d. Freon-12
7.	Moisture in a refrigerant system is removed by?	<ul style="list-style-type: none"> a. Driers b. Filter-driers c. Desiccants d. All of the above
8.	A capillary tube is not used in large capacity refrigeration systems because?	<ul style="list-style-type: none"> a. Cost is too high b. Capacity control is not possible c. It is made of copper d. Required pressure drop cannot be achieved
9.	Which of the following is a type of expansion device?	<ul style="list-style-type: none"> a. Capillary tubes b. Throttle valves

		c. Both of the above d. None of the above
10.	Types of compressor include?	a. Reciprocating b. Centrifugal c. Rotary d. All of the above
True or False Quiz		
Tick (✓) the box corresponding to the correct answer.		
11.	Polite words should be used when conducting official communication through the email.	True <input type="checkbox"/> False <input type="checkbox"/>
12.	Rahim knows that she has a meeting at 9:00 in the morning. It is part of professional ethics to come to the meeting even if she is late by 1 hour. Anyway, the team members will wait for her.	True <input type="checkbox"/> False <input type="checkbox"/>
13.	Wearing PPE helps protect against injury .	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.	Domestic types of refrigerator use a _____ compressor.	
15.	The thermostatic expansion valve is used in _____ type of evaporators.	
Short Answer		
Write a short answer in the space provided (not to exceed more than approximately twenty-five (25) words).		
16.	What is one tonne of refrigeration?	
17.	What is a vapor compression cycle?	
18.	What are the different types of air conditioning systems?	
19.	What is an air-conditioner condenser?	

20.	What gas is used in air-conditioning?		
Feedback to candidate:			
Assessment decision for this assessment activity: <input type="checkbox"/> Competent <input type="checkbox"/> Not Yet Competent			
Candidate Signature:		Date:	
Assessor Signature:		Date:	

Written Test - Answers

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

Multiple Choice		
1.	In a refrigeration system, the expansion device is connected between the?	<ul style="list-style-type: none"> a. Compressor and condenser b. Condenser and receiver c. Receiver and evaporator d. Evaporator and compressor
2.	Rating of a domestic refrigerator is of the order of?	<ul style="list-style-type: none"> a. 0.1 ton b. 5 tons c. 10 tons d. 40 tons
3.	The colour of the flame of a halide torch, in case of leakage of Freon refrigerant, will change to?	<ul style="list-style-type: none"> a. Bright green b. Yellow c. Red d. Orange
4.	How many grams of raw materials do you have in 25,000 kilograms?	<ul style="list-style-type: none"> a. 250,000,000 b. 250,000 c. 2,500,000 d. 25,000,000
5.	The bank of tubes at the back of a domestic refrigerator are called?	<ul style="list-style-type: none"> a. Condenser tubes b. Evaporator tubes c. Refrigerant cooling tubes d. Capillary tubes
6.	Which of the following refrigerant has the lowest boiling point?	<ul style="list-style-type: none"> a. Ammonia b. Carbon dioxide c. Sulphur dioxide d. Freon-12
7.	Moisture in a refrigerant system is removed by?	<ul style="list-style-type: none"> a. Driers b. Filter-driers c. Desiccants d. All of the above
8.	A capillary tube is not used in large capacity refrigeration systems because?	<ul style="list-style-type: none"> a. Cost is too high b. Capacity control is not possible c. It is made of copper d. Required pressure drop cannot be achieved
9.	Which of the following is a type of expansion device?	<ul style="list-style-type: none"> a. capillary tubes b. throttle valves c. Both of the above d. None of the above
10.	Types of compressor include?	<ul style="list-style-type: none"> a. Reciprocating b. Centrifugal c. Rotary d. All of the above
True or False Quiz		

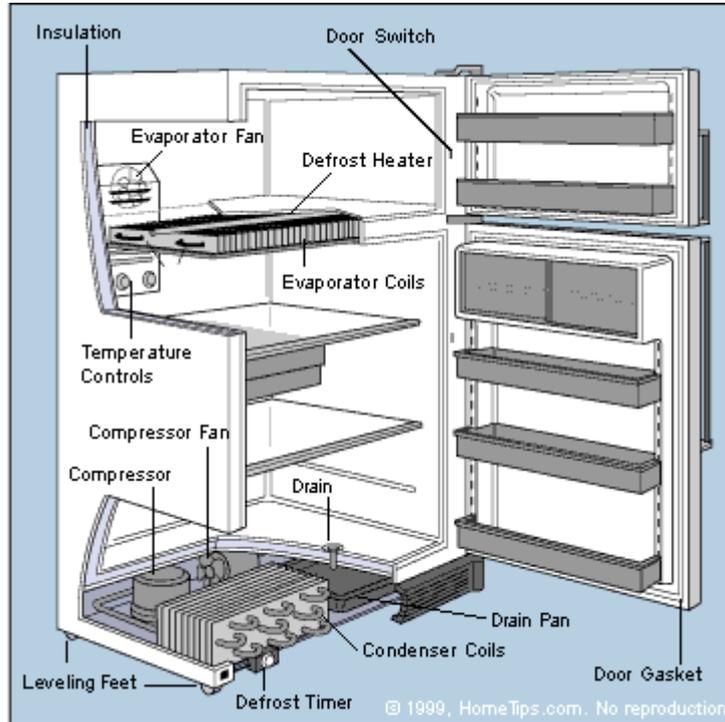
11.	Polite words should be used when conducting official communication through the email.	True <input checked="" type="checkbox"/> False <input type="checkbox"/>
12.	Rahim knows that she has a meeting at 9:00 in the morning. It is part of professional ethics to come to the meeting even if she is late by 1 hour. Anyway, the team members will wait for her.	True <input type="checkbox"/> False <input checked="" type="checkbox"/>
13.	Wearing PPE helps protect against injury .	True <input checked="" type="checkbox"/> False <input type="checkbox"/>
Fill in the Missing Blanks		
14.	Domestic types of refrigerator use a <u>piston type reciprocating</u> compressor.	
15.	The thermostatic expansion valve is used in <u>dry</u> type of evaporators.	
Short Answer		
16.	What is one tonne of refrigeration?	One tonne of refrigeration means machine is capable of removing heat from a body equal to the heat absorbed by one tonne of ice when it melts from 0 ° C to 0 ° C Water in 24 hours. Here one tonne is equal to 2000 lb.
17.	What is a vapor compression cycle?	Vapor-compression refrigeration or vapor-compression refrigeration system (VCRS), in which the refrigerant undergoes phase changes, is one of the many refrigeration cycles and is the most widely used method for air-conditioning of buildings and automobiles.
18.	What are the different types of air conditioning systems?	Types of Air-conditioning systems are: <ul style="list-style-type: none"> • Window air-conditioner • Split air-conditioner • Packaged air-conditioner • Central air-conditioning system
19.	What is an air-conditioner condenser?	The AC condenser is a very important component found on virtually all modern automotive AC systems. Its primary function is to convert the refrigerant coming from the compressor from a high temperature, high pressure vapor into a high-pressure liquid through condensation.
20.	What gas is used in air-conditioning?	Refrigerants make air conditioning possible. Contained within the coils of an air conditioner, these liquid agents cool and dehumidify indoor air. For years, the most common refrigerant gas used in air-conditioning systems was R-22 (Freon).

Set A: Practical Demonstration 1

PRACTICAL DEMONSTRATION 1	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Refrigeration and Air-conditioning
Task:	Service and maintain refrigerator and/or freezer
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 Refrigeration and Air-conditioning▪ 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, read and interpret job specifications, drawings and other workplace documents.2. Identify and collect required tools, equipment and materials for the task.3. Inspect worksite for hazards and implement appropriate controls (if necessary).4. Identify and collect appropriate PPE.5. Inspect and check tools and equipment.6. Prepare workplace for servicing and maintenance.7. Inspect refrigerator together with technical product information.8. Enquire of owner relevant information about problem/issue.9. Turn refrigerator on to observe operation (then turn off and unplug).10. Check electrical wiring, coils and soldering joints.11. Carry out repair or replacement of electrical fault (including soldering).12. Check compressor.13. Carry out repair or replacement of faulty compressor.14. Conduct leak test.15. Carry out repair or replacement of faulty tubes.16. Check door seals (replace if necessary).17. Perform final tests on serviced refrigerator (may include defrost).18. Complete service of refrigerator.	

19. Set to correct temperature.
20. Deodorize and clean.
21. Complete service report including all findings and results (Word document).
22. Email service report to supervisor.
23. Clean, maintain and store tools and equipment.
24. Clean workplace and dispose of waste material.

Drawing, Plan, Diagram or Sketch:



Resources Required:

- | | |
|--------|--|
| Tools: | <ul style="list-style-type: none"> Screwdrivers Spanners Sockets Pliers Wire stripper Snippers Hammer Spirit level Adjustable wrench Tube cutter Flaring tool Swaging tool Brazing torch Copper tube bender Gauge manifold Thermometer |
|--------|--|

- | | |
|------------|---|
| Equipment: | <ul style="list-style-type: none"> AMP meter AVO meter Neon tester |
|------------|---|

	Vacuum pump R-600A cylinder N ² cylinder
Machinery:	Refrigerator
Materials:	Electrical wiring and components Tubing Seals Bulbs Relays Thermostat Compressor Technical product information Refrigerant (600A, 134A) Cleaning solution Cleaning cloths
PPE:	Apron Mask Gloves Safety shoes Safety goggles

Set A: Practical Demonstration 1 – Observation Checklist

PRACTICAL DEMONSTRATION 1 – OBSERVATION CHECKLIST		
Candidate Name:		
Assessor Name:		
Qualification:	Certificate in Refrigeration and Air-conditioning	
Task:	Service and maintain refrigerator and/or freezer	
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
▪ Appropriate manuals for work activity are identified and collected	<input type="checkbox"/>	<input type="checkbox"/>
▪ Information and specifications in the manuals is interpreted and applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Relevant sketches and drawings are identified for job requirement	<input type="checkbox"/>	<input type="checkbox"/>
▪ Key terms and abbreviations are identified and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Signs and symbols are identified and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Schedules, dimensions, sketches, drawings and specifications are correctly read and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Select and use PPE	<input type="checkbox"/>	<input type="checkbox"/>
▪ Gather tools, equipment and materials	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check tools, equipment and materials for usability and operability	<input type="checkbox"/>	<input type="checkbox"/>
▪ Prepare workplace for servicing activities	<input type="checkbox"/>	<input type="checkbox"/>

▪ Identify and gather tube dimensions and fittings	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify measurements and pipe runs in accordance with workplace requirements/specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Measure and mark tubes in accordance with specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Cut tubes using by appropriate cutting method and tool.	<input type="checkbox"/>	<input type="checkbox"/>
▪ Ream tubes on its ends after cutting to remove burrs.	<input type="checkbox"/>	<input type="checkbox"/>
▪ Seal tube ends to ensure non contamination with dirt and foreign materials	<input type="checkbox"/>	<input type="checkbox"/>
▪ Use appropriate sealing material on tube ends	<input type="checkbox"/>	<input type="checkbox"/>
▪ Flare tube ends using appropriate flaring tool	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check flared tube end for quality	<input type="checkbox"/>	<input type="checkbox"/>
▪ Seal flared tube ends to ensure non-contamination with dirt and foreign materials	<input type="checkbox"/>	<input type="checkbox"/>
▪ Swage tube ends using appropriate swaging tool	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check swaged tube end for quality	<input type="checkbox"/>	<input type="checkbox"/>
▪ Seal swaged tube end to ensure non-contamination with dirt and foreign materials	<input type="checkbox"/>	<input type="checkbox"/>
▪ Bend tube using appropriate bending tool	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check bended copper/aluminium tube for quality in accordance with specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Seal bended copper/aluminium tubes to ensure non contamination with dirt and foreign materials	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check brazing equipment for usability and safety condition	<input type="checkbox"/>	<input type="checkbox"/>
▪ Braze tubes using appropriate brazing equipment	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check brazed joints for quality	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test brazed connection in accordance with workplace requirements/specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Describe fundamental principles/theories of electricity and electronics.	<input type="checkbox"/>	<input type="checkbox"/>
▪ Explain application of ohm's law	<input type="checkbox"/>	<input type="checkbox"/>
▪ Describe electrical and electronic devices	<input type="checkbox"/>	<input type="checkbox"/>
▪ Carry out basic electrical circuit wiring	<input type="checkbox"/>	<input type="checkbox"/>
▪ Perform soldering	<input type="checkbox"/>	<input type="checkbox"/>
▪ Solve electrical problems in application to electrical fundamentals	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify, use and interpret electrical switch, socket, cables, circuit breaker, magnetic contactor, auto control panel (ACP) and electronics device	<input type="checkbox"/>	<input type="checkbox"/>

▪ Measure electrical/electronic properties/parameters using appropriate measuring tool/instrument	<input type="checkbox"/>	<input type="checkbox"/>
▪ Use electrical/electronic tools and testing instruments safely/properly	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test electrical/electronic measuring instruments for usability and accuracy	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test power supply and electrical/electronic components in accordance with manufacturer's specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify and repair defects of power supply and electrical/electronic components where possible.	<input type="checkbox"/>	<input type="checkbox"/>
▪ Evaluate and analyse electrical/electronic circuit diagram	<input type="checkbox"/>	<input type="checkbox"/>
▪ Make, connect and test series-parallel circuits	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify and gather electrical/electronic circuit components (diode, bridge rectifier, transistor, resistor etc.)	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test, repair and replace electrical/electronic components (diode, bridge rectifier, transistor, resistor etc.) where necessary	<input type="checkbox"/>	<input type="checkbox"/>
▪ Terminate electrical/electronic circuit components in accordance with given circuit diagram	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test circuit for proper operation in accordance with work instruction/circuit design	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify and correct faults	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check electrical/electronic tools/instruments for proper operation	<input type="checkbox"/>	<input type="checkbox"/>
▪ Maintain electrical/electronic tools/instruments in accordance to manufacturer's specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Store electrical/electronic tools/instruments in accordance to workplace procedures/policy	<input type="checkbox"/>	<input type="checkbox"/>
▪ Inspect domestic refrigerator/freezer and identify and interpret corresponding technical information	<input type="checkbox"/>	<input type="checkbox"/>
▪ Ask relevant information regarding trouble/problem from user/owner of unit	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and trace electrical wiring circuit	<input type="checkbox"/>	<input type="checkbox"/>
▪ Start and operate refrigerator/freezer, if possible, and observe operation	<input type="checkbox"/>	<input type="checkbox"/>
▪ Observe and record electrical, electronic and technical parameters	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and trace electronic soldering circuit	<input type="checkbox"/>	<input type="checkbox"/>
▪ Recover refrigerant, leak tested and vacuumed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify electrical/electronic trouble/problem	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test and repair/replace faulty electrical and electronic component/s where necessary	<input type="checkbox"/>	<input type="checkbox"/>

