Skills for Employment Investment Program (SEIP)

ASSESSMENT TOOL

FOR

PLUMBING

(CONSTRUCTION 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:		
Provided feedback on the assessment decision. This includes the following: ▪ 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)		
Prepared the necessary assessment reports. This includes the following: ▪ 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 **Plumbing**, 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-CON-PLU-01-G	Perform computations using basic mathematical concepts
SEIP-CON-PLU-02-G	Apply occupational health and safety (OHS) practice in the workplace
SEIP-CON-PLU-03-G	Communicate in English in the workplace
SEIP-CON-PLU-04-G	Operate in a self-directed team
Sector-specific Competencies	
SEIP-CON-PLU-01-S	Translate drawings, plans and specifications
SEIP-CON-PLU-02-S	Work with hand tools and power tools
SEIP-CON-PLU-03-S	Carry out measurements and calculations
Occupation-specific Competencies	
SEIP-CON-PLU-01-O	Perform pipe threading operation
SEIP-CON-PLU-02-O	Perform access cutting and encroachment works
SEIP-CON-PLU-03-O	Carry out water supply line installation using G.I. PPR/HDP Pipes
SEIP-CON-PLU-04-O	Carry out water supply line installation using PVC/UPVC Pipes
SEIP-CON-PLU-05-O	Carry out sewer pipe line installation
SEIP-CON-PLU-06-O	Carry out plumbing fixtures of piping system
SEIP-CON-PLU-07-O	Perform pressure testing of piping system

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:	Plumbing					
Unit Name:	Perform computations using basic mathematical concepts					
Unit Code:	SEIP-CON-PLU-1-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.			√		√
2. Select appropriate mathematical methods/concepts for calculation	**2.1.** Appropriate method is selected to carry out the calculation requirement.			√		√
3. Use tool/instrument to perform calculations	**3.1.** Calculations are completed using appropriate tools and instruments.			√		√

Occupation:	Plumbing					
Unit Name:	Apply occupational health and safety (OHS) practices in the workplace					
Unit Code:	SEIP-CON-PLU-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. Identify OHS policies and procedures	**1.1.** OHS policies and safe operating procedures are read and understood.					√
	1.2. Safety signs and symbols are identified and followed.			√		
	1.3. Emergency response, evacuation procedures and other contingency measures are determined.					√

2. Apply personal health and safety practices	**2.1.** OHS policies and procedures are followed and practiced.	√		√
	2.2. Personal protective equipment is selected and used.	√		
	2.3. Personal hygiene is maintained.	√		
3. Report hazards and risks	**3.1.** Hazards and risks are identified, assessed and controlled.	√	√	
	3.2. Incidents arising from hazards and risks are reported to authority.		√	
	3.3. Corrective actions are implemented to correct unsafe conditions in the workplace.	√		√
4. Respond to emergencies	**4.1.** Alarms and warning devices are responded.			√
	4.2. Emergency response plans and procedures are implemented.		√	
	4.3. First aid procedure is applied during emergency situations.	√		

Occupation:	Plumbing				
Unit Name:	Communicate in English in the workplace				
Unit Code:	SEIP-CON-PLU-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. Read and understand workplace documents in English	**1.1.** Workplace documents are read and understood.					√
	1.2. Visual information is interpreted.				√	
2. Write simple workplace communications in English	**2.1.** Simple routine workplace documents are prepared using key words, phrases, simple sentences and visual aids are prepared.					√
	2.2. Key information is written in the appropriate places in standard forms.					√
3. Listen and comprehend to English conversations	**3.1.** Active listening is demonstrated.			√	√	
4. Perform conversations in English language	**4.1.** Conversation is performed in English with peers, customers and management to the required workplace standard.			√	√	

Occupation:	Plumbing					
Unit Name:	Operate in a self-directed team					
Unit Code:	SEIP-CON-PLU-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 team goals and work processes	**1.1.** Team goals and collaborative decision-making processes are identified.					√
	1.2. Roles and responsibilities of team members are identified.				√	
	1.3. Relationships within the team and with other workers are identified.				√	
2. Communicate and cooperate with team members	**2.1.** Effective interpersonal skills are used to interact with team members and to contribute to activities and objectives			√		
	2.2. Formal and informal forms of communication are used effectively to support team achievement.			√		√
	2.3. Diversity in character is respected and valued in team functioning.			√	√	
	2.4. Views and opinions of other team members are understood and valued.			√	√	
	2.5. Workplace terminology is used correctly to assist communication.			√		√
3. Work as a team member	**3.1.** Duties, responsibilities, authorities, objectives and task requirements are identified and clarified with team.					√
	3.2. Tasks are performed in accordance with organisational and team requirements, specifications and workplace procedures.			√		√
	3.3. Team member's support with other members is made to ensure team achieves goals, awareness and requirements.			√	√	
	3.4. Agreed reporting lines are followed using standard operating procedure.					√
4. Solve problems as team member	**4.1.** Current and potential problems faced by team are identified.					√
	4.2. A solution to the problem is identified.			√		
	4.3. Problems are solved effectively and the outcome of the implemented solution is evaluated.				√	

Occupation:	Plumbing					
Unit Name:	Translate drawings, plans and specifications					
Unit Code:	SEIP-CON-PLU-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. Access information from manuals, designs and plans	**1.1.** Appropriate manuals are identified and accessed.			√		
	1.2. Version and date of the manual are checked to ensure up-to-date specifications of tools, equipment, materials and procedures.					√
2. Interpret drawings and specifications from manuals, designs and plans	**2.1.** Relevant drawings and specifications are correctly recognized from manuals, designs and plans.					√
	2.2. Terms and abbreviations are recognized.					√
	2.3. Signs and symbols are interpreted.			√		
3. Store manuals, designs and plans	**3.1.** Manuals, designs and plans are collected and packed.				√	
	3.2. Manuals, designs and plans are stored to prevent damage, and ready access and updating of information when required.				√	

Occupation:	Plumbing					
Unit Name:	Work with hand tools and power tools					
Unit Code:	SEIP-CON-PLU-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. Inspect hand tools and power tools for usability	**1.1.** Appropriate tools are selected.			√		
	1.2. Application of tools to job requirements is determined.			√		
	1.3. Usability of tools are checked and verified.			√		√
	1.4. Hand tools and power tools are prepared.			√		
	1.5. Sources of power supply for power tools identified.			√	√	
	2.1. Appropriate hand tool for the job is used.			√		

2. Use hand tools properly and safely	**2.2.** Proper and safe use/operation is applied in the different types of hand tools.	√		
	2.3. Safety precautions are observed when using hand tools.	√		√
	2.4. Unsafe or faulty tools are identified and marked for repair.	√	√	
3. Operate power tools properly and safely	**3.1.** Power supply outlet and electrical cord are inspected and confirmed safe for use in accordance with established workplace safety requirements.	√		√
	3.2. Proper sequence of operation is applied in using power tools to produce results.	√	√	
	3.3. Power tools are used safely in accordance to manufacturer's operating specification.	√		
4. Clean/maintain hand tools and power tools after use	**4.1.** Dust and foreign matters are removed from power tools in accordance to workplace standard.	√		
	4.2. Condition of tools is checked after use.	√		
	4.3. Appropriate lubricant is applied after use and prior to storage	√		
	4.4. Measuring tools are checked and calibrated.	√		
	4.5. Defective tools, instruments, power tools and accessories are inspected and corrected or replaced.	√		

Occupation:	Plumbing				
Unit Name:	Carry out measurements and calculations				
Unit Code:	SEIP-CON-PLU-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. Check usability of measuring devices	**1.1.** Appropriate measuring device is selected for the job.			√		
	1.2. Application of tools to job requirements is determined.			√		
	1.3. Usability of tools are checked and verified.			√		√
	1.4. Measuring device is prepared.			√		
	2.1. Measurements are obtained using appropriate measuring device.			√		√

2. Carry out accurate construction work measurements	**2.2.** Systems of measurements are identified and converted where necessary.			√
	2.3. Results are confirmed and recorded.	√		√
3. Execute simple construction work calculations	**3.1.** Simple calculations involving four basic mathematical operations are executed.	√		√
	3.2. Other operations are used to complete tasks in construction works.		√	
	3.3. Appropriate formulas for calculating quantities of materials are selected.			√
	3.4. Calculations are performed and verified.	√		√
	3.5. Material quantities are calculated.	√		
	3.6. Results are interpreted and communicated to authority.	√		
4. Clean and maintain measuring instruments	**4.1.** Dust and foreign matters are removed from measuring instrument.	√		
	4.2. Check condition of instrument.	√		
	4.3. Apply appropriate lubricant after use and prior to storage.	√		
	4.4. Measuring instruments are checked and calibrated.	√		
	4.5. Store instrument in accordance to workplace procedure.	√		√

Occupation:	Plumbing				
Unit Name:	Perform pipe threading operation				
Unit Code:	SEIP-CON-PLU-01-O				
Assessment Method:	**P**	**O**	**W**		
	Performance *(including demonstration and observation)*	Oral questioning	Written examination *(including short-answer, multiple choice, and true or false questions)*		
Element	**Performance Criteria**			**P**	**O**	**W**
1. Gather and check tools, equipment and materials	**1.1.** Required pipe size and dimensions are identified in accordance to plumbing plan/design.			√		
	1.2. Pipes are selected and gathered in accordance to specification.			√		
	1.3. PPE are selected and used.			√		
	1.4. Tools and equipment and materials are selected, gathered and checked for usability.			√		
	2.1. Pipes are measured and marked in accordance to			√		

2. Carry out steel pipe cutting operation	plumbing plan/drawing specification.			
	2.2. Steel pipe is clamped using appropriate clamping device.	√		
	2.3. Pipe run length is measured and cut using appropriate cutting tool.	√		
	2.4. Pipe length is measured and cut in accordance with plumbing plan/drawing and the type of attachment fittings.	√		
	2.5. Pipe run length is measured within the specified tolerance.	√		√
3. Carry out thread cutting operation	**3.1.** Steel pipes are clamped and fixed using pipe vice.	√		
	3.2. Newly cut pipe is de burred/removed of burr using appropriate de burring tool.	√		
	3.3. Diestocks are adjusted and initiated into the pipe end squarely.	√	√	
	3.4. Thread cutting is carried out on pipes in accordance to workplace procedure.	√		
	3.5. Coolant is used during thread cutting operation.	√		√
	3.6. Threads are checked to conform to the specified form and measurement in accordance with plan/drawing.	√		
4. Assemble pipe run	**4.1.** Pipes are laid down in accordance with planned/designed pipe run.	√		
	4.2. Pipes and pipe fittings are assembled and fixed in accordance with planned/designed pipe run.	√		
	4.3. Pipes, fittings and pipe runs are checked for damage/quality of work.	√		
	4.4. Assembled pipe runs are measured/checked within tolerable dimensions/length in accordance with design/specification.	√		
5. Clean/maintain the work area	**5.1.** Plumbing tools/equipment are cleaned and checked for operability**.**	√		
	5.2. Work area is cleaned and waste materials are disposed in accordance with workplace requirements.	√		

Occupation:	Plumbing		
Unit Name:	Perform access cutting and encroachment works		
Unit Code:	SEIP-CON-PLU-02-O		
Assessment Method:	**P**	**O**	**W**
	Performance	Oral questioning	Written examination *(including short-answer,*

	(including demonstration and observation)		*multiple choice, and true or false questions)*

Element	Performance Criteria	P	O	W
1. Interpret drawings and plumbing plans	**1.1.** Building drawing/plumbing plan is gathered.	√		
	1.2. Building drawing/plumbing plans are interpreted.	√		
	1.3. Work area/line of encroachment is identified.	√		√
2. Inspect encroachment work area	**2.1.** Possible obstructions/limitations along the line of encroachment work are identified.	√		√
	2.2. Possible solutions/remedies needed for identified obstructions/limitations are planned out.		√	
	2.3. Obstructions/limitations are reported with immediate superior whenever necessary.		√	
	2.4. Tools, equipment and materials required to carry out encroachment work are identified.	√		
3. Gather tools, equipment and materials	**3.1.** Tools, equipment and materials are selected, gathered and checked for usability.	√		
	3.2. PPE's are checked and used appropriately.	√		
4. Cut and make access through walls and floors	**4.1.** Lay out for access/encroachment work is made.	√		
	4.2. Concrete wall and floor is cut to create pipe access/encroachment in accordance to plumbing plan/specification.	√		
	4.3. Cutting walls and floors are made without causing damage to the wall or floor and adjacent installations.	√		
	4.4. Correct usage of tools and equipment is observed.	√	√	
5. Clean/maintain the work area	**5.1.** Used tools and equipment are cleaned and maintained.	√		
	5.2. Work area is cleaned.	√		
	5.3. Excess and waste materials are disposed in accordance to workplace requirement.	√		

Occupation:	Plumbing		
Unit Name:	Carryout water supply line installation using G.I. pipes, PPR and HDP pipes		
Unit Code:	SEIP-CON-PLU-03-O		
Assessment Method:	**P**	**O**	**W**
	Performance	Oral questioning	Written examination *(including short-answer,*

	(including demonstration and observation)		*multiple choice, and true or false questions)*		
Element	**Performance Criteria**		**P**	**O**	**W**
1. Gather and inspect tools, equipment and materials	**1.1.** PPE are selected and used.		√		
	1.2. Tools, equipment and materials are gathered and checked for usability.		√		
	1.3. Pipes are identified and gathered in accordance with plumbing plan specifications.		√		
2. Perform pipe cutting operation	**2.1.** G.I/PPR/HDP pipes are measured and marked as per plan/drawing specification.		√		
	2.2. G.I/PPR/HDP pipes are clamped using appropriate clamping device.		√		
	2.3. G.I/PPR/HDP pipes are cut using appropriate cutting tool.		√		
	2.4. G.I/PPR/HDP pipes are cut within the specified dimension and considering specified tolerance.		√		
3. Perform pipe threading operation	**3.1.** G.I /PPR/HDP pipes are clamped and fixed using appropriate clamping device.		√		
	3.2. Diestocks are adjusted and initiated into the pipe end squarely.		√	√	
	3.3. Thread cutting is carried out on pipes in accordance to workplace procedure.		√		
	3.4. Coolant is used during thread cutting operation.		√		√
	3.5. Threads are checked to conform to the specified form and measurement in accordance with plan/drawing.		√	√	
4. Assemble pipe runs	**4.1.** G.I/PPR/HDP pipe runs are positioned on the corresponding areas as per plumbing plan.		√		
	4.2. Piping joints and fittings are tightened using appropriate tools and sealant.		√		
	4.3. Pipe clamps and fixtures along pipe runs are installed in accordance with plumbing plan.		√		
	4.4. Leaks and non-conformance to plumbing design/plans are checked and corrected.			√	
	4.5. Holes and openings are filled with cement plasters and finishing.		√		
5. Clean/maintain the workplace	**5.1.** Use tools and equipment are cleaned and maintained.		√		
	5.2. Work area is cleaned.		√		
	5.3. Waste materials are disposed in accordance to workplace requirement.		√		

Occupation:	Plumbing		
Unit Name:	Carry out water supply line installation using PVC/UPVC pipes		
Unit Code:	SEIP-CON-PLU-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. Gather and inspect tools, equipment and materials	**1.1.** PPE are selected and used.	√		
	1.2. Tools, equipment and materials are gathered and checked for usability.	√		
	1.3. PVC/UPVC pipe sizes/schedules are identified and gathered.			√
2. Perform PVC/UPVC pipe cutting operation	**2.1.** PVC /UPVC pipes are measured and marked as per plan/drawing specification.	√		
	2.2. PVC/UPVC pipes are clamped using appropriate clamping device.	√		
	2.3. PVC/UPVC pipes are cut using appropriate cutting tool.	√		
	2.4. PVC/UPVC pipes are cut within the specified dimension and considering specified tolerance.	√		
3. Perform PVC/UPVC pipe run assembly	**3.1.** PVC/UPVC pipe runs are positioned on the corresponding location as per plumbing plan.	√		
	3.2. PVC/UPVC piping joints and fittings are assembled using appropriate tools and sealant.	√		
	3.3. Appropriate curing time for sealant after assembly of pipe joints and fittings is observed to create strong bond.			√
	3.4. Clamps and fixtures along pipe runs are installed in accordance with plumbing plan.	√		
	3.5. Leaks and non-conformance to plumbing design/plans are checked and corrected.	√	√	
	3.6. Holes and openings are filled with cement plasters and finishing.	√		√
4. Clean/maintain the work area	**4.1.** Workplace, tools and equipment are cleaned and checked for normal operation.	√		
	4.2. Waste materials are disposed in accordance to workplace requirement.	√		

Occupation:	Plumbing
Unit Name:	Carry out sewer pipe line installation

Unit Code:	SEIP-CON-PLU-05-O		
Assessment Method:	**P**	**O**	**W**
	Performance *(including demonstration and observation)*	Oral questioning	Written examination *(including short-answer, multiple choice, and true or false questions)*

Element	**Performance Criteria**	**P**	**O**	**W**
1. Plan out for sewer pipe line installation	**1.1.** Work activities are confirmed by making site visit/inspection.			√
	1.2. Pipe runs and elevation are identified in accordance with plumbing plans/specification.	√	√	
	1.3. Pipe line slope/pitch is determined in accordance with plumbing plans/specification and result of site visit.		√	
2. Gather tools, equipment and materials	**2.1.** Required tools, equipment and materials are identified in accordance with plumbing plan and result of site visit/inspection.	√		√
	2.2. Sewer pipe materials, sizes/schedules are identified and gathered.	√	√	
	2.3. PPE are selected and used.	√		√
	2.4. Tools, equipment and materials are gathered and checked for usability.	√		√
3. Carry out trenching and bedding works	**3.1.** Trench/excavation area/line is laid out in accordance with plumbing plan and result of site visit.			√
	3.2. Size of trench/excavation is made in accordance with workplace and plumbing plan requirement.			√
	3.3. Grade/slope of trench is applied in accordance with workplace and plumbing plan requirement.			√
	3.4. Bedding material is laid in accordance to workplace and plumbing plan requirement.		√	
4. Lay sewer pipe	**4.1.** Sewer pipes are laid on the trench in accordance with workplace and plumbing plan requirements.			√
	4.2. Bell ended sewer pipes are laid by placing the bell end at the uphill side of the pipe run.			√
	4.3. PVC sewer pipes are installed by using appropriate sealing/ gluing materials.			√
	4.4. Alignment and pipe elevation are checked in accordance to workplace and plumbing plan requirements.			√
5. Finish final pipe run	**5.1.** Fittings are installed to complete the final run of the sewer pipe installation.		√	
	5.2. Final pipe run is checked for leaks and non-conformance to workplace and plumbing line requirements.			√

	5.3. Re-works or revision is made where necessary.		√	
	5.4. Covering materials are laid on top of the sewer pipe run in accordance with workplace and plumbing plan requirement.			√
6. Clean/maintain the work area	**6.1.** Workplace, tools and equipment are cleaned and checked for normal operation.	√		
	6.2. Waste materials are disposed in accordance to workplace requirement.	√		

Occupation:	Plumbing		
Unit Name:	Carry out plumbing fixtures installations		
Unit Code:	SEIP-CON-PLU-06-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 plumbing fixture installation	**1.1.** Work activities are confirmed in accordance with plumbing plan and workplace requirements.			√
	1.2. Work site is visited and prepared prior to installation works.	√		
	1.3. Plumbing fixture is determined, collected and checked for workability and quality.	√		
2. Gather tools, equipment and materials	**2.1.** Required tools, equipment and materials are identified in accordance with plumbing plan and result of site visit/inspection.	√		
	2.2. Plumbing fixtures to be installed are gathered in the work site.	√		
	2.3. PPE's are selected and used.	√		
	2.4. Tools, equipment and materials are gathered and checked for usability.	√		
3. Install a new toilet bowl (commode)	**3.1.** Toilet bowl flange is installed securely making sure the bolts are in place.	√		
	3.2. A new wax ring is placed at the bottom of the toilet bowl accurately.	√		
	3.3. The new toilet bowl is placed on the flange aligning the bolt holes with the bolts of the flange and wax ring in its proper place.	√		
	3.4. Nuts with washers are tightened squarely without over tightening.	√		
	3.5. Apply additional sealing material around the base of the bowl in accordance to workplace requirements.	√		

	3.6. The water closet tank is installed on the bowl in accordance with manufacturer's instruction.	√		
4. Install other plumbing fixtures	**4.1.** Plumbing fixtures are installed in accordance with plumbing plan and following manufacturer's instruction/specification.	√		
	4.2. Check newly installed plumbing fixtures for leaks and non-conformance with workplace requirements.	√	√	
	4.3. Reworks/adjustment is carried out in accordance with workplace requirements.		√	
5. Clean/maintain the work area	**5.1.** Workplace, tools and equipment are cleaned and checked for normal operation.	√		
	5.2. Waste materials are disposed in accordance to workplace requirement.	√		

Occupation:	Plumbing		
Unit Name:	Perform pressure testing of piping system		
Unit Code:	SEIP-CON-PLU-07-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 pressure testing	**1.1.** Work activities are identified in accordance with plumbing plan and workplace requirements.			√
	1.2. Maximum test pressure is determined in accordance with plumbing plan/design specification.			√
	1.3. Pressure testing method is identified in accordance with plumbing plan/workplace requirements.		√	
	1.4. Piping system connections are reviewed and checked for tightness/integrity.			√
	1.5. Devices, fixture or components in the piping systems that needs to be isolated is shut off to avoid damage.		√	
2. Gather tools, equipment and materials	**2.1.** Required tools, equipment and materials are identified in accordance with plumbing plan and workplace procedure on pressure testing.			√
	2.2. Pressure testing tools, equipment and materials are collected and checked for usability/accuracy.			√
	2.3. PPEs are gathered and strictly used.			√
	3.1. Preliminary, intermediate and final test pressures are applied progressively into the system in			√

3. Carry out pressure testing	accordance with workplace pressure testing plan/procedure.			
	3.2. Appropriate leak testing method is applied or each applied pressure to determine presence of leaks.		√	
	3.3. Report leak testing result with immediate superior.		√	
	3.4. Record test results in accordance with workplace requirements.			√
	3.5. Safety precaution is observed when performing pressure testing.			√
4. Clean/maintain the work area	**4.1.** Workplace, tools and equipment are cleaned and checked for normal operation.	√		
	4.2. Waste materials are disposed in accordance to workplace requirement.	√		

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 these units of competency that comprise of the Certificate in **Plumbing**. Assessment of competency requires you to consistently demonstrate skill, knowledge and aptitude (through a variety of assessment tools such as multiple choice, short-answer questions, oral questioning, workplace observation, and practical demonstration) that enables confident completion of workplace tasks in a variety of situations.