▪ Check and record specifications of electrical/electronic component for replacement	<input type="checkbox"/>	<input type="checkbox"/>
▪ Carry out electrical/electronic maintenance activities in accordance with manufacturer's instructions/specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and test operation of electrical components and system for proper operation in accordance with manufacturer's specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify compressor operation fault	<input type="checkbox"/>	<input type="checkbox"/>
▪ Repair and test refrigerant compressor fault for normal operation	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify and repair/service mechanical refrigeration system fault in accordance with manufacturer's instructions/specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Carry out servicing procedures of refrigeration system components in accordance with manufacturer's instructions/ specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test refrigerator/freezer for acceptable operating performance in accordance with manufacturer's specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Record system trouble/problem is identified and results/findings	<input type="checkbox"/>	<input type="checkbox"/>
▪ Turning on and off technique of a computer is performed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Simple trouble-shooting techniques are applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Basic typing technique to document is applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Saving and retrieving technique of a document is used	<input type="checkbox"/>	<input type="checkbox"/>
▪ Writing and sending of workplace emails is completed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Quality service is ensured and delivered to customer in providing a product or service	<input type="checkbox"/>	<input type="checkbox"/>
▪ Clean workplace and materials are store in accordance with workplace requirements	<input type="checkbox"/>	<input type="checkbox"/>
▪ Clean tools and equipment, check for damaged and lubricate (if necessary) and stored in accordance with workplace conditions	<input type="checkbox"/>	<input type="checkbox"/>
▪ Report damaged/defective tools and equipment for repair/replacement	<input type="checkbox"/>	<input type="checkbox"/>
Feedback to candidate:		

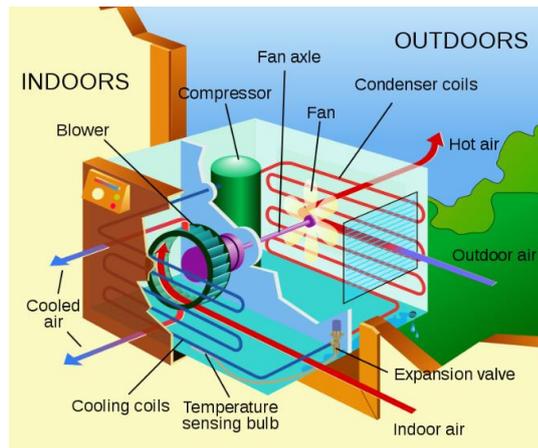
Assessment decision for this assessment activity:			
<input type="checkbox"/> Competent		<input type="checkbox"/> Not Yet Competent	
Candidate Signature:		Date:	
Assessor Signature:		Date:	

Set A: Practical Demonstration 2

PRACTICAL DEMONSTRATION 2	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Refrigeration and Air-conditioning
Task:	Service and maintain air-conditioning system (window)
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 Refrigeration and Air-conditioning ▪ 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, read and interpret job specifications, drawings and other workplace documents. 2. Identify and collect required tools, equipment and materials for the task. 3. Inspect worksite for hazards and implement appropriate controls (if necessary). 4. Identify and collect appropriate PPE. 5. Inspect and check tools and equipment. 6. Prepare workplace for servicing and maintenance. 7. Inspect air-conditioning unit together with technical product information. 8. Enquire of owner relevant information about problem/issue. 9. Turn air-conditioner on to observe operation (then turn off and unplug). 10. Check the house fuse/circuit breaker box and replace fuse or reset breaker, then plug back in and turn on. 11. If power failure occurs again, switch off and unplug the power cord. When power is restored, reconnect (plug in) the power cord, switch on and wait 3 minutes to restart (to prevent tripping of the compressor overload). 12. Check, clean or replace filter. 13. Check electrical wiring, coils and circuits. 14. Carry out repair or replacement of electrical fault (including soldering). 15. Check compressor. 16. Carry out repair or replacement of faulty compressor. 	

17. Carry out repair or replacement of faulty tubes and valves.
18. Perform final tests on serviced air-conditioner.
19. Complete service of air-conditioner.
20. Set to correct temperature (as per manufacturer's specifications).
21. Complete service report including all findings and results (Word document).
22. Email service report to supervisor.
23. Clean, maintain and store tools and equipment.
24. Clean workplace and dispose of waste material.

Drawing, Plan, Diagram or Sketch:



Resources Required:

Tools:	<ul style="list-style-type: none"> Screwdrivers Spanners Sockets Pliers Wire stripper Snippers Hammer Spirit level Adjustable wrench Tube cutter Push pins (for reset switch) Pressure gauge Flaring tool set
Equipment:	<ul style="list-style-type: none"> Tester Thermometer
Machinery:	Air-conditioning system (window)
Materials:	<ul style="list-style-type: none"> Electrical wiring and components Compressor Seals Valves Thermostat Brazing rod Refrigerant (22, 410A)

PPE:	Apron Mask Gloves Safety shoes Safety goggles
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Set A: Practical Demonstration 2 – Observation Checklist

PRACTICAL DEMONSTRATION 2 – OBSERVATION CHECKLIST		
Candidate Name:		
Assessor Name:		
Qualification:	Certificate in Refrigeration and Air-conditioning	
Task:	Service and maintain air-conditioning system (window)	
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
▪ Appropriate manuals for work activity are identified and collected	<input type="checkbox"/>	<input type="checkbox"/>
▪ Information and specifications in the manuals is interpreted and applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Relevant sketches and drawings are identified for job requirement	<input type="checkbox"/>	<input type="checkbox"/>
▪ Key terms and abbreviations are identified and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Signs and symbols are identified and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Schedules, dimensions, sketches, drawings and specifications are correctly read and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Select and use PPE	<input type="checkbox"/>	<input type="checkbox"/>
▪ Gather tools, equipment and materials	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check tools, equipment and materials for usability and operability	<input type="checkbox"/>	<input type="checkbox"/>
▪ Prepare workplace for servicing activities	<input type="checkbox"/>	<input type="checkbox"/>

▪ Inspect window type air conditioner and identify and interpret corresponding technical information	<input type="checkbox"/>	<input type="checkbox"/>
▪ Ask relevant information regarding trouble/problem from user/owner of unit	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and trace electrical wiring circuit and electronic circuit	<input type="checkbox"/>	<input type="checkbox"/>
▪ Start and operate window air conditioner, if possible, and observed operation	<input type="checkbox"/>	<input type="checkbox"/>
▪ Observe and record electrical, electronic and mechanical parameters	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify system trouble/problem and record results/findings	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify electrical trouble/problem	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test and repair/replace faulty electrical and electronic component/s where necessary	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and record specifications of electrical/electronic component for replacement	<input type="checkbox"/>	<input type="checkbox"/>
▪ Carry out electrical maintenance activities in accordance with manufacturer's instructions/specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and test operation of electrical/electronic components and system for proper operation in accordance with manufacturer's specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify compressor operation fault	<input type="checkbox"/>	<input type="checkbox"/>
▪ Repair and test compressor fault for normal operation	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify and repair/service mechanical refrigeration system fault in accordance with manufacturer's instructions/specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Carry out servicing procedures of window type air conditioning system components in accordance with manufacturer's instructions/specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test window air conditioner for acceptable operating performance in accordance with manufacturer's specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Record system trouble/problem is identified and results/findings	<input type="checkbox"/>	<input type="checkbox"/>
▪ Turning on and off technique of a computer is performed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Simple trouble-shooting techniques are applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Basic typing technique to document is applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Saving and retrieving technique of a document is used	<input type="checkbox"/>	<input type="checkbox"/>
▪ Writing and sending of workplace emails is completed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Quality service is ensured and delivered to customer in providing a product or service	<input type="checkbox"/>	<input type="checkbox"/>
▪ Clean workplace and store materials in accordance with	<input type="checkbox"/>	<input type="checkbox"/>

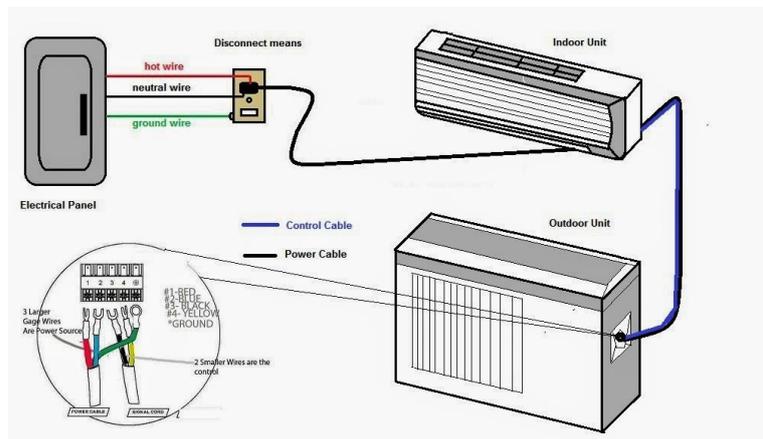
workplace requirements		
<ul style="list-style-type: none"> Clean, check tools and equipment for damaged and lubricate (if necessary) and stored in accordance with workplace conditions 	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Report damaged/defective tools and equipment for repair/replacement 	<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 Signature:		Date:
Assessor Signature:		Date:

Set A: Practical Demonstration 3

PRACTICAL DEMONSTRATION 3	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Refrigeration and Air-conditioning
Task:	Service and maintain split air-conditioning unit
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 Refrigeration and Air-conditioning ▪ 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, read and interpret job specifications, drawings and other workplace documents. 2. Identify and collect required tools, equipment and materials for the task. 3. Inspect worksite for hazards and implement appropriate controls (if necessary). 4. Identify and collect appropriate PPE. 5. Inspect and check tools and equipment. 6. Prepare workplace for servicing and maintenance. 7. Inspect air-conditioning unit together with technical product information. 8. Enquire of owner relevant information about problem/issue. 9. Turn air-conditioner on to observe operation (then turn off and unplug). 10. Check house fuse/circuit breaker box and replace fuse or reset breaker, then plug back in and turn on. 11. If power failure occurs again, switch off, unplug and wait 3 minutes to restart (to prevent tripping of the compressor overload). 12. Check, clean or replace filter. 13. Check electrical wiring, coils and circuits (including fan). 14. Carry out repair or replacement of electrical fault (including soldering). 15. Check compressor and condenser. 16. Carry out repair or replacement of faulty compressor and condenser. 17. Check tubes, valves and seals. 	

18. Carry out repair or replacement of faulty tubes, valves and seals.
19. Perform final tests on serviced air-conditioner.
20. Complete service of air-conditioner.
21. Set to correct temperature (as per manufacturer's specifications).
22. Complete service report including all findings and results (Word document).
23. Email service report to supervisor.
24. Clean, maintain and store tools and equipment.
25. Clean workplace and dispose of waste material.

Drawing, Plan, Diagram or Sketch:



Resources Required:

Tools:	<ul style="list-style-type: none"> Screwdrivers Spanners Sockets Allen keys Pliers Wire stripper Snippers Hammer Spirit level Adjustable wrench Tube cutter Push pins (for reset switch) Thermometer Pressure gauge Flaring tool set
Equipment:	<ul style="list-style-type: none"> Tester Vacuum pump
Machinery:	<ul style="list-style-type: none"> Air-conditioning system (split)
Materials:	<ul style="list-style-type: none"> Electrical wiring and components Compressor Condenser Fans Seals

	Valves Relays Thermostat Brazing rod Refrigerant (22, 410A)
PPE:	Apron Mask Gloves Safety shoes Safety goggles

Set A: Practical Demonstration 3 – Observation Checklist

PRACTICAL DEMONSTRATION 3 – OBSERVATION CHECKLIST		
Candidate Name:		
Assessor Name:		
Qualification:	Certificate in Refrigeration and Air-conditioning	
Task:	Service and maintain split air-conditioning unit	
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
▪ Appropriate manuals for work activity are identified and collected	<input type="checkbox"/>	<input type="checkbox"/>
▪ Information and specifications in the manuals is interpreted and applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Relevant sketches and drawings are identified for job requirement	<input type="checkbox"/>	<input type="checkbox"/>
▪ Key terms and abbreviations are identified and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Signs and symbols are identified and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Schedules, dimensions, sketches, drawings and specifications are correctly read and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Select and use PPE	<input type="checkbox"/>	<input type="checkbox"/>
▪ Gather tools, equipment and materials	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check tools, equipment and materials for usability and operability	<input type="checkbox"/>	<input type="checkbox"/>
▪ Appropriate manuals for work activity are identified and	<input type="checkbox"/>	<input type="checkbox"/>

collected		
▪ Inspect window type air conditioner and identify corresponding technical information	<input type="checkbox"/>	<input type="checkbox"/>
▪ Ask relevant information regarding trouble/problem from user/owner of unit	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and trace electrical wiring circuit	<input type="checkbox"/>	<input type="checkbox"/>
▪ Start and operate split and package type air conditioning units, if possible, and observed operation	<input type="checkbox"/>	<input type="checkbox"/>
▪ Observe and record electrical/electronic and mechanical parameters	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify system trouble/problem and record results/findings	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify electrical trouble/problem	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test and repair/replace faulty electrical/electronic component/s where necessary	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and record specifications of electrical component for replacement	<input type="checkbox"/>	<input type="checkbox"/>
▪ Carry out electrical/electronic maintenance activities in accordance with manufacturer's instructions/specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and test operation of electrical components and system for proper operation in accordance with manufacturer's specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify and interpret compressor operation fault	<input type="checkbox"/>	<input type="checkbox"/>
▪ Repair and test compressor fault for normal operation	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify and repair/service mechanical refrigeration system fault in accordance with manufacturer's instructions/specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Carry out servicing procedures of split type air conditioning system components in accordance with manufacturer's instructions/specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test split and package type air conditioning units for acceptable operating performance in accordance with manufacturer's specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Record system trouble/problem is identified and results/findings	<input type="checkbox"/>	<input type="checkbox"/>
▪ Turning on and off technique of a computer is performed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Simple trouble-shooting techniques are applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Basic typing technique to document is applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Saving and retrieving technique of a document is used	<input type="checkbox"/>	<input type="checkbox"/>
▪ Writing and sending of workplace emails is completed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Quality service is ensured and delivered to customer in providing a product or service	<input type="checkbox"/>	<input type="checkbox"/>
▪ Clean workplace and store materials in accordance with	<input type="checkbox"/>	<input type="checkbox"/>

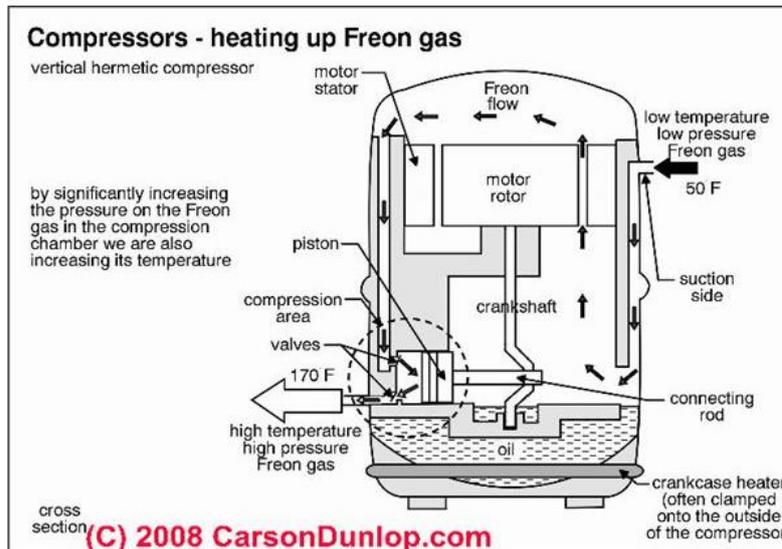
workplace requirements		
<ul style="list-style-type: none"> ▪ Clean and check tools and equipment for damaged and lubricate (if necessary) and stored in accordance with workplace conditions 	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> ▪ Report damaged/defective tools and equipment for repair/replacement 	<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 Signature:		Date:
Assessor Signature:		Date:

Set A: Practical Demonstration 4

PRACTICAL DEMONSTRATION 4	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Refrigeration and Air-conditioning
Task:	Repair refrigeration compressor
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 Refrigeration and Air-conditioning▪ 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, read and interpret job specifications, drawings and other workplace documents.2. Identify and collect required tools, equipment and materials for the task.3. Inspect worksite for hazards and implement appropriate controls (if necessary).4. Identify and collect appropriate PPE.5. Inspect and check tools and equipment.6. Prepare workplace for servicing and maintenance.7. Enquire of owner relevant information about problem/issue.8. Identify and inspect compressor together with technical product information.9. Recover refrigerant as per standard operating procedure.10. Remove compressor.11. Disassemble compressor.12. Check compressor parts and identify fault.13. Repair or replace faulty parts.14. Conduct test of compressor operation.15. Reinstall compressor into refrigeration unit.16. Check oil level.17. Conduct leak test.18. Perform final tests on serviced refrigeration unit.	

19. Complete service of compressor and refrigeration unit.
20. Complete service report including all findings and results (Word document).
21. Email service report to supervisor.
22. Clean, maintain and store tools and equipment.
23. Clean workplace and dispose of waste material.

Drawing, Plan, Diagram or Sketch:



Resources Required:

Tools:	<ul style="list-style-type: none"> Screwdrivers Spanners Sockets Pliers Wire stripper Snippers Hammer Spirit level Adjustable wrench Tube cutter Flaring tool Swaging tool Brazing torch Copper tube bender Gauge manifold
Equipment:	<ul style="list-style-type: none"> Compressor Electric welding set AMP meter
Machinery:	<ul style="list-style-type: none"> Refrigerator (or freezer) Hand grinding machine
Materials:	<ul style="list-style-type: none"> Electrical wiring and components Oil Tubing

	Technical product information Welding rod
PPE:	Apron Mask Gloves Safety shoes Safety goggles

Set A: Practical Demonstration 4 – Observation Checklist

PRACTICAL DEMONSTRATION 4 – OBSERVATION CHECKLIST		
Candidate Name:		
Assessor Name:		
Qualification:	Certificate in Refrigeration and Air-conditioning	
Task:	Repair refrigeration compressor	
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
▪ Appropriate manuals for work activity are identified and collected	<input type="checkbox"/>	<input type="checkbox"/>
▪ Information and specifications in the manuals is interpreted and applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Relevant sketches and drawings are identified for job requirement	<input type="checkbox"/>	<input type="checkbox"/>
▪ Key terms and abbreviations are identified and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Signs and symbols are identified and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Schedules, dimensions, sketches, drawings and specifications are correctly read and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Select and use PPE	<input type="checkbox"/>	<input type="checkbox"/>
▪ Gather tools, equipment and materials	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check tools, equipment and materials for usability and operability	<input type="checkbox"/>	<input type="checkbox"/>
▪ Appropriate manuals for work activity are identified and	<input type="checkbox"/>	<input type="checkbox"/>

collected		
▪ Prepare workplace for repairing of refrigeration compressor	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify, interpret and record compressor technical information	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify type of faulty compressor	<input type="checkbox"/>	<input type="checkbox"/>
▪ Ask relevant information regarding trouble/problem from user/owner of unit	<input type="checkbox"/>	<input type="checkbox"/>
▪ Recover refrigerant appropriately	<input type="checkbox"/>	<input type="checkbox"/>
▪ Remove compressor from refrigeration unit in accordance with workplace/manufacture's instruction	<input type="checkbox"/>	<input type="checkbox"/>
▪ Disassemble compressor in accordance with manufacturer's instruction/specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check compressor parts/components and identify faults	<input type="checkbox"/>	<input type="checkbox"/>
▪ Gather repair procedure is planned and necessary parts/components	<input type="checkbox"/>	<input type="checkbox"/>
▪ Repair or replace faulty parts/components where necessary in accordance with workplace	<input type="checkbox"/>	<input type="checkbox"/>
▪ Assemble compressor parts/components in accordance with manufacturer's instruction/specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test compressor for normal operation in accordance with manufacturer's specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Install compressor back into the refrigeration system and oil level is tested	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and operate compressor leak	<input type="checkbox"/>	<input type="checkbox"/>
▪ Record system trouble/problem is identified and results/findings	<input type="checkbox"/>	<input type="checkbox"/>
▪ Turning on and off technique of a computer is performed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Simple trouble-shooting techniques are applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Basic typing technique to document is applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Saving and retrieving technique of a document is used	<input type="checkbox"/>	<input type="checkbox"/>
▪ Writing and sending of workplace emails is completed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Quality service is ensured and delivered to customer in providing a product or service	<input type="checkbox"/>	<input type="checkbox"/>
▪ Clean workplace and store materials in accordance with workplace requirements	<input type="checkbox"/>	<input type="checkbox"/>
▪ Clean and check tools and equipment for damaged and lubricate (if necessary) and store in accordance with workplace conditions	<input type="checkbox"/>	<input type="checkbox"/>
▪ Report damaged/defective tools and equipment for repair/ replacement	<input type="checkbox"/>	<input type="checkbox"/>

Feedback to candidate:

Assessment decision for this assessment activity:

Competent

Not Yet Competent

Candidate Signature:

Date:

Assessor Signature:

Date:

Set B: Practical Demonstration 1

PRACTICAL DEMONSTRATION 1	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Refrigeration and Air-conditioning
Task:	Service and maintain refrigerator and/or freezer
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 Refrigeration and Air-conditioning▪ 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, read and interpret job specifications, drawings and other workplace documents.2. Identify and collect required tools, equipment and materials for the task.3. Inspect worksite for hazards and implement appropriate controls (if necessary).4. Identify and collect appropriate PPE.5. Inspect and check tools and equipment.6. Prepare workplace for servicing and maintenance.7. Inspect refrigerator together with technical product information.8. Enquire of owner relevant information about problem/issue.9. Turn refrigerator on to observe operation (then turn off and unplug).10. Check electrical wiring, coils and soldering joints.11. Carry out repair or replacement of electrical fault (including soldering).12. Check compressor.13. Carry out repair or replacement of faulty compressor.14. Conduct leak test.15. Carry out repair or replacement of faulty tubes.16. Check door seals (replace if necessary).17. Perform final tests on serviced refrigerator (may include defrost).18. Complete service of refrigerator.	

19. Set to correct temperature.
20. Deodorize and clean.
21. Complete service report including all findings and results (Word document).
22. Email service report to supervisor.
23. Clean, maintain and store tools and equipment.
24. Clean workplace and dispose of waste material.

Drawing, Plan, Diagram or Sketch:

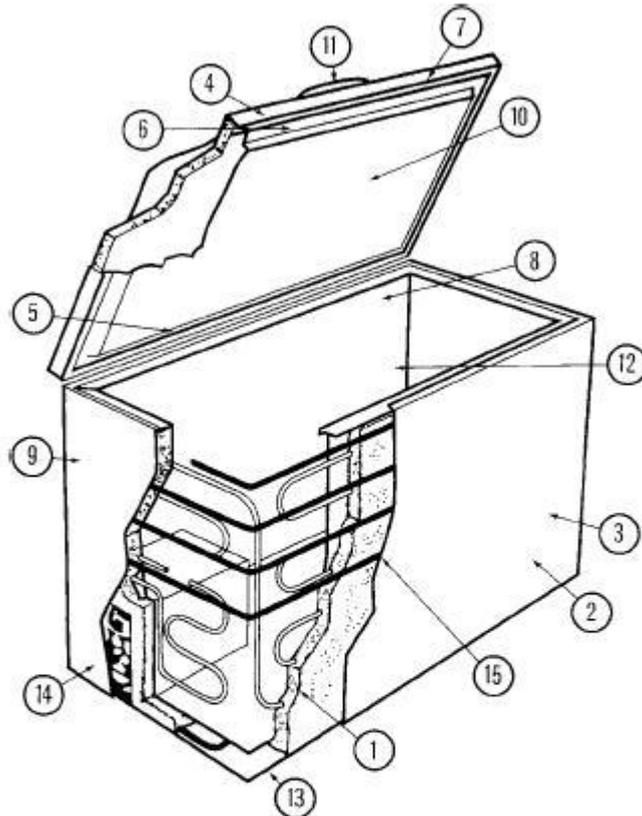


Fig. 13-2 The parts of a chest-type freezer: 1—polyurethane foam insulation, 2—wrap-around steel cabinet, 3—baked-on enamel finish, 4—self-adjusting lid, 5—spring-loaded hinges, 6—vinyl lid gasket, 7—safety lock and self-ejecting key, 8—lift-out wire baskets, 9—temperature-control knob, 10—automatic interior light, 11—power-on light, 12—vertical cabinet divider, 13—defrost water drain, 13—sealed compressor, and 15—wrap-around condenser.

Resources Required:

Tools:	<ul style="list-style-type: none"> Screwdrivers Spanners Sockets Pliers Wire stripper Snippers Hammer Spirit level Adjustable wrench Tube cutter Flaring tool Swaging tool Brazing torch
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	<p>Copper tube bender Gauge manifold Thermometer</p>
Equipment:	<p>AMP meter AVO meter Neon tester Vacuum pump R-600A cylinder N² cylinder</p>
Machinery:	<p>Refrigerator</p>
Materials:	<p>Electrical wiring and components Tubing Seals Bulbs Relays Compressor Technical product information Refrigerant (600A, 134A) Cleaning solution Cleaning cloths</p>
PPE:	<p>Apron Mask Gloves Safety shoes Safety goggles</p>

Set B: Practical Demonstration 1 – Observation Checklist

PRACTICAL DEMONSTRATION 1 – OBSERVATION CHECKLIST		
Candidate Name:		
Assessor Name:		
Qualification:	Certificate in Refrigeration and Air-conditioning	
Task:	Service and maintain refrigerator and/or freezer	
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
▪ Appropriate manuals for work activity are identified and collected	<input type="checkbox"/>	<input type="checkbox"/>
▪ Information and specifications in the manuals is interpreted and applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Relevant sketches and drawings are identified for job requirement	<input type="checkbox"/>	<input type="checkbox"/>
▪ Key terms and abbreviations are identified and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Signs and symbols are identified and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Schedules, dimensions, sketches, drawings and specifications are correctly read and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Select and use PPE	<input type="checkbox"/>	<input type="checkbox"/>
▪ Gather tools, equipment and materials	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check tools, equipment and materials for usability and operability	<input type="checkbox"/>	<input type="checkbox"/>
▪ Prepare workplace for servicing activities	<input type="checkbox"/>	<input type="checkbox"/>

▪ Identify and gather tube dimensions and fittings	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify measurements and pipe runs in accordance with workplace requirements/specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Measure and mark tubes in accordance with specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Cut tubes using by appropriate cutting method and tool.	<input type="checkbox"/>	<input type="checkbox"/>
▪ Ream tubes on its ends after cutting to remove burrs.	<input type="checkbox"/>	<input type="checkbox"/>
▪ Seal tube ends to ensure non contamination with dirt and foreign materials	<input type="checkbox"/>	<input type="checkbox"/>
▪ Use appropriate sealing material on tube ends	<input type="checkbox"/>	<input type="checkbox"/>
▪ Flare tube ends using appropriate flaring tool	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check flared tube end for quality	<input type="checkbox"/>	<input type="checkbox"/>
▪ Seal flared tube ends to ensure non-contamination with dirt and foreign materials	<input type="checkbox"/>	<input type="checkbox"/>
▪ Swage tube ends using appropriate swaging tool	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check swaged tube end for quality	<input type="checkbox"/>	<input type="checkbox"/>
▪ Seal swaged tube end to ensure non-contamination with dirt and foreign materials	<input type="checkbox"/>	<input type="checkbox"/>
▪ Bend tube using appropriate bending tool	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check bended copper/aluminium tube for quality in accordance with specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Seal bended copper/aluminium tubes to ensure non contamination with dirt and foreign materials	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check brazing equipment for usability and safety condition	<input type="checkbox"/>	<input type="checkbox"/>
▪ Braze tubes using appropriate brazing equipment	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check brazed joints for quality	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test brazed connection in accordance with workplace requirements/specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Describe fundamental principles/theories of electricity and electronics.	<input type="checkbox"/>	<input type="checkbox"/>
▪ Explain application of ohm's law	<input type="checkbox"/>	<input type="checkbox"/>
▪ Describe electrical and electronic devices	<input type="checkbox"/>	<input type="checkbox"/>
▪ Carry out basic electrical circuit wiring	<input type="checkbox"/>	<input type="checkbox"/>
▪ Perform soldering	<input type="checkbox"/>	<input type="checkbox"/>
▪ Solve electrical problems in application to electrical fundamentals	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify, use and interpret electrical switch, socket, cables, circuit breaker, magnetic contactor, auto control panel (ACP) and electronics device	<input type="checkbox"/>	<input type="checkbox"/>