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

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

Furthermore, the assessment process must:

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

There are two types of assessment:

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

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

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

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

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

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

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

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

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

Self-Assessment Guide

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

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

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

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

Qualification:	**Plumbing**
Units of competency:	**Generic units:** Perform computations using basic mathematical concepts Apply occupational health and safety (OHS) practices in the workplace Communicate in English in the workplace Operate in a self-directed team **Sector-specific units:** Translate drawings, plans and specifications Work with hand tools and power tools Carry-out measurements and calculations **Occupation-specific units:** Perform pipe threading operation Perform access cutting and encroachment operation Carry out water supply line installation using G.I. PPR/HDP Pipes Carry out water supply line installation using PVC/UPVC pipes Carry out sewer pipe line installation Carry out plumbing fixtures installation Perform pressure testing of piping system

Instructions:

- 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		
▪ Select appropriate method to carry out calculation requirements		
▪ Complete calculations using appropriate tools and instruments		

▪ Read and understand OHS policies and safe operating procedures		
▪ Identify and follow safety signs and symbols		
▪ Determine emergency response, evacuation procedures and other contingency measures		
▪ Follow and practice OHS policies and procedures		
▪ Select and use personal protective equipment (PPE)		
▪ Maintain personal hygiene		
▪ Identify, assess and control hazards and risks		
▪ Report incidents arising from hazards and risks to authority		
▪ Implements corrective actions to correct unsafe conditions in the workplace		
▪ Respond to alarms and warning devices		
▪ Implement emergency response plans and procedures		
▪ Apply first aid procedures during emergency situations		
▪ Read and understand workplace documents		
▪ Interpret visual information		
▪ Prepare simple routine workplace documents using key words, phrases, simple sentences and visual aids		
▪ Write key information in the appropriate places in standard forms		
▪ Demonstrate active listening		
▪ Perform conversation in English with peers, customers and management to the required workplace standard		
▪ Identify team goals and collaborative decision-making processes		
▪ Identify roles and responsibilities of team members		
▪ Identify relationship within team and with other workers are identified		
▪ Use effective interpersonal skills to interact with team members and to contribute to activities and objectives		
▪ Use formal and informal forms of communication effectively to support team achievement		
▪ Respect and value diversity in character in team functioning		
▪ Understand and value views and opinions of other team members		
▪ Use workplace terminology correctly to assist communication		
▪ Identify and clarify with team the duties, responsibilities, authorities, objectives and task requirements		
▪ Perform tasks in accordance with organizational and team requirements, specifications and workplace procedures		

▪ Make team member's support with other members to ensure team achieves goals, awareness and requirements		
▪ Follow agreed reporting lines using standard operating procedure		
▪ Identify current and potential problems faced by team		
▪ Identify a solution to the problem		
▪ Solve problems effectively and the outcome of the implemented solution is evaluated		
▪ Identify and accessed appropriate manuals		
▪ Check version and date of the manual to ensure up-to-date specifications, tools, equipment, materials and procedures		
▪ Recognize correctly relevant drawings and specifications from manuals, designs and plans		
▪ Recognize terms and abbreviations		
▪ Interpret signs and symbols		
▪ Collect and pack manuals, designs and plans		
▪ Store manuals, designs and plans to prevent damage, and ready access and updating of information when required		
▪ Select appropriate tools		
▪ Determine application of tools to job requirements		
▪ Check and verify usability of tools		
▪ Prepare hand and power tools		
▪ Identify sources of power supply for power tools		
▪ Use appropriate hand tool for the job		
▪ Apply proper and safe use/operation in the different types of hand tools		
▪ Observe safety precautions when using hand tools		
▪ Identify and mark unsafe or faulty tools for repair		
▪ Inspect and confirm safe for use power supply outlet and electrical cord in accordance with established workplace safety requirements		
▪ Apply proper sequence of operation in using power tools to produce results		
▪ Use power tools safely in accordance to manufacturer's specification		
▪ Remove dust and foreign matters from power tools and instrument in accordance to workplace standard		
▪ Check condition of tools after use		
▪ Apply appropriate lubricant after use and prior to storage		

▪ Check and calibrate measuring tools		
▪ Inspect and correct defective tools, instruments, power tools and accessories		
▪ Select appropriate measuring device for the job		
▪ Determine application of tools to job requirements		
▪ Check and verify usability of tools		
▪ Prepare measuring device		
▪ Obtain measurements using appropriate measuring device		
▪ Identify systems of measurements and converted where necessary		
▪ Confirm and record results		
▪ Execute simple calculations involving four basic mathematical operations		
▪ Use other operations to complete tasks in construction works		
▪ Select appropriate formulas for calculating quantities of materials		
▪ Perform and verify calculations		
▪ Calculate material quantities		
▪ Interpret and communicate results to authority		
▪ Check condition of instrument		
▪ Apply appropriate lubricant after use and prior to storage		
▪ Check and calibrate measuring instruments		
▪ Store instrument in accordance to workplace procedure		
▪ Identify required pipe size and dimensions in accordance to plumbing plan/design		
▪ Select and gather pipes in accordance to specification		
▪ Select, gather and check tools, equipment and materials for usability		
▪ Measure and mark pipes in accordance to plumbing plan/drawing specification		
▪ Clamp steel pipe using appropriate clamping device		
▪ Measure and cut pipe run length using appropriate tool		
▪ Measure and cut pipe length in accordance with plumbing/drawing and the type of attachment fittings		
▪ Measure pipe run length within the specified tolerance		

▪ Clamp and fix steel pipes using pipe vice		
▪ Burr/remove of burr newly cut pipe using appropriate de burring tool		
▪ Adjust and initiate die stocks into the pipe end squarely		
▪ Carry out thread cutting on pipes in accordance to workplace procedure		
▪ Use coolant during thread cutting operation		
▪ Check thread to conform to the specified form and measurement in accordance with plan/drawing		
▪ Lay down pipes in accordance with the planned/designed pipe run		
▪ Assemble and fix pipes and pipes fittings in accordance with planned/designed pipe run		
▪ Check pipes, fittings and pipe runs for damage/quality of work		
▪ Measure/check assembled pipe runs within tolerable dimensions/length in accordance with designs/specification		
▪ Gather building drawing/plumbing plan		
▪ Interpret building drawing/plumbing plans		
▪ Identify work area/line of encroachment		
▪ Identify possible obstructions/limitations along the line of encroachment work		
▪ Plan out possible solutions/remedies needed for identified obstructions/limitations		
▪ Select, gather and check tools, equipment and materials for usability		
▪ Make lay out for access/encroachment work		
▪ Cut concrete wall and floor to create pipe access/encroachment in accordance to plumbing plan/specification		
▪ Make cutting walls and floors without causing damage to the wall or floor and adjacent installations		
▪ Observe correct usage of tools and equipment		
▪ Measure and mark G.I./PPR/HDP as per plan/drawing specification		
▪ Clamp G.I./PPR/HDP pipes using appropriate clamping device		
▪ Cut G.I./PPR/HDP pipes using appropriate cutting tool		
▪ Cut G.I./PPR/HDP pipes within the specified dimension and considering specified tolerance		

▪ Clamp and fix G.I./PPR/HDP pipes using appropriate clamping device		
▪ Adjust and initiate diestocks into the pipe end squarely		
▪ Carry out thread cutting on pipes in accordance to workplace procedure		
▪ Use coolant during thread cutting operation		
▪ Check threads to conform to the specified form and measurement in accordance with plan/drawing		
▪ Position G.I./PPR/HDP pipe runs on the corresponding areas per plumbing plan		
▪ Tighten piping and fittings using appropriate tools and sealant		
▪ Install pipe clamps and fixtures along pipe runs in accordance with plumbing plan		
▪ Check and correct leaks and non-conformance to plumbing design/plans		
▪ Fill holes and openings with cement plasters and finishing		
▪ Measure and mark PVC/UPVC pipes as per plan/drawing specification		
▪ Clamp PVC/UPVC pipes using appropriate clamping device		
▪ Cut PVC/UPVC pipes within the specified dimension and considering specified tolerance		
▪ Cut PVC/UPVC pipes within the specified dimension and considering specified tolerance		
▪ Position PVC/UPVC pipe runs on the corresponding location as per plumbing plan		
▪ Assemble piping joints and fittings using appropriate tools and sealant		
▪ Observe appropriate curing time for sealant after assembly of pipe joints and fitting to create strong bond		
▪ Install clamps and fixtures along pipes runs in accordance with plumbing plan		
▪ Identify pipe runs and elevation in accordance with plumbing plans/specification		
▪ Determine pipe line slope/pitch in accordance with plumbing plans/specification and result of site visit		
▪ Identify and gather sewer pipe materials, sizes/schedules		
▪ Lay out trench/excavation area/line in accordance with plumbing plan and result of site visit		
▪ Make size of trench/excavation in accordance with workplace and plumbing plan requirement		
▪ Apply grade/slope of trench in accordance with workplace and plumbing plan requirement		