▪ Measure electrical/electronic properties/parameters using appropriate measuring tool/instrument	<input type="checkbox"/>	<input type="checkbox"/>
▪ Use electrical/electronic tools and testing instruments safely/properly	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test electrical/electronic measuring instruments for usability and accuracy	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test power supply and electrical/electronic components in accordance with manufacturer's specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify and repair defects of power supply and electrical/electronic components where possible.	<input type="checkbox"/>	<input type="checkbox"/>
▪ Evaluate and analyse electrical/electronic circuit diagram	<input type="checkbox"/>	<input type="checkbox"/>
▪ Make, connect and test series-parallel circuits	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify and gather electrical/electronic circuit components (diode, bridge rectifier, transistor, resistor etc.)	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test, repair and replace electrical/electronic components (diode, bridge rectifier, transistor, resistor etc.) where necessary	<input type="checkbox"/>	<input type="checkbox"/>
▪ Terminate electrical/electronic circuit components in accordance with given circuit diagram	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test circuit for proper operation in accordance with work instruction/circuit design	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify and correct faults	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check electrical/electronic tools/instruments for proper operation	<input type="checkbox"/>	<input type="checkbox"/>
▪ Maintain electrical/electronic tools/instruments in accordance to manufacturer's specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Store electrical/electronic tools/instruments in accordance to workplace procedures/policy	<input type="checkbox"/>	<input type="checkbox"/>
▪ Inspect domestic refrigerator/freezer and identify and interpret corresponding technical information	<input type="checkbox"/>	<input type="checkbox"/>
▪ Ask relevant information regarding trouble/problem from user/owner of unit	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and trace electrical wiring circuit	<input type="checkbox"/>	<input type="checkbox"/>
▪ Start and operate refrigerator/freezer, if possible, and observe operation	<input type="checkbox"/>	<input type="checkbox"/>
▪ Observe and record electrical, electronic and technical parameters	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and trace electronic soldering circuit	<input type="checkbox"/>	<input type="checkbox"/>
▪ Recover refrigerant, leak test and vacuum	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify electrical/electronic trouble/problem	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test and repair/replace faulty electrical and electronic component/s where necessary	<input type="checkbox"/>	<input type="checkbox"/>

▪ Check and record specifications of electrical/electronic component for replacement	<input type="checkbox"/>	<input type="checkbox"/>
▪ Carry out electrical/electronic maintenance activities in accordance with manufacturer's instructions/specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and test operation of electrical components and system for proper operation in accordance with manufacturer's specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify compressor operation fault	<input type="checkbox"/>	<input type="checkbox"/>
▪ Repair and test refrigerant compressor fault for normal operation	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify and repair/service mechanical refrigeration system fault in accordance with manufacturer's instructions/specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Carry out servicing procedures of refrigeration system components in accordance with manufacturer's instructions/ specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test refrigerator/freezer for acceptable operating performance in accordance with manufacturer's specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Record system trouble/problem is identified and results/findings	<input type="checkbox"/>	<input type="checkbox"/>
▪ Turning on and off technique of a computer is performed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Simple trouble-shooting techniques are applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Basic typing technique to document is applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Saving and retrieving technique of a document is used	<input type="checkbox"/>	<input type="checkbox"/>
▪ Writing and sending of workplace emails is completed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Quality service is ensured and delivered to customer in providing a product or service	<input type="checkbox"/>	<input type="checkbox"/>
▪ Clean workplace and materials are store in accordance with workplace requirements	<input type="checkbox"/>	<input type="checkbox"/>
▪ Clean tools and equipment, check for damaged and lubricate (if necessary) and stored in accordance with workplace conditions	<input type="checkbox"/>	<input type="checkbox"/>
▪ Report damaged/defective tools and equipment for repair/replacement	<input type="checkbox"/>	<input type="checkbox"/>
Feedback to candidate:		

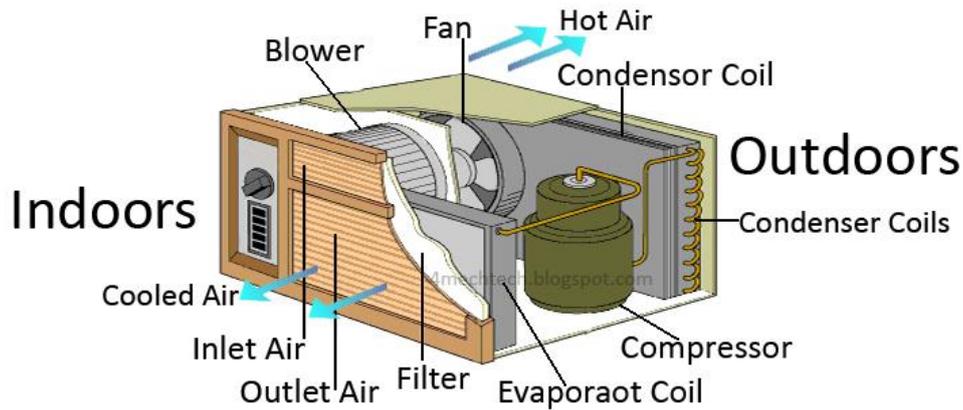
Assessment decision for this assessment activity:			
<input type="checkbox"/> Competent		<input type="checkbox"/> Not Yet Competent	
Candidate Signature:		Date:	
Assessor Signature:		Date:	

Set B: Practical Demonstration 2

PRACTICAL DEMONSTRATION 2	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Refrigeration and Air-conditioning
Task:	Service and maintain air-conditioning system (window)
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 Refrigeration and Air-conditioning ▪ 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, read and interpret job specifications, drawings and other workplace documents. 2. Identify and collect required tools, equipment and materials for the task. 3. Inspect worksite for hazards and implement appropriate controls (if necessary). 4. Identify and collect appropriate PPE. 5. Inspect and check tools and equipment. 6. Prepare workplace for servicing and maintenance. 7. Inspect air-conditioning unit together with technical product information. 8. Enquire of owner relevant information about problem/issue. 9. Turn air-conditioner on to observe operation (then turn off and unplug). 10. Check the house fuse/circuit breaker box and replace fuse or reset breaker, then plug back in and turn on. 11. If power failure occurs again, switch off and unplug the power cord. When power is restored, reconnect (plug in) the power cord, switch on and wait 3 minutes to restart (to prevent tripping of the compressor overload). 12. Check, clean or replace filter. 13. Check electrical wiring, coils and circuits. 14. Carry out repair or replacement of electrical fault (including soldering). 15. Check compressor. 16. Carry out repair or replacement of faulty compressor. 	

17. Carry out repair or replacement of faulty tubes and valves.
18. Perform final tests on serviced air-conditioner.
19. Complete service of air-conditioner.
20. Set to correct temperature (as per manufacturer's specifications).
21. Complete service report including all findings and results (Word document).
22. Email service report to supervisor.
23. Clean, maintain and store tools and equipment.
24. Clean workplace and dispose of waste material.

Drawing, Plan, Diagram or Sketch:



Resources Required:

Tools:	<ul style="list-style-type: none"> Screwdrivers Spanners Sockets Pliers Wire stripper Snippers Hammer Spirit level Adjustable wrench Tube cutter Push pins (for reset switch) Pressure gauge Flaring tool set
Equipment:	<ul style="list-style-type: none"> Tester Thermometer
Machinery:	Air-conditioning system (window)
Materials:	<ul style="list-style-type: none"> Electrical wiring and components Compressor Seals Valves Brazing rod Refrigerant (22, 410A)

PPE:	Apron Mask Gloves Safety shoes Safety goggles
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Set B: Practical Demonstration 2 – Observation Checklist

PRACTICAL DEMONSTRATION 2 – OBSERVATION CHECKLIST		
Candidate Name:		
Assessor Name:		
Qualification:	Certificate in Refrigeration and Air-conditioning	
Task:	Service and maintain air-conditioning system (window)	
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
▪ Appropriate manuals for work activity are identified and collected	<input type="checkbox"/>	<input type="checkbox"/>
▪ Information and specifications in the manuals is interpreted and applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Relevant sketches and drawings are identified for job requirement	<input type="checkbox"/>	<input type="checkbox"/>
▪ Key terms and abbreviations are identified and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Signs and symbols are identified and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Schedules, dimensions, sketches, drawings and specifications are correctly read and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Select and use PPE	<input type="checkbox"/>	<input type="checkbox"/>
▪ Gather tools, equipment and materials	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check tools, equipment and materials for usability and operability	<input type="checkbox"/>	<input type="checkbox"/>
▪ Prepare workplace for servicing activities	<input type="checkbox"/>	<input type="checkbox"/>

▪ Inspect window type air conditioner and identify and interpret corresponding technical information	<input type="checkbox"/>	<input type="checkbox"/>
▪ Ask relevant information regarding trouble/problem from user/owner of unit	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and trace electrical wiring circuit and electronic circuit	<input type="checkbox"/>	<input type="checkbox"/>
▪ Start and operate window air conditioner, if possible, and observed operation	<input type="checkbox"/>	<input type="checkbox"/>
▪ Observe and record electrical, electronic and mechanical parameters	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify system trouble/problem and record results/findings	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify electrical trouble/problem	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test and repair/replace faulty electrical and electronic component/s where necessary	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and record specifications of electrical/electronic component for replacement	<input type="checkbox"/>	<input type="checkbox"/>
▪ Carry out electrical maintenance activities in accordance with manufacturer's instructions/specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and test operation of electrical/electronic components and system for proper operation in accordance with manufacturer's specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify compressor operation fault	<input type="checkbox"/>	<input type="checkbox"/>
▪ Repair and test compressor fault for normal operation	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify and repair/service mechanical refrigeration system fault in accordance with manufacturer's instructions/specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Carry out servicing procedures of window type air conditioning system components in accordance with manufacturer's instructions/specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test window air conditioner for acceptable operating performance in accordance with manufacturer's specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Record system trouble/problem is identified and results/findings	<input type="checkbox"/>	<input type="checkbox"/>
▪ Turning on and off technique of a computer is performed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Simple trouble-shooting techniques are applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Basic typing technique to document is applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Saving and retrieving technique of a document is used	<input type="checkbox"/>	<input type="checkbox"/>
▪ Writing and sending of workplace emails is completed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Quality service is ensured and delivered to customer in providing a product or service	<input type="checkbox"/>	<input type="checkbox"/>
▪ Clean workplace and store materials in accordance with	<input type="checkbox"/>	<input type="checkbox"/>

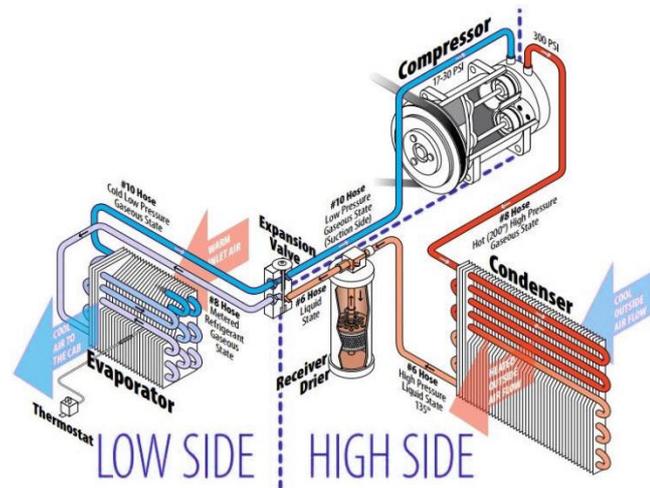
workplace requirements		
<ul style="list-style-type: none"> ▪ Clean, check tools and equipment for damaged and lubricate (if necessary) and stored in accordance with workplace conditions 	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> ▪ Report damaged/defective tools and equipment for repair/replacement 	<input type="checkbox"/>	<input type="checkbox"/>
Feedback to candidate:		
<p>Assessment decision for this assessment activity:</p> <p style="text-align: center;"> <input type="checkbox"/> Competent <input type="checkbox"/> Not Yet Competent </p>		
Candidate Signature:		Date:
Assessor Signature:		Date:

Set B: Practical Demonstration 3

PRACTICAL DEMONSTRATION 3	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Refrigeration and Air-conditioning
Task:	Service and maintain split air-conditioning unit
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 Refrigeration and Air-conditioning ▪ 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, read and interpret job specifications, drawings and other workplace documents. 2. Identify and collect required tools, equipment and materials for the task. 3. Inspect worksite for hazards and implement appropriate controls (if necessary). 4. Identify and collect appropriate PPE. 5. Inspect and check tools and equipment. 6. Prepare workplace for servicing and maintenance. 7. Inspect air-conditioning unit together with technical product information. 8. Enquire of owner relevant information about problem/issue. 9. Turn air-conditioner on to observe operation (then turn off and unplug). 10. Check house fuse/circuit breaker box and replace fuse or reset breaker, then plug back in and turn on. 11. If power failure occurs again, switch off, unplug and wait 3 minutes to restart (to prevent tripping of the compressor overload). 12. Check, clean or replace filter. 13. Check electrical wiring, coils and circuits (including fan). 14. Carry out repair or replacement of electrical fault (including soldering). 15. Check compressor and condenser. 16. Carry out repair or replacement of faulty compressor and condenser. 17. Check tubes, valves and seals. 	

18. Carry out repair or replacement of faulty tubes, valves and seals.
19. Perform final tests on serviced air-conditioner.
20. Complete service of air-conditioner.
21. Set to correct temperature (as per manufacturer's specifications).
22. Complete service report including all findings and results (Word document).
23. Email service report to supervisor.
24. Clean, maintain and store tools and equipment.
25. Clean workplace and dispose of waste material.

Drawing, Plan, Diagram or Sketch:



Resources Required:

Tools:	<ul style="list-style-type: none"> Screwdrivers Spanners Sockets Allen keys Pliers Wire stripper Snippers Hammer Spirit level Adjustable wrench Tube cutter Push pins (for reset switch) Thermometer Pressure gauge Flaring tool set
Equipment:	<ul style="list-style-type: none"> Tester Vacuum pump
Machinery:	<ul style="list-style-type: none"> Air-conditioning system (split)
Materials:	<ul style="list-style-type: none"> Electrical wiring and components Compressor Condenser Fans

	Seals Valves Relays Thermostat Brazing rod Refrigerant (22, 410A)
PPE:	Apron Mask Gloves Safety shoes Safety goggles

Set B: Practical Demonstration 3 – Observation Checklist

PRACTICAL DEMONSTRATION 3 – OBSERVATION CHECKLIST		
Candidate Name:		
Assessor Name:		
Qualification:	Certificate in Refrigeration and Air-conditioning	
Task:	Service and maintain split air-conditioning unit	
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
▪ Appropriate manuals for work activity are identified and collected	<input type="checkbox"/>	<input type="checkbox"/>
▪ Information and specifications in the manuals is interpreted and applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Relevant sketches and drawings are identified for job requirement	<input type="checkbox"/>	<input type="checkbox"/>
▪ Key terms and abbreviations are identified and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Signs and symbols are identified and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Schedules, dimensions, sketches, drawings and specifications are correctly read and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Select and use PPE	<input type="checkbox"/>	<input type="checkbox"/>
▪ Gather tools, equipment and materials	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check tools, equipment and materials for usability and operability	<input type="checkbox"/>	<input type="checkbox"/>
▪ Appropriate manuals for work activity are identified and	<input type="checkbox"/>	<input type="checkbox"/>

collected		
▪ Inspect window type air conditioner and identify corresponding technical information	<input type="checkbox"/>	<input type="checkbox"/>
▪ Ask relevant information regarding trouble/problem from user/owner of unit	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and trace electrical wiring circuit	<input type="checkbox"/>	<input type="checkbox"/>
▪ Start and operate split and package type air conditioning units, if possible, and observed operation	<input type="checkbox"/>	<input type="checkbox"/>
▪ Observe and record electrical/electronic and mechanical parameters	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify system trouble/problem and record results/findings	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify electrical trouble/problem	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test and repair/replace faulty electrical/electronic component/s where necessary	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and record specifications of electrical component for replacement	<input type="checkbox"/>	<input type="checkbox"/>
▪ Carry out electrical/electronic maintenance activities in accordance with manufacturer's instructions/specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and test operation of electrical components and system for proper operation in accordance with manufacturer's specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify and interpret compressor operation fault	<input type="checkbox"/>	<input type="checkbox"/>
▪ Repair and test compressor fault for normal operation	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify and repair/service mechanical refrigeration system fault in accordance with manufacturer's instructions/specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Carry out servicing procedures of split type air conditioning system components in accordance with manufacturer's instructions/specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test split and package type air conditioning units for acceptable operating performance in accordance with manufacturer's specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Record system trouble/problem is identified and results/findings	<input type="checkbox"/>	<input type="checkbox"/>
▪ Turning on and off technique of a computer is performed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Simple trouble-shooting techniques are applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Basic typing technique to document is applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Saving and retrieving technique of a document is used	<input type="checkbox"/>	<input type="checkbox"/>
▪ Writing and sending of workplace emails is completed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Quality service is ensured and delivered to customer in providing a product or service	<input type="checkbox"/>	<input type="checkbox"/>
▪ Clean workplace and store materials in accordance with	<input type="checkbox"/>	<input type="checkbox"/>

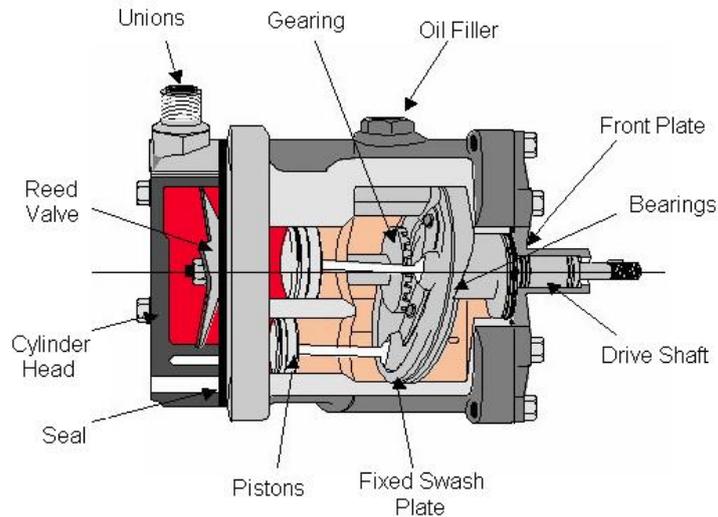
workplace requirements		
<ul style="list-style-type: none"> ▪ Clean and check tools and equipment for damaged and lubricate (if necessary) and stored in accordance with workplace conditions 	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> ▪ Report damaged/defective tools and equipment for repair/replacement 	<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 Signature:		Date:
Assessor Signature:		Date:

Set B: Practical Demonstration 4

PRACTICAL DEMONSTRATION 4	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Refrigeration and Air-conditioning
Task:	Repair refrigeration compressor
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 Refrigeration and Air-conditioning▪ 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, read and interpret job specifications, drawings and other workplace documents.2. Identify and collect required tools, equipment and materials for the task.3. Inspect worksite for hazards and implement appropriate controls (if necessary).4. Identify and collect appropriate PPE.5. Inspect and check tools and equipment.6. Prepare workplace for servicing and maintenance.7. Enquire of owner relevant information about problem/issue.8. Identify and inspect compressor together with technical product information.9. Recover refrigerant as per standard operating procedure.10. Remove compressor.11. Disassemble compressor.12. Check compressor parts and identify fault.13. Repair or replace faulty parts.14. Conduct test of compressor operation.15. Reinstall compressor into refrigeration unit.16. Check oil level.17. Conduct leak test.18. Perform final tests on serviced refrigeration unit.	

19. Complete service of compressor and refrigeration unit.
20. Complete service report including all findings and results (Word document).
21. Email service report to supervisor.
22. Clean, maintain and store tools and equipment.
23. Clean workplace and dispose of waste material.

Drawing, Plan, Diagram or Sketch:



Resources Required:

Tools:

- Screwdrivers
- Spanners
- Sockets
- Pliers
- Wire stripper
- Snippers
- Hammer
- Spirit level
- Adjustable wrench
- Tube cutter
- Flaring tool
- Swaging tool
- Brazing torch
- Copper tube bender
- Gauge manifold

Equipment:

- Compressor
- Electric welding set
- AMP meter

Machinery:

- Refrigerator (or freezer)
- Hand grinding machine

Materials:

- Electrical wiring and components
- Oil
- Tubing
- Technical product information

	Welding rod
PPE:	Apron Mask Gloves Safety shoes Safety goggles

Set B: Practical Demonstration 4 – Observation Checklist

PRACTICAL DEMONSTRATION 4 – OBSERVATION CHECKLIST		
Candidate Name:		
Assessor Name:		
Qualification:	Certificate in Refrigeration and Air-conditioning	
Task:	Repair refrigeration compressor	
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
▪ Appropriate manuals for work activity are identified and collected	<input type="checkbox"/>	<input type="checkbox"/>
▪ Information and specifications in the manuals is interpreted and applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Relevant sketches and drawings are identified for job requirement	<input type="checkbox"/>	<input type="checkbox"/>
▪ Key terms and abbreviations are identified and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Signs and symbols are identified and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Schedules, dimensions, sketches, drawings and specifications are correctly read and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Select and use PPE	<input type="checkbox"/>	<input type="checkbox"/>
▪ Gather tools, equipment and materials	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check tools, equipment and materials for usability and operability	<input type="checkbox"/>	<input type="checkbox"/>
▪ Appropriate manuals for work activity are identified and	<input type="checkbox"/>	<input type="checkbox"/>

collected		
▪ Prepare workplace for repairing of refrigeration compressor	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify, interpret and record compressor technical information	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify type of faulty compressor	<input type="checkbox"/>	<input type="checkbox"/>
▪ Ask relevant information regarding trouble/problem from user/owner of unit	<input type="checkbox"/>	<input type="checkbox"/>
▪ Recover refrigerant appropriately	<input type="checkbox"/>	<input type="checkbox"/>
▪ Remove compressor from refrigeration unit in accordance with workplace/manufacture's instruction	<input type="checkbox"/>	<input type="checkbox"/>
▪ Disassemble compressor in accordance with manufacturer's instruction/specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check compressor parts/components and identify faults	<input type="checkbox"/>	<input type="checkbox"/>
▪ Gather repair procedure is planned and necessary parts/components	<input type="checkbox"/>	<input type="checkbox"/>
▪ Repair or replace faulty parts/components where necessary in accordance with workplace	<input type="checkbox"/>	<input type="checkbox"/>
▪ Assemble compressor parts/components in accordance with manufacturer's instruction/specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test compressor for normal operation in accordance with manufacturer's specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Install compressor back into the refrigeration system and oil level is tested	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and operate compressor leak	<input type="checkbox"/>	<input type="checkbox"/>
▪ Record system trouble/problem is identified and results/findings	<input type="checkbox"/>	<input type="checkbox"/>
▪ Turning on and off technique of a computer is performed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Simple trouble-shooting techniques are applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Basic typing technique to document is applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Saving and retrieving technique of a document is used	<input type="checkbox"/>	<input type="checkbox"/>
▪ Writing and sending of workplace emails is completed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Quality service is ensured and delivered to customer in providing a product or service	<input type="checkbox"/>	<input type="checkbox"/>
▪ Clean workplace and store materials in accordance with workplace requirements	<input type="checkbox"/>	<input type="checkbox"/>
▪ Clean and check tools and equipment for damaged and lubricate (if necessary) and store in accordance with workplace conditions	<input type="checkbox"/>	<input type="checkbox"/>
▪ Report damaged/defective tools and equipment for repair/ replacement	<input type="checkbox"/>	<input type="checkbox"/>

Feedback to candidate:

Assessment decision for this assessment activity:

Competent

Not Yet Competent

Candidate Signature:

Date:

Assessor Signature:

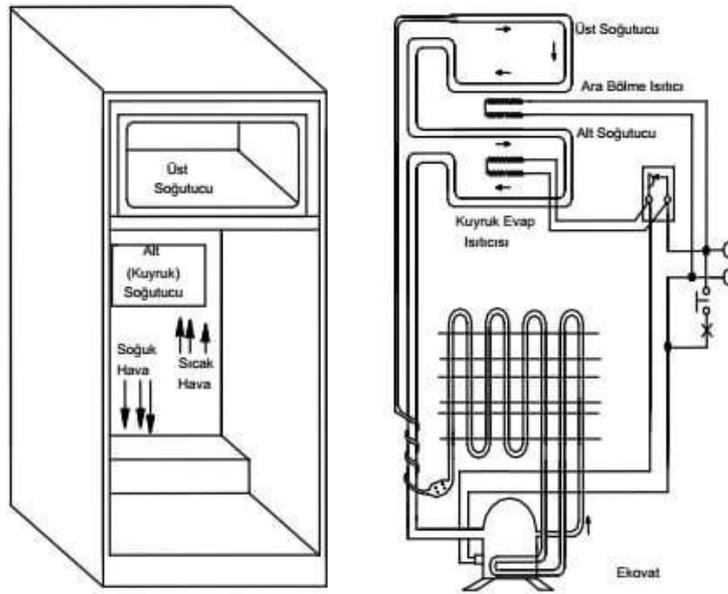
Date:

Set C: Practical Demonstration 1

PRACTICAL DEMONSTRATION 1	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Refrigeration and Air-conditioning
Task:	Service and maintain refrigerator and/or freezer
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 Refrigeration and Air-conditioning▪ 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, read and interpret job specifications, drawings and other workplace documents.2. Identify and collect required tools, equipment and materials for the task.3. Inspect worksite for hazards and implement appropriate controls (if necessary).4. Identify and collect appropriate PPE.5. Inspect and check tools and equipment.6. Prepare workplace for servicing and maintenance.7. Inspect refrigerator together with technical product information.8. Enquire of owner relevant information about problem/issue.9. Turn refrigerator on to observe operation (then turn off and unplug).10. Check electrical wiring, coils and soldering joints.11. Carry out repair or replacement of electrical fault (including soldering).12. Check compressor.13. Carry out repair or replacement of faulty compressor.14. Conduct leak test.15. Carry out repair or replacement of faulty tubes.16. Check door seals (replace if necessary).17. Perform final tests on serviced refrigerator (may include defrost).18. Complete service of refrigerator.	

19. Set correct temperature.
20. Deodorize and clean.
21. Complete service report including all findings and results (Word document).
22. Email service report to supervisor.
23. Clean, maintain and store tools and equipment.
24. Clean workplace and dispose of waste material.

Drawing, Plan, Diagram or Sketch:



Resources Required:

Tools:	<ul style="list-style-type: none"> Screwdrivers Spanners Sockets Pliers Wire stripper Snippers Hammer Spirit level Adjustable wrench Tube cutter Flaring tool Swaging tool Brazing torch Copper tube bender Gauge manifold Thermometer
Equipment:	<ul style="list-style-type: none"> AMP meter AVO meter Neon tester Vacuum pump R-600A cylinder N² cylinder

Machinery:	Refrigerator
Materials:	Electrical wiring and components Tubing Seals Bulbs Relays Compressor Technical product information Refrigerant (600A, 134A) Cleaning solution Cleaning cloths
PPE:	Apron Mask Gloves Safety shoes Safety goggles

Set C: Practical Demonstration 1 – Observation Checklist

PRACTICAL DEMONSTRATION 1 – OBSERVATION CHECKLIST		
Candidate Name:		
Assessor Name:		
Qualification:	Certificate in Refrigeration and Air Conditioning	
Task:	Service and maintain refrigerator and/or freezer	
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
▪ Appropriate manuals for work activity are identified and collected	<input type="checkbox"/>	<input type="checkbox"/>
▪ Information and specifications in the manuals is interpreted and applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Relevant sketches and drawings are identified for job requirement	<input type="checkbox"/>	<input type="checkbox"/>
▪ Key terms and abbreviations are identified and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Signs and symbols are identified and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Schedules, dimensions, sketches, drawings and specifications are correctly read and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Select and use PPE	<input type="checkbox"/>	<input type="checkbox"/>
▪ Gather tools, equipment and materials	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check tools, equipment and materials for usability and operability	<input type="checkbox"/>	<input type="checkbox"/>
▪ Prepare workplace for servicing activities	<input type="checkbox"/>	<input type="checkbox"/>