▪ Lay bedding materials in accordance to workplace and plumbing plan requirement		
▪ Lay sewer pipes on the trench in accordance with workplace and plumbing plan requirements		
▪ Lay bell ended sewer pipes by placing the bell end at the uphill side of the pipe run		
▪ Install PVC sewer pipes by using appropriate sealing/gluing materials		
▪ Check alignment and pipe elevation in accordance to workplace and plumbing plan requirements		
▪ Install fittings to complete the final run of the sewer pipe installation		
▪ Check final pipe run for leaks and non-conformance to workplace and plumbing line requirements		
▪ Make re-works or revision where necessary		
▪ Lay covering materials on top of the sewer pipe run in accordance with workplace and plumbing plan requirement		
▪ Install toilet bowl flange securely making sure the bolts are in place		
▪ Place a new wax ring at the bottom of the toilet bowl accurately		
▪ Place the new toilet bowl on the flange aligning the bolt holes with the bolts of the flange and wax ring in its proper place		
▪ Tighten nuts with washers squarely without over tightening		
▪ Apply additional sealing material around the base of the bowl in accordance to workplace requirements		
▪ Install the water closet tank on the bowl in accordance with manufacturer's instruction		
▪ Install plumbing fixtures in accordance with plumbing plan and following manufacturer's instruction/specification		
▪ Determine maximum test pressure in accordance with plumbing plan/design specification		
▪ Identify pressure testing method in accordance with plumbing plan/workplace requirements		
▪ Review piping system connections and check for tightness/integrity		
▪ Shut off devices, fixture or components in the piping systems that needs to be isolated to avoid damage		
▪ Identify required tools, equipment and materials in accordance with plumbing plan and workplace procedure on pressure testing		
▪ Apply progressively preliminary, intermediate and final test pressures into the system in accordance with workplace pressure testing plan/procedure		
▪ Apply appropriate leak testing method to determine presence of leaks		
▪ Report leak testing result with immediate superior		

▪ Record test results in accordance with workplace requirements		
▪ Observe safety precaution when performing pressure testing		
▪ Clean and check workplace, tools and equipment for normal operation		
▪ Dispose waste materials in accordance to workplace requirement		

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 - Plumbing

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 **Plumbing**, you must demonstrate competence in the following units, as established in the assessment agreement:

CODE	UNIT OF COMPETENCY
Generic Competencies	
SEIP-CON-PLU-01-G	Perform computations using basic mathematical concepts
SEIP-CON-PLU-02-G	Apply occupational health and safety (OHS) practices in the workplace
SEIP-CON-PLU-03-G	Communicate in English in the workplace
SEIP-CON-PLU-04-G	Operate in a self-directed team
Sector-specific Competencies	
SEIP-CON-PLU-01-S	Translate drawings, plans and specifications
SEIP-CON-PLU-02-S	Work with hand tools and power tools
SEIP-CON-PLU-03-S	Carry-out measurements and calculations
Occupation-specific Competencies	
SEIP-CON-PLU-01-O	Perform pipe threading operation
SEIP-CON-PLU-02-O	Perform access cutting and encroachment works
SEIP-CON-PLU-03-O	Carry out water supply line installation using G.I. PPR/HDP Pipes
SEIP-CON-PLU-04-O	Carry out water supply line installation using PVC/UPVC pipes
SEIP-CON-PLU-05-O	Carry out sewer pipe line installation
SEIP-CON-PLU-06-O	Carry out plumbing fixtures installation
SEIP-CON-PLU-07-O	Perform pressure testing piping system

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

Assessment Agreement	
Occupation:	Plumbing
Assessment Centre:	
Candidate Name:	
Assessor Name:	
Unit of Competency	
Generic Competencies	
SEIP-CON-PLU-01-G	Perform computations using basic mathematical concepts
SEIP-CON-PLU-02-G	Apply occupational health and safety (OHS) practices in the workplace
SEIP-CON-PLU-03-G	Communicate in English in the workplace
SEIP-CON-PLU-04-G	Operate in a self-directed team
Sector-specific Competencies	
SEIP-CON-PLU-01-S	Translate drawings, plans and specifications
SEIP-CON-PLU-02-S	Work with hand tools and power tools
SEIP-CON-PLU-03-S	Carry-out measurements and calculations
Occupation-specific Competencies	
SEIP-CON-PLU-01-O	Perform pipe threading operation
SEIP-CON-PLU-02-0	Perform access cutting and encroachment works
SEIP-CON-PLU-03-O	Carry out water supply line installation using G.I. PPR/HDP Pipes
SEIP-CON-PLU-04-O	Carry out water supply line installation using PVC/UPVC pipes
SEIP-CON-PLU-05-O	Carry out sewer pipe line installation
SEIP-CON-PLU-06-O	Carry out plumbing fixtures installation
SEIP-CON-PLU-07-O	Perform pressure testing piping system
Resources Required for Assessment	
Candidates must have access to the following: ▪ copies of activities, questions, projects nominated by the assessor ▪ relevant organisational policies, protocols and procedural documents (if required) ▪ devices or tools to record answers ▪ appropriate actual or simulated workplace ▪ all necessary tools and equipment used in performance of the work-based task ▪ any other resources normally used in the workplace	
Assessment Instructions	
Candidates should respond to the formative and summative assessments either verbally or in writing as agreed with the assessor. Written responses can be recorded in the spaces provided (if more space is required attach additional pages) or submitted in a word-processed document. If candidates answer verbally, the assessor should record their answers in detail. Candidates should also undertake observable tasks that provide evidence of performance. The assessor must provide instruction to candidates on what is expected during observation, and arrange a suitable time and location for demonstration of these skills.	

Candidates must fully understand what they are required to do to complete these assessment tasks successfully, then sign the declaration.
Performance Standards
To receive a **satisfactory** result for the assessments, candidates must complete all activities, questions, projects, and tasks nominated by the assessor, to the required standard. Completion of all tasks for a unit of competency, to a satisfactory level, will contribute to an assessment of competence for that specific individual unit (or units if holistic assessment approach is taken). Successful completion of all the units of competency that comprise of the qualification **Plumbing**, 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 assessment activities:
        - Set A:
            - installation of water supply pipe line using GI/PPR pipe for a modern toilet
            - installation of commode and installation of hand wash basin
        - Set B:
            - installation of water supply pipe line using HDP pipe for a modern toilet
            - installation of commode with soil pipe connection
        - Set C:
            - installation of water supply pipe line using PVC/UPVC pipe for a modern toilet
            - installation of water closet pan with foot rest and soil pipe connection
    - 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 (4 hours) – **performance evidence**

    The practical demonstration activities will be divided into two (2) tasks (contained in one set):

    (i) Practical Demonstration 1 (2 hours)

    (ii) Practical Demonstration 2 (2 hours)
3. Final assessment is your responsibility as the accredit/certified assessor.
4. At the conclusion of each assessment activity, you will provide feedback to the candidate of the assessment result. The feedback will indicate whether the candidate is:

    ❑ **COMPETENT**

    ❑ **NOT YET COMPETENT**

5. The list of tools, equipment, machinery and materials to be provided for completion of the practical demonstration assessment activities can be found at:

   - Set A – Practical Demonstration 1 pages 49 - 50
   - Set A – Practical Demonstration 2: pages 56 - 57
   - Set B – Practical Demonstration 1: page 62
   - Set B – Practical Demonstration 2: pages 68 - 69
   - Set C – Practical Demonstration 1: pages 74 – 75
   - Set C – Practical Demonstration 2: pages 81 - 82

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 Plumbing. Using the performance criteria as a benchmark, evidence will be gathered through:

1. Written Test (1 hour) – a variety of multiple-choice, true of false and short answer theory questions to support your competence with regard to the required knowledge (**knowledge evidence**).

2. Practical Demonstration (4 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:
     - installation of water supply pipe line using GI/PPR pipe for a modern toilet (2 hours)
     - installation of commode and installation of hand wash basin (2 hours)
   - Set B:
     - installation of water supply pipe line using HDP pipe for a modern toilet (2 hours)
     - installation of commode with soil pipe connection (2 hours)
   - Set C:
     - installation of water supply pipe line using PVC/UPVC pipe for a modern toilet (2 hours)
     - installation of water closet pan with foot rest and soil pipe connection (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 Plumbing.

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 Plumbing
Unit of Competency	
Generic Competencies	
SEIP-CON-PLU-01-G	Perform computations using basic mathematical concepts
SEIP-CON-PLU-02-G	Apply occupational health and safety (OHS) practices in the workplace
SEIP-CON-PLU-03-G	Communicate in English in the workplace
SEIP-CON-PLU-04-G	Operate in a self-directed team
Sector-specific Competencies	
SEIP-CON-PLU-01-S	Translate drawings, plans and specifications
SEIP-CON-PLU-02-S	Work with hand tools and power tools
SEIP-CON-PLU-03-S	Carry-out measurements and calculations
Occupation-specific Competencies	
SEIP-CON-PLU-01-O	Perform pipe threading specifications
SEIP-CON-PLU-02-O	Perform access cutting and encroachment works
SEIP-CON-PLU-03-O	Carry out water supply line installation using G.I. PPR/HDP pipes
SEIP-CON-PLU-04-O	Carry out water supply line installation using PVC/UPVC pipes
SEIP-CON-PLU-05-O	Carry out sewer pipe line installation
SEIP-CON-PLU-06-O	Carry out plumbing fixtures installation
SEIP-CON-PLU-07-O	Perform pressure testing of piping system
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	
Instructions:	
Read and understand the directions carefully: ▪ this written examination is based on the performance criteria from all the units of competency in Plumbing ▪ this assessment activity will be used to measure your underpinning knowledge ▪ write your answers on the paper provided ▪ answer all the questions as best as possible ▪ you have 1 (one) hour to complete this test	

WRITTEN TEST		
Multiple Choice		
This is a **multiple-choice** of test. Choose the appropriate answer and circle the letter that corresponds with your answer.		
1.	What percentage of 250 is 100?	a. 10% b. 20% c. 25% d. 40%
2.	According to International Plumbing Code (IPC), drainage pipe of diameter 3" to 6" should be run with a uniform slope at the minimum pitch of:	a. ½" per foot b. ¼" per foot c. 1/8" per foot d. 1/16" per foot
3.	Self-directed team gives us which benefit?	a. Improved quality, productivity and service b. Greater flexibility c. Prohibition signs d. Faster response to technological change e. All of the above
4.	Hacksaw blade with 14 TPI is suitable for cutting:	a. Machine steel b. Cast iron c. Bronze d. Copper
5.	Which of the following line is used to show the visible shape of the object?	a. Chain line b. Object line c. Section line d. Extension line
6.	In plumbing system, the line of encroachment may include:	a. Floor b. Wall c. Ceiling d. All of the above
7.	To allow the flow only in one direction, the valve must be:	a. Gate valve b. Globe valve c. Check valve d. All of the above

8.	In plumbing system, the pipe clamps and hangers may include:	a. Pipe strap b. Pipe clip c. Swivel loop d. All of the above
9.	Which among the given choices might lead to chemical hazards?	a. Fire b. Virus c. Noise d. Harpic solution
10.	Give some ways on how to build relationships within the team:	a. Discuss team member work styles b. Define “team personality” c. Discuss individual goals, hopes, concerns d. All of the above
True or False Quiz		
Tick (√) the box corresponding to the correct answer.		
11.	The word “all right” indicates a positive response?	True ☐ False ☐
12.	A reamer is used to measure the diameter of a pipe	True ☐ False ☐
13.	During thread cutting operation water maybe use as coolant	True ☐ False ☐
Fill in the Missing Blanks		
Write the word or group of words needed to complete the following sentences.		
14.	_____ is used to seal the thread of pipes.	
15.	To seal off GI pipe end _____ is used.	
Short Answer		
Write a short answer in the space provided (not to exceed more than approximately twenty-five (25) words).		
16.	What is a die stock?	
17.	What are the types of callipers relevant to plumbing?	