▪ Identify and gather tube dimensions and fittings	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify measurements and pipe runs in accordance with workplace requirements/specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Measure and mark tubes in accordance with specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Cut tubes using by appropriate cutting method and tool.	<input type="checkbox"/>	<input type="checkbox"/>
▪ Ream tubes on its ends after cutting to remove burrs.	<input type="checkbox"/>	<input type="checkbox"/>
▪ Seal tube ends to ensure non contamination with dirt and foreign materials	<input type="checkbox"/>	<input type="checkbox"/>
▪ Use appropriate sealing material on tube ends	<input type="checkbox"/>	<input type="checkbox"/>
▪ Flare tube ends using appropriate flaring tool	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check flared tube end for quality	<input type="checkbox"/>	<input type="checkbox"/>
▪ Seal flared tube ends to ensure non-contamination with dirt and foreign materials	<input type="checkbox"/>	<input type="checkbox"/>
▪ Swage tube ends using appropriate swaging tool	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check swaged tube end for quality	<input type="checkbox"/>	<input type="checkbox"/>
▪ Seal swaged tube end to ensure non-contamination with dirt and foreign materials	<input type="checkbox"/>	<input type="checkbox"/>
▪ Bend tube using appropriate bending tool	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check bended copper/aluminium tube for quality in accordance with specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Seal bended copper/aluminium tubes to ensure non contamination with dirt and foreign materials	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check brazing equipment for usability and safety condition	<input type="checkbox"/>	<input type="checkbox"/>
▪ Braze tubes using appropriate brazing equipment	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check brazed joints for quality	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test brazed connection in accordance with workplace requirements/specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Describe fundamental principles/theories of electricity and electronics.	<input type="checkbox"/>	<input type="checkbox"/>
▪ Explain application of ohm's law	<input type="checkbox"/>	<input type="checkbox"/>
▪ Describe electrical and electronic devices	<input type="checkbox"/>	<input type="checkbox"/>
▪ Carry out basic electrical circuit wiring	<input type="checkbox"/>	<input type="checkbox"/>
▪ Perform soldering	<input type="checkbox"/>	<input type="checkbox"/>
▪ Solve electrical problems in application to electrical fundamentals	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify, use and interpret electrical switch, socket, cables, circuit breaker, magnetic contactor, auto control panel (ACP) and electronics device	<input type="checkbox"/>	<input type="checkbox"/>

▪ Measure electrical/electronic properties/parameters using appropriate measuring tool/instrument	<input type="checkbox"/>	<input type="checkbox"/>
▪ Use electrical/electronic tools and testing instruments safely/properly	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test electrical/electronic measuring instruments for usability and accuracy	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test power supply and electrical/electronic components in accordance with manufacturer's specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify and repair defects of power supply and electrical/electronic components where possible.	<input type="checkbox"/>	<input type="checkbox"/>
▪ Evaluate and analyse electrical/electronic circuit diagram	<input type="checkbox"/>	<input type="checkbox"/>
▪ Make, connect and test series-parallel circuits	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify and gather electrical/electronic circuit components (diode, bridge rectifier, transistor, resistor etc.)	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test, repair and replace electrical/electronic components (diode, bridge rectifier, transistor, resistor etc.) where necessary	<input type="checkbox"/>	<input type="checkbox"/>
▪ Terminate electrical/electronic circuit components in accordance with given circuit diagram	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test circuit for proper operation in accordance with work instruction/circuit design	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify and correct faults	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check electrical/electronic tools/instruments for proper operation	<input type="checkbox"/>	<input type="checkbox"/>
▪ Maintain electrical/electronic tools/instruments in accordance to manufacturer's specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Store electrical/electronic tools/instruments in accordance to workplace procedures/policy	<input type="checkbox"/>	<input type="checkbox"/>
▪ Inspect domestic refrigerator/freezer and identify and interpret corresponding technical information	<input type="checkbox"/>	<input type="checkbox"/>
▪ Ask relevant information regarding trouble/problem from user/owner of unit	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and trace electrical wiring circuit	<input type="checkbox"/>	<input type="checkbox"/>
▪ Start and operate refrigerator/freezer, if possible, and observe operation	<input type="checkbox"/>	<input type="checkbox"/>
▪ Observe and record electrical, electronic and technical parameters	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and trace electronic soldering circuit	<input type="checkbox"/>	<input type="checkbox"/>
▪ Recover refrigerant, leak tested and vacuumed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify electrical/electronic trouble/problem	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test and repair/replace faulty electrical and electronic component/s where necessary	<input type="checkbox"/>	<input type="checkbox"/>

▪ Check and record specifications of electrical/electronic component for replacement	<input type="checkbox"/>	<input type="checkbox"/>
▪ Carry out electrical/electronic maintenance activities in accordance with manufacturer's instructions/specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and test operation of electrical components and system for proper operation in accordance with manufacturer's specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify compressor operation fault	<input type="checkbox"/>	<input type="checkbox"/>
▪ Repair and test refrigerant compressor fault for normal operation	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify and repair/service mechanical refrigeration system fault in accordance with manufacturer's instructions/specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Carry out servicing procedures of refrigeration system components in accordance with manufacturer's instructions/ specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test refrigerator/freezer for acceptable operating performance in accordance with manufacturer's specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Record system trouble/problem is identified and results/findings	<input type="checkbox"/>	<input type="checkbox"/>
▪ Turning on and off technique of a computer is performed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Simple trouble-shooting techniques are applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Basic typing technique to document is applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Saving and retrieving technique of a document is used	<input type="checkbox"/>	<input type="checkbox"/>
▪ Writing and sending of workplace emails is completed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Quality service is ensured and delivered to customer in providing a product or service	<input type="checkbox"/>	<input type="checkbox"/>
▪ Clean workplace and materials are store in accordance with workplace requirements	<input type="checkbox"/>	<input type="checkbox"/>
▪ Clean tools and equipment, check for damaged and lubricate (if necessary) and stored in accordance with workplace conditions	<input type="checkbox"/>	<input type="checkbox"/>
▪ Report damaged/defective tools and equipment for repair/replacement	<input type="checkbox"/>	<input type="checkbox"/>
Feedback to candidate:		

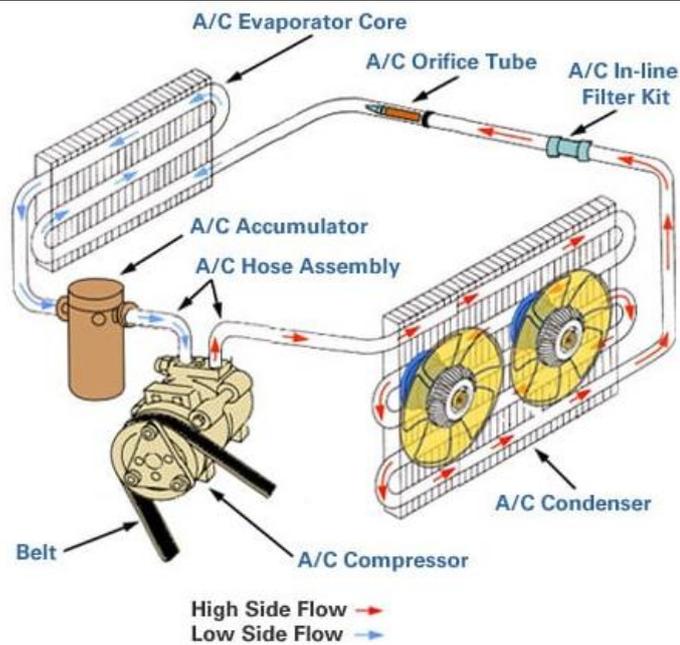
Assessment decision for this assessment activity:			
<input type="checkbox"/> Competent		<input type="checkbox"/> Not Yet Competent	
Candidate Signature:		Date:	
Assessor Signature:		Date:	

Set C: Practical Demonstration 2

PRACTICAL DEMONSTRATION 2	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Refrigeration and Air-conditioning
Task:	Service and maintain air-conditioning system (window)
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 Refrigeration and Air-conditioning ▪ 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, read and interpret job specifications, drawings and other workplace documents. 2. Identify and collect required tools, equipment and materials for the task. 3. Inspect worksite for hazards and implement appropriate controls (if necessary). 4. Identify and collect appropriate PPE. 5. Inspect and check tools and equipment. 6. Prepare workplace for servicing and maintenance. 7. Inspect air-conditioning unit together with technical product information. 8. Enquire of owner relevant information about problem/issue. 9. Turn air-conditioner on to observe operation (then turn off and unplug). 10. Check the house fuse/circuit breaker box and replace fuse or reset breaker, then plug back in and turn on. 11. If power failure occurs again, switch off and unplug the power cord. When power is restored, reconnect (plug in) the power cord, switch on and wait 3 minutes to restart (to prevent tripping of the compressor overload). 12. Check, clean or replace filter. 13. Check electrical wiring, coils and circuits. 14. Carry out repair or replacement of electrical fault (including soldering). 15. Check compressor. 16. Carry out repair or replacement of faulty compressor. 	

17. Carry out repair or replacement of faulty tubes and valves.
18. Perform final tests on serviced air-conditioner.
19. Complete service of air-conditioner.
20. Set to correct temperature (as per manufacturer's specifications).
21. Complete service report including all findings and results (Word document).
22. Email service report to supervisor.
23. Clean, maintain and store tools and equipment.
24. Clean workplace and dispose of waste material.

Drawing, Plan, Diagram or Sketch:



Resources Required:

Tools:	<ul style="list-style-type: none"> Screwdrivers Spanners Sockets Pliers Wire stripper Snippers Hammer Spirit level Adjustable wrench Tube cutter Push pins (for reset switch) Pressure gauge Flaring tool set
Equipment:	<ul style="list-style-type: none"> Tester Thermometer
Machinery:	Air-conditioning system (window)
Materials:	<ul style="list-style-type: none"> Electrical wiring and components Compressor Seals Valves

	Brazing rod Refrigerant (22, 410A)
PPE:	Apron Mask Gloves Safety shoes Safety goggles

Set C: Practical Demonstration 2 – Observation Checklist

PRACTICAL DEMONSTRATION 2 – OBSERVATION CHECKLIST		
Candidate Name:		
Assessor Name:		
Qualification:	Certificate in Refrigeration and Air-conditioning	
Task:	Service and maintain air-conditioning system (window)	
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
▪ Appropriate manuals for work activity are identified and collected	<input type="checkbox"/>	<input type="checkbox"/>
▪ Information and specifications in the manuals is interpreted and applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Relevant sketches and drawings are identified for job requirement	<input type="checkbox"/>	<input type="checkbox"/>
▪ Key terms and abbreviations are identified and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Signs and symbols are identified and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Schedules, dimensions, sketches, drawings and specifications are correctly read and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Select and use PPE	<input type="checkbox"/>	<input type="checkbox"/>
▪ Gather tools, equipment and materials	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check tools, equipment and materials for usability and operability	<input type="checkbox"/>	<input type="checkbox"/>
▪ Prepare workplace for servicing activities	<input type="checkbox"/>	<input type="checkbox"/>

▪ Inspect window type air conditioner and identify and interpret corresponding technical information	<input type="checkbox"/>	<input type="checkbox"/>
▪ Ask relevant information regarding trouble/problem from user/owner of unit	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and trace electrical wiring circuit and electronic circuit	<input type="checkbox"/>	<input type="checkbox"/>
▪ Start and operate window air conditioner, if possible, and observed operation	<input type="checkbox"/>	<input type="checkbox"/>
▪ Observe and record electrical, electronic and mechanical parameters	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify system trouble/problem and record results/findings	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify electrical trouble/problem	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test and repair/replace faulty electrical and electronic component/s where necessary	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and record specifications of electrical/electronic component for replacement	<input type="checkbox"/>	<input type="checkbox"/>
▪ Carry out electrical maintenance activities in accordance with manufacturer's instructions/specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and test operation of electrical/electronic components and system for proper operation in accordance with manufacturer's specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify compressor operation fault	<input type="checkbox"/>	<input type="checkbox"/>
▪ Repair and test compressor fault for normal operation	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify and repair/service mechanical refrigeration system fault in accordance with manufacturer's instructions/specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Carry out servicing procedures of window type air conditioning system components in accordance with manufacturer's instructions/specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test window air conditioner for acceptable operating performance in accordance with manufacturer's specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Record system trouble/problem is identified and results/findings	<input type="checkbox"/>	<input type="checkbox"/>
▪ Turning on and off technique of a computer is performed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Simple trouble-shooting techniques are applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Basic typing technique to document is applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Saving and retrieving technique of a document is used	<input type="checkbox"/>	<input type="checkbox"/>
▪ Writing and sending of workplace emails is completed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Quality service is ensured and delivered to customer in providing a product or service	<input type="checkbox"/>	<input type="checkbox"/>
▪ Clean workplace and store materials in accordance with	<input type="checkbox"/>	<input type="checkbox"/>

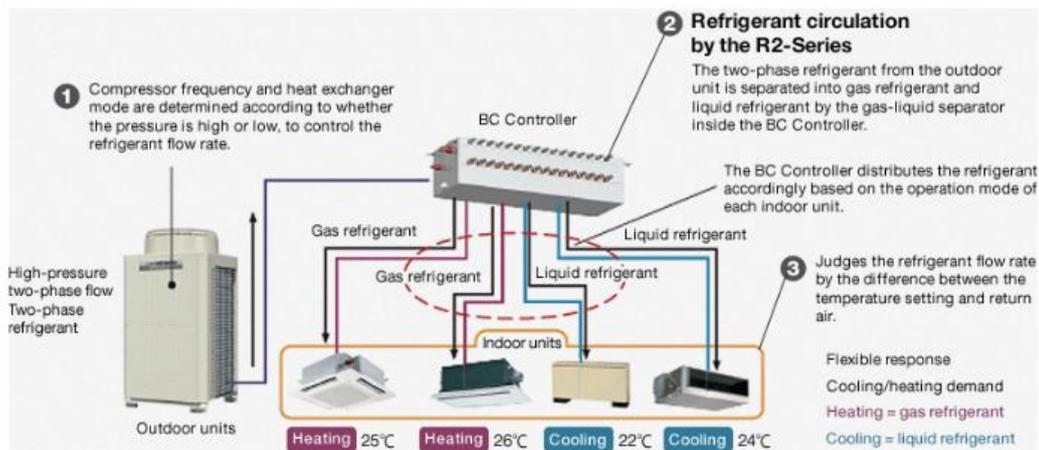
workplace requirements		
<ul style="list-style-type: none"> ▪ Clean, check tools and equipment for damaged and lubricate (if necessary) and stored in accordance with workplace conditions 	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> ▪ Report damaged/defective tools and equipment for repair/replacement 	<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 Signature:		Date:
Assessor Signature:		Date:

Set C: Practical Demonstration 3

PRACTICAL DEMONSTRATION 3	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Refrigeration and Air-conditioning
Task:	Service and maintain split air-conditioning unit
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 Refrigeration and Air-conditioning▪ 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, read and interpret job specifications, drawings and other workplace documents.2. Identify and collect required tools, equipment and materials for the task.3. Inspect worksite for hazards and implement appropriate controls (if necessary).4. Identify and collect appropriate PPE.5. Inspect and check tools and equipment.6. Prepare workplace for servicing and maintenance.7. Inspect air-conditioning unit together with technical product information.8. Enquire of owner relevant information about problem/issue.9. Turn air-conditioner on to observe operation (then turn off and unplug).10. Check house fuse/circuit breaker box and replace fuse or reset breaker, then plug back in and turn on.11. If power failure occurs again, switch off, unplug and wait 3 minutes to restart (to prevent tripping of the compressor overload).12. Check, clean or replace filter.13. Check electrical wiring, coils and circuits (including fan).14. Carry out repair or replacement of electrical fault (including soldering).15. Check compressor and condenser.16. Carry out repair or replacement of faulty compressor and condenser.17. Check tubes, valves and seals.	

18. Carry out repair or replacement of faulty tubes, valves and seals.
19. Perform final tests on serviced air-conditioner.
20. Complete service of air-conditioner.
21. Set to correct temperature (as per manufacturer's specifications).
22. Complete service report including all findings and results (Word document).
23. Email service report to supervisor.
24. Clean, maintain and store tools and equipment.
25. Clean workplace and dispose of waste material.

Drawing, Plan, Diagram or Sketch:



Resources Required:

Tools:	<ul style="list-style-type: none"> Screwdrivers Spanners Sockets Allen keys Pliers Wire stripper Snippers Hammer Spirit level Adjustable wrench Tube cutter Push pins (for reset switch) Thermometer Pressure gauge Flaring tool set
Equipment:	<ul style="list-style-type: none"> Tester Vacuum pump
Machinery:	Air-conditioning system (split)
Materials:	<ul style="list-style-type: none"> Electrical wiring and components Compressor Condenser Fans Seals Valves

	Relays Thermostat Brazing rod Refrigerant (22, 410A)
PPE:	Apron Mask Gloves Safety shoes Safety goggles

Set C: Practical Demonstration 3 – Observation Checklist

PRACTICAL DEMONSTRATION 3 – OBSERVATION CHECKLIST		
Candidate Name:		
Assessor Name:		
Qualification:	Certificate in Refrigeration and Air-conditioning	
Task:	Service and maintain split air-conditioning unit	
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
▪ Appropriate manuals for work activity are identified and collected	<input type="checkbox"/>	<input type="checkbox"/>
▪ Information and specifications in the manuals is interpreted and applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Relevant sketches and drawings are identified for job requirement	<input type="checkbox"/>	<input type="checkbox"/>
▪ Key terms and abbreviations are identified and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Signs and symbols are identified and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Schedules, dimensions, sketches, drawings and specifications are correctly read and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Select and use PPE	<input type="checkbox"/>	<input type="checkbox"/>
▪ Gather tools, equipment and materials	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check tools, equipment and materials for usability and operability	<input type="checkbox"/>	<input type="checkbox"/>
▪ Appropriate manuals for work activity are identified and	<input type="checkbox"/>	<input type="checkbox"/>

collected		
▪ Inspect window type air conditioner and identify corresponding technical information	<input type="checkbox"/>	<input type="checkbox"/>
▪ Ask relevant information regarding trouble/problem from user/owner of unit	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and trace electrical wiring circuit	<input type="checkbox"/>	<input type="checkbox"/>
▪ Start and operate split and package type air conditioning units, if possible, and observed operation	<input type="checkbox"/>	<input type="checkbox"/>
▪ Observe and record electrical/electronic and mechanical parameters	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify system trouble/problem and record results/findings	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify electrical trouble/problem	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test and repair/replace faulty electrical/electronic component/s where necessary	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and record specifications of electrical component for replacement	<input type="checkbox"/>	<input type="checkbox"/>
▪ Carry out electrical/electronic maintenance activities in accordance with manufacturer's instructions/specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and test operation of electrical components and system for proper operation in accordance with manufacturer's specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify and interpret compressor operation fault	<input type="checkbox"/>	<input type="checkbox"/>
▪ Repair and test compressor fault for normal operation	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify and repair/service mechanical refrigeration system fault in accordance with manufacturer's instructions/specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Carry out servicing procedures of split type air conditioning system components in accordance with manufacturer's instructions/specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test split and package type air conditioning units for acceptable operating performance in accordance with manufacturer's specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Record system trouble/problem is identified and results/findings	<input type="checkbox"/>	<input type="checkbox"/>
▪ Turning on and off technique of a computer is performed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Simple trouble-shooting techniques are applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Basic typing technique to document is applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Saving and retrieving technique of a document is used	<input type="checkbox"/>	<input type="checkbox"/>
▪ Writing and sending of workplace emails is completed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Quality service is ensured and delivered to customer in providing a product or service	<input type="checkbox"/>	<input type="checkbox"/>
▪ Clean workplace and store materials in accordance with	<input type="checkbox"/>	<input type="checkbox"/>

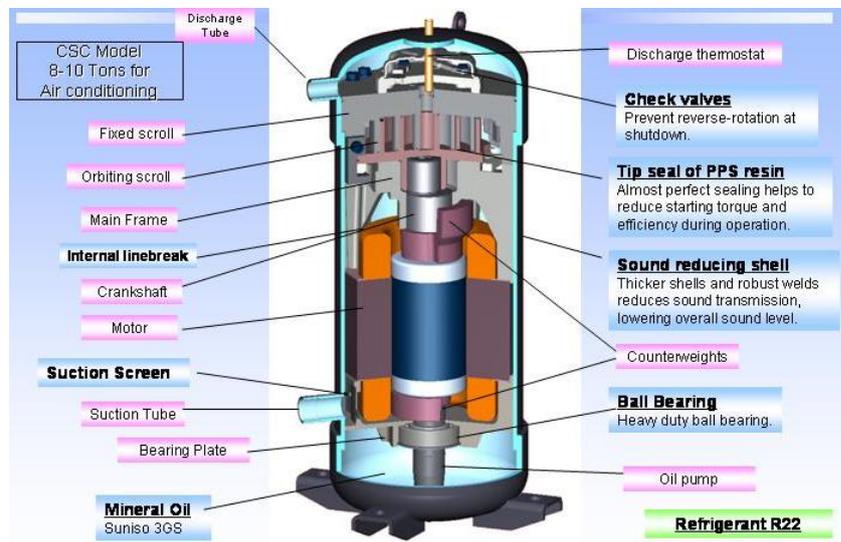
workplace requirements		
<ul style="list-style-type: none"> ▪ Clean and check tools and equipment for damaged and lubricate (if necessary) and stored in accordance with workplace conditions 	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> ▪ Report damaged/defective tools and equipment for repair/replacement 	<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 Signature:		Date:
Assessor Signature:		Date:

Set C: Practical Demonstration 4

PRACTICAL DEMONSTRATION 4	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Refrigeration and Air-conditioning
Task:	Repair refrigeration compressor
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 Refrigeration and Air-conditioning ▪ 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, read and interpret job specifications, drawings and other workplace documents. 2. Identify and collect required tools, equipment and materials for the task. 3. Inspect worksite for hazards and implement appropriate controls (if necessary). 4. Identify and collect appropriate PPE. 5. Inspect and check tools and equipment. 6. Prepare workplace for servicing and maintenance. 7. Enquire of owner relevant information about problem/issue. 8. Identify and inspect compressor together with technical product information. 9. Recover refrigerant as per standard operating procedure. 10. Remove compressor. 11. Disassemble compressor. 12. Check compressor parts and identify fault. 13. Repair or replace faulty parts. 14. Conduct test of compressor operation. 15. Reinstall compressor into refrigeration unit. 16. Check oil level. 17. Conduct leak test. 18. Perform final tests on serviced refrigeration unit. 	

19. Complete service of compressor and refrigeration unit.
20. Complete service report including all findings and results (Word document).
21. Email service report to supervisor.
22. Clean, maintain and store tools and equipment.
23. Clean workplace and dispose of waste material.

Drawing, Plan, Diagram or Sketch:



Resources Required:

Tools:	<ul style="list-style-type: none"> Screwdrivers Spanners Sockets Pliers Wire stripper Snippers Hammer Spirit level Adjustable wrench Tube cutter Flaring tool Swaging tool Brazing torch Copper tube bender Gauge manifold
Equipment:	<ul style="list-style-type: none"> Compressor Electric welding set AMP meter
Machinery:	<ul style="list-style-type: none"> Refrigerator (or freezer) Hand grinding machine
Materials:	<ul style="list-style-type: none"> Electrical wiring and components Oil Tubing Technical product information

	Welding rod
PPE:	Apron Mask Gloves Safety shoes Safety goggles

Set C: Practical Demonstration 4 – Observation Checklist

PRACTICAL DEMONSTRATION 4 – OBSERVATION CHECKLIST		
Candidate Name:		
Assessor Name:		
Qualification:	Certificate in Refrigeration and Air-conditioning	
Task:	Repair refrigeration compressor	
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
▪ Appropriate manuals for work activity are identified and collected	<input type="checkbox"/>	<input type="checkbox"/>
▪ Information and specifications in the manuals is interpreted and applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Relevant sketches and drawings are identified for job requirement	<input type="checkbox"/>	<input type="checkbox"/>
▪ Key terms and abbreviations are identified and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Signs and symbols are identified and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Schedules, dimensions, sketches, drawings and specifications are correctly read and interpreted	<input type="checkbox"/>	<input type="checkbox"/>
▪ Select and use PPE	<input type="checkbox"/>	<input type="checkbox"/>
▪ Gather tools, equipment and materials	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check tools, equipment and materials for usability and operability	<input type="checkbox"/>	<input type="checkbox"/>
▪ Appropriate manuals for work activity are identified and	<input type="checkbox"/>	<input type="checkbox"/>

collected		
▪ Prepare workplace for repairing of refrigeration compressor	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify, interpret and record compressor technical information	<input type="checkbox"/>	<input type="checkbox"/>
▪ Identify type of faulty compressor	<input type="checkbox"/>	<input type="checkbox"/>
▪ Ask relevant information regarding trouble/problem from user/owner of unit	<input type="checkbox"/>	<input type="checkbox"/>
▪ Recover refrigerant appropriately	<input type="checkbox"/>	<input type="checkbox"/>
▪ Remove compressor from refrigeration unit in accordance with workplace/manufacture's instruction	<input type="checkbox"/>	<input type="checkbox"/>
▪ Disassemble compressor in accordance with manufacturer's instruction/specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check compressor parts/components and identify faults	<input type="checkbox"/>	<input type="checkbox"/>
▪ Gather repair procedure is planned and necessary parts/components	<input type="checkbox"/>	<input type="checkbox"/>
▪ Repair or replace faulty parts/components where necessary in accordance with workplace	<input type="checkbox"/>	<input type="checkbox"/>
▪ Assemble compressor parts/components in accordance with manufacturer's instruction/specification	<input type="checkbox"/>	<input type="checkbox"/>
▪ Test compressor for normal operation in accordance with manufacturer's specifications	<input type="checkbox"/>	<input type="checkbox"/>
▪ Install compressor back into the refrigeration system and oil level is tested	<input type="checkbox"/>	<input type="checkbox"/>
▪ Check and operate compressor leak	<input type="checkbox"/>	<input type="checkbox"/>
▪ Record system trouble/problem is identified and results/findings	<input type="checkbox"/>	<input type="checkbox"/>
▪ Turning on and off technique of a computer is performed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Simple trouble-shooting techniques are applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Basic typing technique to document is applied	<input type="checkbox"/>	<input type="checkbox"/>
▪ Saving and retrieving technique of a document is used	<input type="checkbox"/>	<input type="checkbox"/>
▪ Writing and sending of workplace emails is completed	<input type="checkbox"/>	<input type="checkbox"/>
▪ Quality service is ensured and delivered to customer in providing a product or service	<input type="checkbox"/>	<input type="checkbox"/>
▪ Clean workplace and store materials in accordance with workplace requirements	<input type="checkbox"/>	<input type="checkbox"/>
▪ Clean and check tools and equipment for damaged and lubricate (if necessary) and store in accordance with workplace conditions	<input type="checkbox"/>	<input type="checkbox"/>
▪ Report damaged/defective tools and equipment for repair/ replacement	<input type="checkbox"/>	<input type="checkbox"/>

Feedback to candidate:

Assessment decision for this assessment activity:

Competent

Not Yet Competent

Candidate Signature:

Date:

Assessor Signature:

Date:

Oral Questions (Optional)

ORAL QUESTIONS - INSTRUCTIONS	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Refrigeration and Air-conditioning
Unit of Competency	
Generic Competencies	
SEIP-LE-REF-01-G	Use basic mathematical concepts
SEIP-LE-REF-02-G	Carry out workplace interaction
SEIP-LE-REF-03-G	Operate in a team environment
SEIP-LE-REF-04-G	Apply basic IT skills
Sector-specific Competencies	
SEIP-LE-REF-01-S	Apply occupational health and safety (OHS) practice in the workplace
SEIP-LE-REF-02-S	Read and interpret sketches and drawings
SEIP-LE-REF-03-S	Use hand and power tools
SEIP-LE-REF-04-S	Apply quality system
Occupation-specific Competencies	
SEIP-LE-REF-01-O	Perform tube processing operation
SEIP-LE-REF-02-O	Apply electrical and electronic fundamentals
SEIP-LE-REF-03-O	Service and maintain refrigerators and freezers
SEIP-LE-REF-04-O	Service and maintain window type air-conditioning system
SEIP-LE-REF-05-O	Service and maintain split and package type air-conditioning units
SEIP-LE-REF-06-O	Repair refrigeration compressor
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 Refrigeration and Air-conditioning ▪ 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 are the different types of condensers?	<input type="checkbox"/>	<input type="checkbox"/>
2.	What is the use of compressor in refrigeration?	<input type="checkbox"/>	<input type="checkbox"/>
3.	What are the basic units of mechanical refrigeration system?	<input type="checkbox"/>	<input type="checkbox"/>
4.	Which air-conditioning is best - window or split?	<input type="checkbox"/>	<input type="checkbox"/>
5.	How does whole house air-conditioning work?	<input type="checkbox"/>	<input type="checkbox"/>
6.	What is the function of air-conditioning?	<input type="checkbox"/>	<input type="checkbox"/>
7.	What is the part of the air-conditioner that is inside?	<input type="checkbox"/>	<input type="checkbox"/>
8.	How far apart should air-conditioning condensers be?	<input type="checkbox"/>	<input type="checkbox"/>
9.	What is the maximum distance between indoor/outdoor units in split air-conditioning?	<input type="checkbox"/>	<input type="checkbox"/>
10.	Why are air-conditioners placed at the top of a room?	<input type="checkbox"/>	<input type="checkbox"/>
11.	Give an example of a people-oriented team role.	<input type="checkbox"/>	<input type="checkbox"/>
12.	Developing a project plan is a task of who?	<input type="checkbox"/>	<input type="checkbox"/>
13.	Name the tool that clearly shows the reporting relationships within an organisation.	<input type="checkbox"/>	<input type="checkbox"/>
14.	Why should a conflict be dealt with immediately?	<input type="checkbox"/>	<input type="checkbox"/>
15.	What is a file?	<input type="checkbox"/>	<input type="checkbox"/>
16.	Explain the use of the subject line in emails.	<input type="checkbox"/>	<input type="checkbox"/>
17.	What skills are required for conducting workplace interactions in a courteous manner?	<input type="checkbox"/>	<input type="checkbox"/>
18.	What does COC stands for?	<input type="checkbox"/>	<input type="checkbox"/>
19.	What is a user guide?	<input type="checkbox"/>	<input type="checkbox"/>
20.	What is the definition of workplace documents?	<input type="checkbox"/>	<input type="checkbox"/>
21.	What does the first line supervisor control in a self-directed team?	<input type="checkbox"/>	<input type="checkbox"/>
22.	What are some examples of modes of communication?	<input type="checkbox"/>	<input type="checkbox"/>
23.	How many ways you can present yourself?	<input type="checkbox"/>	<input type="checkbox"/>
24.	How many phases are there for interview preparedness?	<input type="checkbox"/>	<input type="checkbox"/>