18.	Why is angle grinder used in pipe line installation?	
19.	The bidet is used for?	
20.	What will you do in case of an earthquake while you are in your workstation?	
21.	Name the tools used for de-burring	
22.	Which is the best location to install pressure gauges for testing pressure?	
23.	How do you find a plumbing leak?	
24.	What are the types of sewers used (according to materials)?	
25.	What are the traps used in plumbing works (according to shape)?	

Feedback to candidate:

Assessment decision for this assessment activity:

☐ **Competent** ☐ **Not Yet Competent**

Candidate's Signature:		**Date:**	
Assessor' Signature:		**Date:**	

Written Test - Answers

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

Multiple Choice		
1.	What percentage of 250 is 100?	a. 10% b. 20% c. 25% ***d. 40%***
2.	According to International Plumbing Code (IPC), drainage pipe of diameter 3" to 6" should be run with a uniform slope at the minimum pitch:	a. ½" per foot b. ¼" per foot ***c. 1/8" per foot*** d. 1/16" per foot
3.	Self-directed team gives us which benefit?	a. Improved quality, productivity and service b. Greater flexibility c. Prohibition signs d. Faster response to technological change ***e. All of the above***
4.	Hacksaw blade consist 14 TPI is suitable for cutting:	***a. Machine steel*** b. Cast iron c. Bronze d. Copper
5.	Which of the following line is used to show the visible shape of the object?	a. Chain line ***b. Object line*** c. Section line d. Extension line
6.	In a plumbing system, the line of encroachment may include:	a. Floor b. Wall c. Ceiling ***d. All of the above***
7.	To allow the flow only in one direction the valve must be:	a. Gate valve b. Globe valve ***c. Check valve*** d. All of the above
8.	In a plumbing system, the pipe clamps and hangers may include:	a. Pipe strap b. Pipe clip

		c. Swivel loop ***d. All of the above***
9.	Which among the given choices might give chemical hazards?	a. Fire b. Virus c. Noise ***d. Harpic solutions***
10.	Give some ways on how to build relationships within the team:	a. Discuss team member work styles b. Define "team personality" c. Discuss individual goals, hopes, concerns ***d. All of the above***
True or False Quiz		
11.	The word "All right" indicates a positive response?	***True*** √ False ☐
12.	A reamer is used to measure the diameter of a pipe	True ☐ ***False*** √
13.	During thread cutting operation water may be used as coolant?	***True*** √ False ☐
Fill in the Missing Blanks		
14.	Teflon tape is used to seal the thread of pipes.	
15.	To seal off GI pipe end cap is used.	
Short Answer		
16.	What is a die stock?	***A die stock is a piece of equipment that is very important to the process of creating uniform threads on different types of screws, bolts, and pipes.***
17.	What are the types of callipers relevant to plumbing?	***The types of callipers are: Vernier/slide callipers, Inside calliper and Outside calliper. These are handy instrument used to measure diameter of a pipe and can also measure the thickness of pipe.***
18.	Why is angle grinder used in pipe line installation?	***The angle grinder is used for cutting brickwork in pipe line installation system.***
19.	The bidet is used for?	***A* bidet *is a plumbing fixture or type of sink typically installed in a bathroom.***
20.	What will you do in case of an earthquake while you are in your workstation?	***May include but not limited to:*** • ***Follow as instructed in the safety drills conducted by the training centre or by the workstations.***

		• ***Follow emergency procedures during earthquake*** • ***Take cover in hard sturdy materials or furniture***
21.	Name the tools used for de-burring	• ***Reamer*** • ***Files (of different shapes)***
22.	Which is the best location to install pressure gauges for testing pressure?	***Pressure gauge must be installed at a proper location so that it can be easily read and do not create additional hazards to the hydrostatic test.***
23.	How do you find a plumbing leak?	***The majority of leaks occur near plumbing fixtures like tubs, sinks, basins and toilets. You can turn on all the faucets and get the result easily.***
24.	What are the types of sewers used (according to materials)?	***PVC sewer, UPVC sewer, Cast Iron Sewer, Concrete sewer, Asbestos sewer***
25.	What are the traps used in plumbing works (according to shape)?	***S-shaped, P-shaped and U-shaped***

Set A: Practical Demonstration 1

PRACTICAL DEMONSTRATION 1	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Plumbing
Task:	Installation of water supply pipe line using GI/PPR pipe for a modern toilet
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	

Instructions:

Read and understand the directions carefully:

- this practical demonstration is based on the performance criteria from all or some of the units of competency in Plumbing
- 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:

- 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:

1. Collect required supplies, materials, tools and equipment to perform installation of water supply pipe line using GI pipe for a modern toilet.
2. Measure and cut the GI pipe using hacksaw/3-wheel pipe cutter.
3. Adjust die stock as per diameter of pipe.
4. Rotate the die stock in clock wise direction and apply lubricant on pipe.
5. Rotate the die stock anti-clock wise, after 4 to 5 times clock wise turn.
6. Cut thread until one or two threads out of die is visible.
7. Remove the die set from the pipe.
8. Remove burrs and clean thread.
9. Assemble and fix the pipes and pipe fittings as per drawing.
10. Check the pipes, fittings and pipe runs for damage/quality of work.
11. Conduct leakage test using water.
12. Report to assessor for final evaluation.
13. Clean the tools, equipment and work area.
14. Dispose waste materials and excess materials.

Drawing, Plan, Diagram or Sketch:

The diagram below is the blueprint of the task to be performed. During the construction process, you are to ensure:

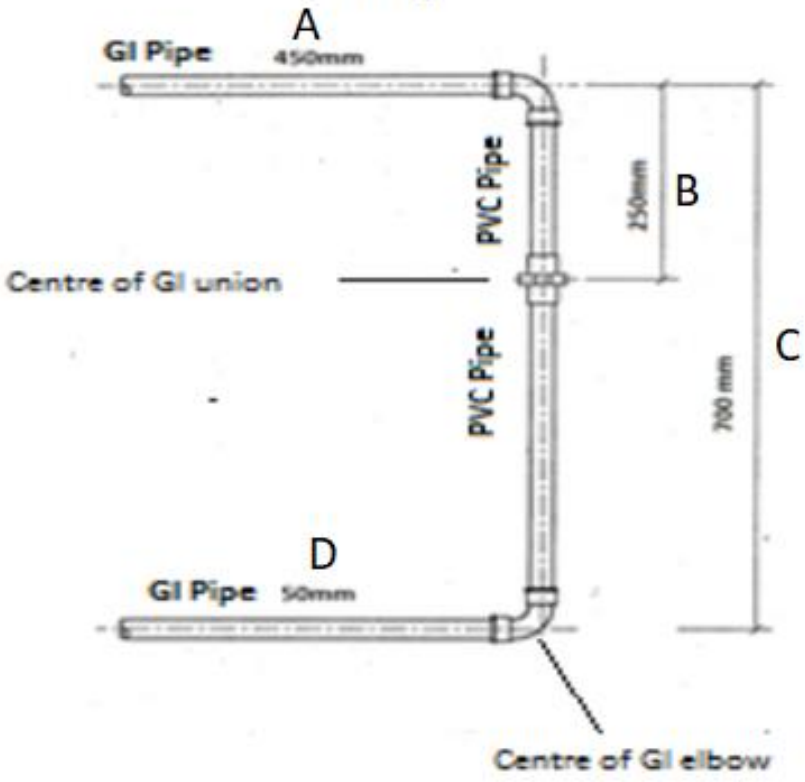
- Accuracy of measurement
- Uniformity of the ends
- Tolerance
- Properly clamped and fixed the pipe
- Squarely adjusted and initiated the die stock
- Use of coolant
- Threads are checked
- Appropriate fitting

You are given total of two (2) hours for the following:

- Collection of tools, relevant materials and resources
- For pipe cutting
- For pipe threading and assembling
- For fixing the pipes and pipe fittings
- For leak test
- For cleaning works

Always observe safety practices when working for this job.

Drawing:



Resources Required:	
Tools:	Measuring tape Steel rule

	Pencil/marker Pipe wrench Monkey wrench 3-wheel pipe cutter Hacksaw PPR pipe cutter Pipe vice Pipe reamer Hammer
Equipment:	Die stock set Drill machine Angle grinder PPR welding set
Machinery:	N/A
Materials:	Teflon tape Hemp PVC solvent and primer GI/PPR pipe
PPE:	Apron Mask Safety helmet Gloves (long) Safety shoes

Set A: Practical Demonstration 1 – Observation Checklist

PRACTICAL DEMONSTRATION 1 – OBSERVATION CHECKLIST	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Plumbing
Task:	Installation of water supply pipe line using GI/PPR pipe
Assessment Centre:	
Date of Assessment:	
Instructions:	The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate. Performance can be observed in an actual workplace or in a simulated working environment. 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. The assessment activity (practical demonstration) should: ▪ 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**
Identified and followed safety signs and symbols	☐	☐
Selected and used personal protective equipment (PPE)	☐	☐
Maintained personal hygiene	☐	☐
Determined application of tools to job requirements	☐	☐
Prepared hand and power tools	☐	☐
Used appropriate hand tool for the job	☐	☐
Applied proper and safe use/operation of hand tools	☐	☐
Used power tools safely in accordance to manufacturer's specification	☐	☐
Selected appropriate measuring device for the job	☐	☐
Prepared measuring device	☐	☐
Calculated material quantities	☐	☐
Interpreted and communicated results to appropriate authority	☐	☐

Checked and calibrated measuring instruments	☐	☐
Identified required pipe size and dimension in accordance to plumbing plan/design	☐	☐
Selected and gathered pipes in accordance to specification	☐	☐
Clamped steel pipe using appropriate tool	☐	☐
Measured and cut pipe run length using appropriate tool	☐	☐
Measured and cut pipe length in accordance with plumbing/drawing and the type of attachment fittings	☐	☐
Clamped and fix steel pipes using pipe vice	☐	☐
Burred/removed of burr newly cut pipe using appropriate de burring tool	☐	☐
Adjusted and initiated die stocks into the pipe end squarely	☐	☐
Carried out thread cutting on pipes in accordance to workplace procedure	☐	☐
Used coolant during thread cutting operation	☐	☐
Checked thread to conform to the specified form and measurement in accordance with plan/drawing	☐	☐
Laid down pipes in accordance with the planned/designed pipe run	☐	☐
Assembled and fixed pipes and pipes fittings in accordance with planned/designed pipe run	☐	☐
Measured and marked G.I./PPR/HDP as per drawing specification	☐	☐
Clamped G.I./PPR/HDP pipes using appropriate cutting tool	☐	☐
Cut G.I./PPR/HDP pipes using appropriate cutting tool	☐	☐
Cut G.I./PPR/HDP pipes within the specified dimension and considering specified tolerance	☐	☐
Carried out thread cutting on pipes in accordance to workplace procedure	☐	☐
Positioned G.I./PPR/HDP pipe runs on the corresponding areas per plumbing plan	☐	☐
Tightened piping and fittings using appropriate tools and sealant	☐	☐
Cleaned and checked workplace, tools and equipment for normal operation	☐	☐
Dispose waste materials in accordance to workplace requirement	☐	☐
Feedback to candidate:		
Assessment decision for this assessment activity: ☐ **Competent** ☐ **Not Yet Competent**		