25.	What will be your answer if you are asked if you have any questions of your own?	<input type="checkbox"/>	<input type="checkbox"/>
26.	Name four IT tools.	<input type="checkbox"/>	<input type="checkbox"/>
27.	What is a common application program's file extension?	<input type="checkbox"/>	<input type="checkbox"/>
28.	How do name a cell on spreadsheet?	<input type="checkbox"/>	<input type="checkbox"/>
29.	Name two browsers on the internet.	<input type="checkbox"/>	<input type="checkbox"/>
30.	What are the four phases of emergency management?	<input type="checkbox"/>	<input type="checkbox"/>
31.	Say whether true or false: A work ethic is a set of moral principles a person uses in their job.	<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 Signature:		Date:	
Assessor 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 are the different types of condensers?	<i>The three main types of condensers used in general refrigeration systems are:</i> <ul style="list-style-type: none"> ▪ <i>air-cooled</i> ▪ <i>water-cooled</i> ▪ <i>evaporative</i>
2. What is the use of compressor in refrigeration?	<i>The compressor does exactly as its name says: it compresses the refrigerant. The compressor receives low pressure gas from the evaporator and converts it to high pressure gas. As mentioned earlier, as the gas is compressed, the temperature rises. The hot refrigerant gas then flows to the condenser.</i>
3. What are the basic units of mechanical refrigeration system?	<i>Refrigeration system has 4 basic units</i> <ul style="list-style-type: none"> ▪ <i>An Evaporator – The cooling Unit</i> ▪ <i>A pump or Compressor</i> ▪ <i>A Condenser – The heat disposer</i> ▪ <i>A liquid mixing device – Expansion valve or cylinder or capillary tube</i>
4. Which air-conditioning is best - window or split?	<i>So, if you are looking for high efficiency air conditioners then split air conditioners can provide you more options. The main difference between the two is that window air conditioner has a single unit whereas split air conditioner has 2 units (indoor and outdoor)</i>
5. How does whole house air-conditioning work?	<i>A central air conditioner cools with an outdoor compressor and condenser coil connected to an indoor furnace fitted with an evaporator coil. Refrigerant circulates through copper tubing that runs between the evaporator and the condenser. ... A fan in the compressor also helps to dissipate the heat.</i>
6. What is the function of air-conditioning?	<i>An air conditioner works by transforming a refrigerant compound from a gas to a liquid and back again in a continuous cycle. Air conditioners consist of four basic mechanical parts: a compressor, condenser, expansion valve and evaporator.</i>
7. What is the part of the air-conditioner that is inside?	<i>A typical central air conditioning system is a two-part or split system that includes: The outdoor unit contains the condenser coil, compressor, electrical components</i>

		<i>and a fan. The evaporator coil, which is usually installed on top of the gas furnace inside the home.</i>
8.	How far apart should air-conditioning condensers be?	<i>A rule of thumb is to maintain at least two-feet (24") between the A./C compressor/ condenser unit and any nearby obstruction such as a building wall, shrub, or fence.</i>
9.	What is the maximum distance between indoor/outdoor units in split air-conditioning?	<i>Hence to reduce this loss, the distance between the indoor unit of split AC and the outdoor unit of split AC should be kept as minimum as possible. The maximum allowable distance between the indoor and the outdoor units of split AC can be about 15 meters.</i>
10.	What are the different types of condensers?	<i>Air conditioners are fitted at higher levels on the walls of a room in order to produce quick cooling in the room. This is because the cooled air from the AC comes down and the warm air from below rises up and a convection current is set up.</i>
11.	Give an example of a people-oriented team role.	<i>Coordinator</i>
12.	Developing a project plan is a task of who?	<i>Project Manager</i>
13.	Name the tool that clearly shows the reporting relationships within an organisation.	<i>Organizational chart</i>
14.	Why should a conflict be dealt with immediately?	<i>To avoid it escalating.</i>
15.	What is a file?	<i>A file is the common storage unit in a computer. All programs and data are contained in a file, and the computer reads and writes files.</i>
16.	Explain the use of the subject line in emails.	<ul style="list-style-type: none"> ▪ <i>The subject line provides an opportunity to inform the receiver of the purpose of the email.</i> ▪ <i>A subject line ideally should describe exactly what the email is about.</i> ▪ <i>An appropriate subject line will maximize the possibility of a message being read.</i>
17.	What skills are required for conducting workplace interactions in a courteous manner?	<ul style="list-style-type: none"> ▪ <i>Effective questioning</i> ▪ <i>Active listening</i> ▪ <i>Speaking skills</i> ▪ <i>Email writing skills</i>
18.	What does COC stands for?	<i>Code of conduct</i>
19.	What is a user guide?	<i>It is a technical communication document intended to give assistance to people using a particular system.</i>

20.	What is the definition of workplace documents?	Workplace documents are a set of materials that inform employees of workplace policies, processes and procedures.
21.	What does the first line supervisor control in a self-directed team?	<ul style="list-style-type: none"> ▪ Critical management process of: <ul style="list-style-type: none"> ○ Planning ○ Organising ○ Directing ○ Staffing
22.	What are some examples of modes of communication?	<ul style="list-style-type: none"> ▪ Team meetings ▪ Email updates
23.	How many ways you can present yourself?	<ul style="list-style-type: none"> ▪ Curriculum Vitae ▪ Infographic ▪ Profile/portfolio
24.	How many phases are there for interview preparedness?	<ul style="list-style-type: none"> ▪ Phase One – before the interview ▪ Phase Two – the start ▪ Phase Three – the interview ▪ Phase Four – closing of interview
25.	What will be your answer if you are asked if you have any questions of your own?	Ask whether the offer will be confirmed in writing.
26.	Name four IT tools.	<ul style="list-style-type: none"> ▪ Computer ▪ Television ▪ Mobile phone ▪ Radio ▪ Internet
27.	What is a common application program's file extension?	A file extension, also called a filename extension, is the suffix at the end of a filename, which indicates what kind of file it is. For example, you can tell that the file "computer.docx" is an MS Word document file.
28.	How do name a cell on spreadsheet?	With its column and row position on the sheet (i.e. B9).
29.	Name two browsers on the internet.	<ul style="list-style-type: none"> ▪ Internet Explorer ▪ Google Chrome ▪ Firefox
30.	What are the four phases of emergency management?	<ul style="list-style-type: none"> ▪ Mitigation ▪ Preparedness ▪ Response ▪ Recovery
31.	Say whether true or false: A work ethic is a set of moral principles a person uses in their job.	True

Assessment Evidence Summary Sheet

EVIDENCE SUMMARY SHEET			
Candidate Name:			
Assessor Name:			
Qualification:	Certificate in Refrigeration and Air-conditioning		
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 1 (Set)	<input type="checkbox"/>	<input type="checkbox"/>
	Practical Demonstration 2 (Set)	<input type="checkbox"/>	<input type="checkbox"/>
	Practical Demonstration 3 (Set)	<input type="checkbox"/>	<input type="checkbox"/>
	Practical Demonstration 4 (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 Refrigeration and Air-conditioning		
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-REF-01-G – Use basic mathematical concepts		
Element	Assessment Method		
	Written	Practical	Oral
1. Identify calculation requirements in the workplace.	4	A1-4 B1-4 C1-4	
2. Select appropriate mathematical methods/concepts for the calculation.	4	A1-4 B1-4 C1-4	
3. Use tools and instruments to perform calculations.	4	A1-4 B1-4 C1-4	
Unit of Competency:	SEIP-LE-REF-02-G – Carry out workplace interaction		
Element	Assessment Method		
	Written	Practical	Oral
1. Interpret workplace communication and etiquette.	11	A1-4 B1-4 C1-4	13, 17
2. Read and understand workplace documents.		A1-4 B1-4 C1-4	18, 19, 20
3. Participate in workplace meetings and discussions.	12		24
4. Practice professional ethics at work.	12		23, 31
Unit of Competency:	SEIP-LE-REF-03-G – Operate in a team environment		
Element	Assessment Method		
	Written	Practical	Oral

1. Identify team goals and work processes.		A1-4 B1-4 C1-4	12, 21
2. Identify own role and responsibilities within team.			13
3. Communicate and co-operate with team members.	11	A1-4 B1-4 C1-4	11, 22, 25
4. Practice problem solving within team.		A1-4 B1-4 C1-4	14
Unit of Competency:	SEIP-LE-REF-04-G – Apply basic IT skills		
Element	Assessment Method		
	Written	Practical	Oral
1. Identify and use most commonly used IT tools.			26, 28
2. Understand use of computer.		A1-4 B1-4 C1-4	15
3. Work with word processing application.			27
4. Access email and search the internet.		A1-4 B1-4 C1-4	16, 29
Unit of Competency:	SEIP-LE-REF-01-S – Apply occupational health and safety (OHS) practice in the workplace		
Element	Assessment Method		
	Written	Practical	Oral
1. Identify OHS Policies and procedures.	13	A1-4 B1-4 C1-4	
2. Apply personal health and safety practices.	13	A1-4 B1-4 C1-4	
3. Report hazards and risks.	13	A1-4 B1-4	

		C1-4	
4. Respond to emergencies.			30
Unit of Competency:	SEIP-LE-REF-02-S – Read and interpret sketches and drawings		
Element	Assessment Method		
	Written	Practical	Oral
1. Interpret information and specifications.		A1-4 B1-4 C1-4	20
2. Read and interpret sketches and drawings.		A1-4 B1-4 C1-4	
Unit of Competency:	SEIP-LE-REF-03-S – Use hand and power tools		
Element	Assessment Method		
	Written	Practical	Oral
1. Identify and inspect hand and power tools.		A1-4 B1-4 C1-4	
2. Use hand tools properly and safely.		A1-4 B1-4 C1-4	
3. Operate power tools properly and safely.		A1-4 B1-4 C1-4	
4. Clean and maintain hand and power tools.		A1-4 B1-4 C1-4	
Unit of Competency:	SEIP-LE-REF-04-S – Apply quality system		
Element	Assessment Method		
	Written	Practical	Oral
1. Work within a quality system.		A1-4 B1-4 C1-4	
2. Apply and monitor a quality system.		A1-4	

		B1-4 C1-4	
3. Apply standard procedures for each job.		A1-4 B1-4 C1-4	
Unit of Competency:	SEIP-LE-REF-01-O – Perform tube processing operation		
Element	Assessment Method		
	Written	Practical	Oral
1. Prepare for tube processing operations.	5, 9	A1, B1, C1	
2. Cut tubes.	8	A1, B1, C1	
3. Flare tube ends.	3	A1, B1, C1	
4. Swage tube ends.		A1, B1, C1	
5. Bend tube.		A1, B1, C1	
6. Braze tubes.		A1, B1, C1	
7. Clean/maintain workplace, tools and equipment.		A1, B1, C1	
Unit of Competency:	SEIP-LE-REF-02-O – Apply electrical and electronics fundamentals		
Element	Assessment Method		
	Written	Practical	Oral
1. Explain fundamental principles of electricity and electronics.		A1-4 B1-4 C1-4	
2. Use electrical switch, socket, cables, circuit breaker, magnetic contactor and electronics device, instruments and equipment.		A1-4 B1-4 C1-4	
3. Test power supply and electrical components.		A1-4 B1-4 C1-4	
4. Perform basic electrical/ electronic circuit connections.		A1-4	

		B1-4 C1-4	
5. Maintain and store electrical/electronic tools/instruments.		A1-4 B1-4 C1-4	
6. Clean and maintain tools, equipment and machinery.		A1-4 B1-4 C1-4	
Unit of Competency:	SEIP-LE-REF-03-O – Service and maintain refrigerators and freezers		
Element	Assessment Method		
	Written	Practical	Oral
1. Prepare for servicing and maintenance works.	1, 2	A1, B1, C1	1, 5, 6
2. Troubleshoot refrigerator/freezer.	18	A1, B1, C1	4
3. Maintain and repair refrigerator/freezer.	6	A1, B1, C1	8
4. Service mechanical refrigeration system.	7	A1, B1, C1	3
5. Clean/maintain workplace, tools and equipment.		A1, B1, C1	
Unit of Competency:	SEIP-LE-REF-04-O – Service and maintain window type air-conditioning system		
Element	Assessment Method		
	Written	Practical	Oral
1. Prepare for servicing and maintenance works.	19	A2, B2, C2	6
2. Troubleshoot window air conditioner.	15	A2, B2, C2	7
3. Maintain/repair electrical/electronic system.		A2, B2, C2	
4. Service mechanical refrigeration system.		A2, B2, C2	3
5. Clean/maintain workplace, tools and equipment.		A2, B2, C2	
Unit of Competency:	SEIP-LE-REF-05-O – Service and maintain split and package type air-		

		conditioning units		
Element		Assessment Method		
		Written	Practical	Oral
1. Prepare for servicing and maintenance works.		20	A3, B3, C3	6, 9
2. Troubleshoot split and package type air conditioning units.		16	A3, B3, C3	7
3. Maintain/repair electrical and electronic system.		17	A3, B3, C3	
4. Service mechanical system and components.			A3, B3, C3	
5. Clean/maintain workplace, tools and equipment.			A3, B3, C3	
Unit of Competency:	SEIP-LE-REF-06-O – Repair refrigeration			
Element		Assessment Method		
		Written	Practical	Oral
1. Prepare for refrigeration compressor servicing/repairing.		10	A4	2, 10
2. Diagnose fault of compressor.		14	A4	
3. Repair compressor.			A4	
4. Clean/maintain workplace, tools and equipment.			A4	