Candidate's Signature:		**Date:**	
Assessor' Signature:		**Date:**	

Set A: Practical Demonstration 2

PRACTICAL DEMONSTRATION 2	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Plumbing
Task:	Installation of commode and hand wash basin
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	

Instructions:

Read and understand the directions carefully:

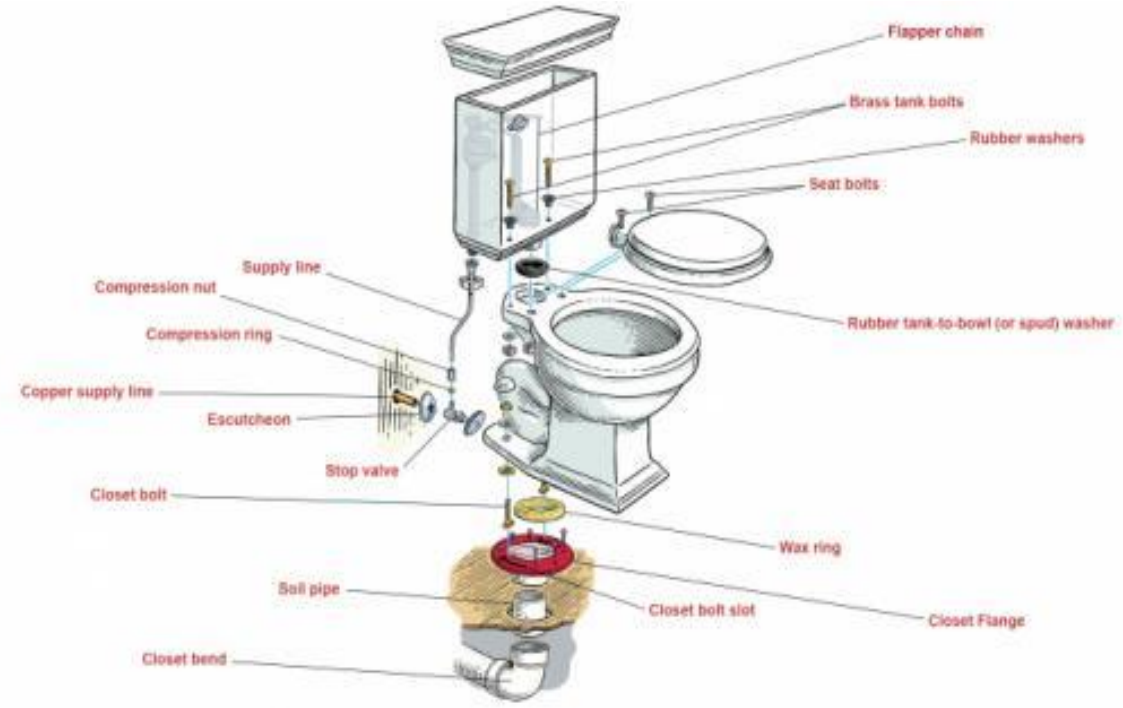
- this practical demonstration is based on the performance criteria from all or some of the units of competency in Plumbing
- this assessment activity will be used to measure your underpinning skills
- you will have fifteen (15) minutes to familiarise yourself with the resources to be used
- you have two (2) hours to complete this demonstration

Procedure:

- 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

Specification Information (commode):

1. Collect commode set, necessary tools, equipment, materials and drawing.
2. Mark the floor and wall area as per layout.
3. Cut the floor/wall as per measurement and drawing.
4. Place the commode on the floor to mark the drill point on the floor.
5. Drill the marking points using drill machine.
6. Put the rowel plug into the hole.
7. Place the commode on the floor.
8. Put the commode screw in the drilling point and tighten properly.
9. Fix the seat and seat cover with commode.
10. Level the installation area of commode using white cement mixture.
11. Connect soil pipe with commode as per layout.
12. Connect angle valve with cistern and commode using connection pipe.
13. Mark the area to set the push shower.
14. Drill the drilling point using drill machine to fix the push shower.
15. Fix push shower stand with screw.
16. Connect the push shower with two-in-one bibcock.
17. Switch on-off the commode low down and push shower, check the performance.
18. Report to assessor for final evaluation.

19. Clean the workplace and restore the tools, equipment and extra materials.
Drawing, Plan, Diagram or Sketch:
The diagram below is the blueprint of the task to be performed. During the construction process, you are to ensure: ▪ accuracy ▪ appropriate use of hand and power tools ▪ Wax seal is install correctly ▪ Low down cistern is installed securely in correct position ▪ Commode must be level ▪ Push shower must be operating without leakages ▪ Connection of soil pipe should be without leakages Always observe safety practices. This is a standard commode for your installation (please note that some parts may vary depending on the brand) 

Resources Required:	
Tools:	Measuring tape Steel rule Pencil/marker Pipe wrench Monkey wrench 3-wheel pipe cutter Hacksaw PPR pipe cutter Pipe vice

	Pipe reamer Hammer Chisel Wire brush
Equipment:	Die stock set Drill machine Angle grinder
Machinery:	N/A
Materials:	Teflon tape Hemp PVC solvent and primer GI/PPR/HDP/PVC/UPVC pipe Cement Sand Brick/stone chips Commode set Push shower Angle stop cock Connection pipes Fittings
PPE:	Apron Mask Safety helmet Gloves (long) Safety shoes

Specification Information (hand wash basin)

1. Collect basin with all necessary accessories, tools, equipment, materials and drawing.
2. Mark the area of basin as per drawing and layout.
3. Drill the marking points using drill machine.
4. Put the rowel plug into the hole.
5. Fix the basin screw/nut into the hole.
6. Fix basin waste and pillar cock with basin.
7. Place washbasin with basin screw as per layout.
8. Connect bottle trap with basin and waste line.
9. Connect the angle stop cock with pillar cock.
10. Level the installation area of wash basin and check the clear drainage.
11. Conduct the workplace and restore the tools, equipment and extra materials.
12. Clean the workplace and restore the tools, equipment and extra materials.

Drawing, Plan, Diagram or Sketch:

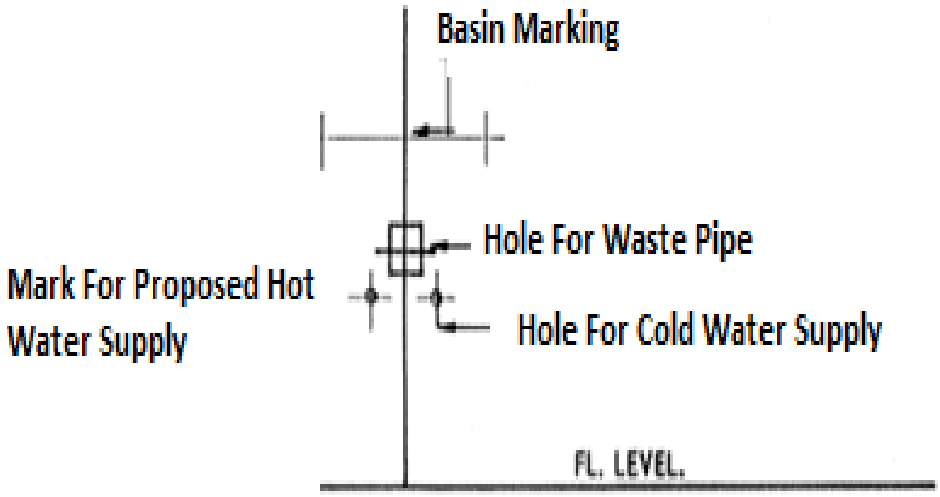
The diagram below is the blueprint of the task to be performed. During the construction process, you are to ensure:

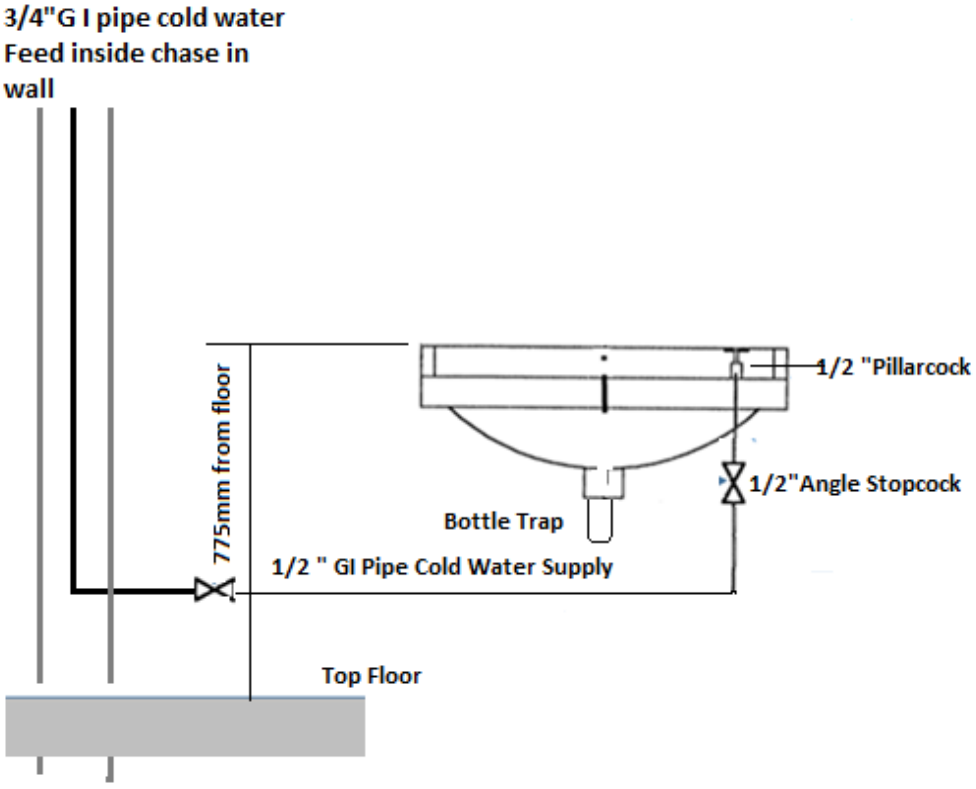
- appropriate use of hand and power tools
- Proper installation of hand wash basin as per drawing
- Correct position of waste and water supply line
- Correct installation and seal with sealing compound

- Absence of leaks in the line
- Correct fittings and fixtures
- Correct connection of basin to floor drain

Always observe safety practices.

This is a standard commode for your installation (please note that some parts may vary depending on the brand)





Resources Required:	
Tools:	Measuring tape Steel rule Pencil/marker Pipe wrench Slide wrench Basin spanner Monkey wrench 3-wheel pipe cutter Hacksaw PPR pipe cutter Pipe vice Pipe reamer Hammer Cold Chisel Wire brush Combination pliers Screw drivers
Equipment:	Die stock set Drill machine Angle grinder
Machinery:	N/A
Materials:	Teflon tape Hemp PVC solvent and primer GI/PPR/HDP/PVC/UPVC pipe Cement Sand Brick/stone chips Basin Basin waste Pillar cock Angle stop cock Connection pipes Fittings
PPE:	Apron Mask Safety helmet Gloves (long) Safety shoes

Set A: Practical Demonstration 2 – Observation Checklist

PRACTICAL DEMONSTRATION 2 – OBSERVATION CHECKLIST	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Plumbing
Task:	Installation of commode and hand wash basin
Assessment Centre:	
Date of Assessment:	
Instructions:	The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate. Performance can be observed in an actual workplace or in a simulated working environment. 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. The assessment activity (practical demonstration) should: ▪ 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**
Identified and followed safety signs and symbols	☐	☐
Selected and used personal protective equipment (PPE)	☐	☐
Maintained personal hygiene	☐	☐
Determined application of tools to job requirements	☐	☐
Identified, selected and prepared hand and power tools	☐	☐
Used appropriate hand and power tools for the job	☐	☐
Used hand tools properly and safely in accordance with manufacturer's specification	☐	☐
Used power tools properly and safely in accordance with manufacturer's specifications	☐	☐
Removed dust and foreign matter from power tools and instruments in accordance with standard operating procedure	☐	☐
Selected and prepared appropriate measuring device for the job	☐	☐
Calculated material quantities	☐	☐

Interpreted and communicated results to appropriate authority	☐	☐
Checked and calibrated measuring instruments	☐	☐
Gathered building drawing/plumbing plan	☐	☐
Interpreted building drawing/plumbing plans	☐	☐
Made lay out for access/encroachment work	☐	☐
Installed toilet bowl flange securely making sure the bolts are in place	☐	☐
Placed a new wax ring at the bottom of the toilet bowl accurately	☐	☐
Placed the new toilet bowl on the flange aligning the bolt holes with the bolts of the flange and wax ring in its proper place	☐	☐
Tightened nuts with washers squarely without over tightening	☐	☐
Applied additional sealing material around the base of the bowl in accordance to workplace requirements	☐	☐
Installed the water closet tank on the bowl in accordance with manufacturer's instruction	☐	☐
Installed plumbing fixtures in accordance with plumbing plan and following manufacturer's instruction/specification	☐	☐
Cleaned and checked workplace, tools and equipment for normal operation	☐	☐
Dispose waste materials in accordance to workplace requirement	☐	☐
Feedback to candidate:		
Assessment decision for this assessment activity: ☐ **Competent** ☐ **Not Yet Competent**		

Candidate's Signature:		**Date:**	
Assessor' Signature:		**Date:**	

Set B: Practical Demonstration 1

PRACTICAL DEMONSTRATION 1	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Plumbing
Task:	Installation of water supply pipe line using HDP pipe for a modern toilet
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	

Instructions:

Read and understand the directions carefully:

- this practical demonstration is based on the performance criteria from all or some of the units of competency in Plumbing
- 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:

- 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:

1. Collect required supplies, materials, tools and equipment to perform installation of water supply pipe line using HDP pipe for a modern toilet.
2. Measure and cut the GI pipe using hacksaw/3-wheel pipe cutter.
3. Adjust die stock as per diameter of pipe.
4. Rotate the die stock in clock wise direction and apply lubricant on pipe.
5. Rotate the die stock anti-clock wise, after 4 to 5 times clock wise turn.
6. Cut thread until one or two threads out of die is visible.
7. Remove the die set from the pipe.
8. Remove burrs and clean thread.
9. Assemble and fix the pipes & pipe fittings as per drawing.
10. Check the pipes, fittings and pipe runs for damage/quality of work.
11. Conduct leakage test using water.
12. Report to assessor for final evaluation.
13. Clean the tools, equipment and work area.
14. Dispose waste materials and excess materials.

Drawing, Plan, Diagram or Sketch:

The diagram below is the blueprint of the task to be performed. During the construction process, you are to ensure:

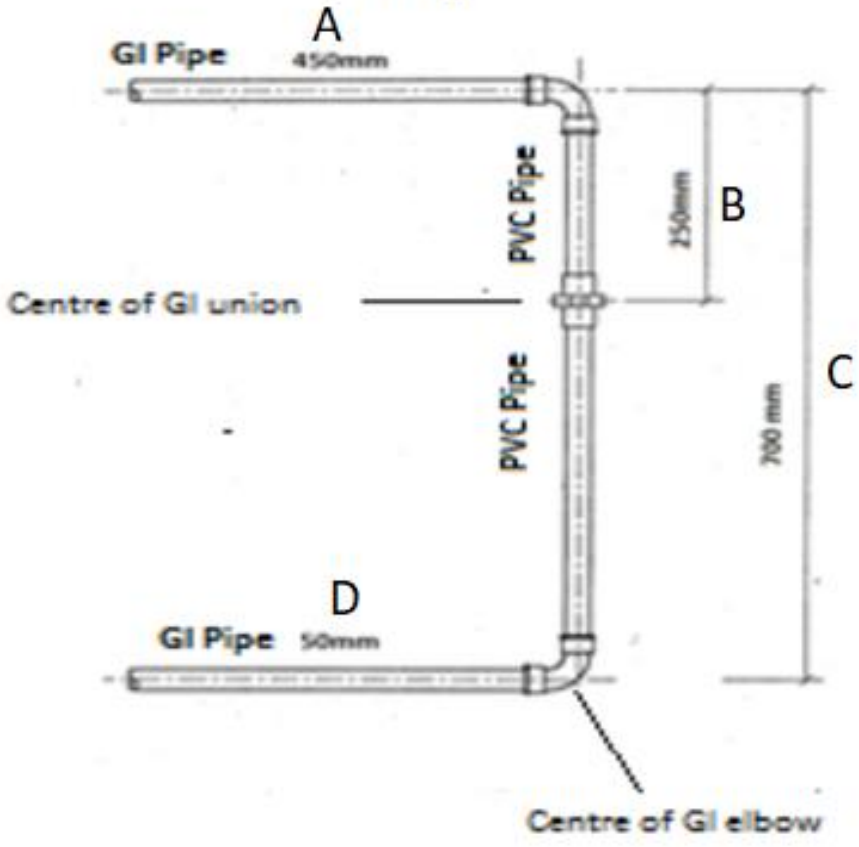
- Accuracy of measurement
- Uniformity of the ends
- Tolerance
- Properly clamped and fixed the pipe
- Squarely adjusted and initiated the die stock
- Use of coolant
- Threads are checked
- Appropriate fitting

You are given total of two (2) hours for the following:

- Collection of tools, relevant materials and resources
- For pipe cutting
- For pipe threading and assembling
- For fixing the pipes & pipe fittings
- For leak test
- For cleaning works

Always observe safety practices when working for this job.

Drawing:



Resources Required:	
Tools:	Measuring tape Steel rule Pencil/marker Pipe wrench Monkey wrench 3-wheel pipe cutter Hacksaw PPR pipe cutter Pipe vice Pipe reamer Hammer
Equipment:	Die stock set Drill machine Angle grinder PPR welding set
Machinery:	N/A
Materials:	Teflon tape Hemp PVC solvent and primer HDP pipe
PPE:	Apron Mask Safety helmet Gloves (long) Safety shoes

Set B: Practical Demonstration 1 – Observation Checklist

PRACTICAL DEMONSTRATION 1 – OBSERVATION CHECKLIST	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Plumbing
Task:	Installation of water supply pipe line using HDP pipe
Assessment Centre:	
Date of Assessment:	
Instructions:	The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate. Performance can be observed in an actual workplace or in a simulated working environment. 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. The assessment activity (practical demonstration) should: ▪ 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**
Identified and followed safety signs and symbols	☐	☐
Selected and used personal protective equipment (PPE)	☐	☐
Maintained personal hygiene	☐	☐
Determined application of tools to job requirements	☐	☐
Prepared hand and power tools	☐	☐
Used appropriate hand tool for the job	☐	☐
Applied proper and safe use/operation of hand tools	☐	☐
Used power tools safely in accordance to manufacturer's specification	☐	☐
Selected appropriate measuring device for the job	☐	☐
Prepared measuring device	☐	☐
Calculated material quantities	☐	☐
Interpreted and communicated results to appropriate authority	☐	☐

Checked and calibrated measuring instruments	☐	☐
Identified required pipe size and dimension in accordance to plumbing plan/design	☐	☐
Selected and gathered pipes in accordance to specification	☐	☐
Clamped steel pipe using appropriate tool	☐	☐
Measured and cut pipe run length using appropriate tool	☐	☐
Measured and cut pipe length in accordance with plumbing/drawing and the type of attachment fittings	☐	☐
Clamped and fix steel pipes using pipe vice	☐	☐
Burred/removed of burr newly cut pipe using appropriate de burring tool	☐	☐
Adjusted and initiated die stocks into the pipe end squarely	☐	☐
Carried out thread cutting on pipes in accordance to workplace procedure	☐	☐
Used coolant during thread cutting operation	☐	☐
Checked thread to conform to the specified form and measurement in accordance with plan/drawing	☐	☐
Laid down pipes in accordance with the planned/designed pipe run	☐	☐
Assembled and fixed pipes and pipes fittings in accordance with planned/designed pipe run	☐	☐
Measured and marked G.I./PPR/HDP as per drawing specification	☐	☐
Clamped G.I./PPR/HDP pipes using appropriate cutting tool	☐	☐
Cut G.I./PPR/HDP pipes using appropriate cutting tool	☐	☐
Cut G.I./PPR/HDP pipes within the specified dimension and considering specified tolerance	☐	☐
Carried out thread cutting on pipes in accordance to workplace procedure	☐	☐
Positioned G.I./PPR/HDP pipe runs on the corresponding areas per plumbing plan	☐	☐
Tightened piping and fittings using appropriate tools and sealant	☐	☐
Cleaned and checked workplace, tools and equipment for normal operation	☐	☐
Dispose waste materials in accordance to workplace requirement	☐	☐
Feedback to candidate:		
Assessment decision for this assessment activity: ☐ **Competent** ☐ **Not Yet Competent**		

Candidate's Signature:		**Date:**	
Assessor' Signature:		**Date:**	

Set B: Practical Demonstration 2

PRACTICAL DEMONSTRATION 2	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Plumbing
Task:	Installation of commode with soil pipe connection
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	

Instructions:

Read and understand the directions carefully:

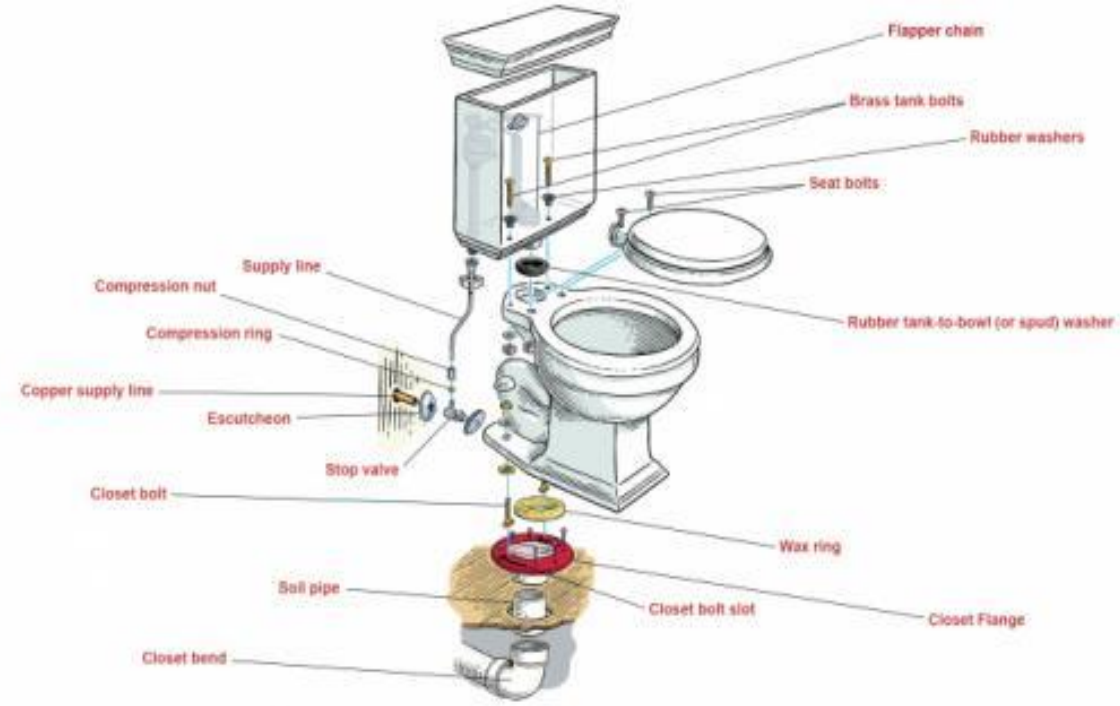
- this practical demonstration is based on the performance criteria from all or some of the units of competency in Plumbing
- this assessment activity will be used to measure your underpinning skills
- you will have fifteen (15) minutes to familiarise yourself with the resources to be used
- you have two (2) hours to complete this demonstration

Procedure:

- 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

Specification Information:

1. Collect commode set, necessary tools, equipment, materials and drawing.
2. Mark the floor and wall area as per layout.
3. Cut the floor/wall as per measurement and drawing.
4. Place the commode on the floor to mark the drill point on the floor.
5. Drill the marking points using drill machine.
6. Put the rowel plug into the hole.
7. Place the commode on the floor.
8. Put the commode screw in the drilling point and tighten properly.
9. Fix the seat and seat cover with commode.
10. Level the installation area of commode using white cement mixture.
11. Connect soil pipe with commode as per layout.
12. Connect angle valve with cistern and commode using connection pipe.
13. Mark the area to set the push shower.
14. Drill the drilling point using drill machine to fix the push shower.
15. Fix push shower stand with screw.
16. Connect the push shower with two-in-one bibcock.
17. Switch on-off the commode low down and push shower, check the performance.
18. Report to assessor for final evaluation.

19. Clean the workplace and restore the tools, equipment and extra materials.	
Drawing, Plan, Diagram or Sketch:	
The diagram below is the blueprint of the task to be performed. During the construction process, you are to ensure: ▪ accuracy ▪ appropriate use of hand and power tools ▪ Wax seal is installing correctly ▪ Low down cistern is installed securely in correct position ▪ Commode must be level ▪ Push shower must be operating without leakages ▪ Connection of soil pipe should be without leakages Always observe safety practices. This is a standard commode for your installation (please note that some parts may vary depending on the brand)  	
Resources Required:	
Tools:	Measuring tape Steel rule Pencil/marker Pipe wrench Monkey wrench 3-wheel pipe cutter Hacksaw PPR pipe cutter Pipe vice

	Pipe reamer Hammer Chisel Wire brush
Equipment:	Die stock set Drill machine Angle grinder
Machinery:	N/A
Materials:	Teflon tape Hemp PVC solvent and primer GI/PPR/HDP/PVC/UPVC pipe Cement Sand Brick/stone chips Commode set Push shower Angle stop cock Connection pipes Fittings
PPE:	Apron Mask Safety helmet Gloves (long) Safety shoes

Set B: Practical Demonstration 2 – Observation Checklist

PRACTICAL DEMONSTRATION 2 – OBSERVATION CHECKLIST	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Plumbing
Task:	Installation of commode with soil pipe connection
Assessment Centre:	
Date of Assessment:	
Instructions:	The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate. Performance can be observed in an actual workplace or in a simulated working environment. 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. The assessment activity (practical demonstration) should: ▪ 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**
Identified and followed safety signs and symbols	☐	☐
Selected and used personal protective equipment (PPE)	☐	☐
Maintained personal hygiene	☐	☐
Determined application of tools to job requirements	☐	☐
Identified, selected and prepared hand and power tools	☐	☐
Used appropriate hand and power tools for the job	☐	☐
Used hand tools properly and safely in accordance with manufacturer's specification	☐	☐
Used power tools properly and safely in accordance with manufacturer's specifications	☐	☐
Removed dust and foreign matter from power tools and instruments in accordance with standard operating procedure	☐	☐
Selected and prepared appropriate measuring device for the job	☐	☐
Calculated material quantities	☐	☐

Interpreted and communicated results to appropriate authority	☐	☐
Checked and calibrated measuring instruments	☐	☐
Gathered building drawing/plumbing plan	☐	☐
Interpreted building drawing/plumbing plans	☐	☐
Made lay out for access/encroachment work	☐	☐
Installed toilet bowl flange securely making sure the bolts are in place	☐	☐
Placed a new wax ring at the bottom of the toilet bowl accurately	☐	☐
Placed the new toilet bowl on the flange aligning the bolt holes with the bolts of the flange and wax ring in its proper place	☐	☐
Tightened nuts with washers squarely without over tightening	☐	☐
Applied additional sealing material around the base of the bowl in accordance to workplace requirements	☐	☐
Installed the water closet tank on the bowl in accordance with manufacturer's instruction	☐	☐
Installed plumbing fixtures in accordance with plumbing plan and following manufacturer's instruction/specification	☐	☐
Cleaned and checked workplace, tools and equipment for normal operation	☐	☐
Dispose waste materials in accordance to workplace requirement	☐	☐
Feedback to candidate:		
Assessment decision for this assessment activity: ☐ **Competent** ☐ **Not Yet Competent**		

Candidate's Signature:		**Date:**	
Assessor' Signature:		**Date:**	

Set C: Practical Demonstration 1

PRACTICAL DEMONSTRATION 1	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Plumbing
Task:	Installation of water supply pipe line using HDP pipe for a modern toilet
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	

Instructions:

Read and understand the directions carefully:

- this practical demonstration is based on the performance criteria from all or some of the units of competency in Plumbing
- 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:

- 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:

1. Collect required supplies, materials, tools and equipment to perform installation of water supply pipe line using PVC/UPVC pipe for a modern toilet.
2. Measure and cut the PVC/UPVC pipe using hacksaw/3-wheel pipe cutter.
3. Adjust die stock as per diameter of pipe.
4. Rotate the die stock in clock wise direction and apply lubricant on pipe.
5. Rotate the die stock anti-clock wise, after 4 to 5 times clock wise turn.
6. Cut thread until one or two threads out of die is visible.
7. Remove the die set from the pipe.
8. Remove burrs and clean thread.
9. Assemble and fix the pipes and pipe fittings as per drawing.
10. Check the pipes, fittings and pipe runs for damage/quality of work.
11. Conduct leakage test using water.
12. Report to assessor for final evaluation.
13. Clean the tools, equipment and work area.
14. Dispose waste materials and excess materials.

Drawing, Plan, Diagram or Sketch:

The diagram below is the blueprint of the task to be performed. During the construction process, you are to ensure:

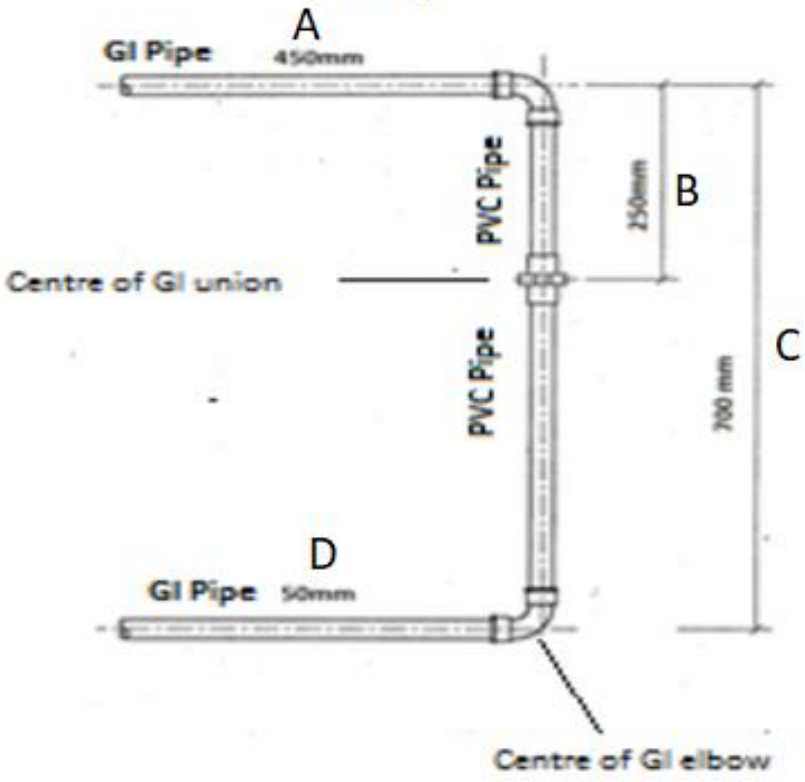
- Accuracy of measurement
- Uniformity of the ends
- Tolerance
- Properly clamped and fixed the pipe
- Squarely adjusted and initiated the die stock
- Use of coolant
- Threads are checked
- Appropriate fitting

You are given total of two (2) hours for the following:

- Collection of tools, relevant materials and resources
- For pipe cutting
- For pipe threading and assembling
- For fixing the pipes and pipe fittings
- For leak test
- For cleaning works

Always observe safety practices when working for this job.

Drawing:



Resources Required:	
Tools:	Measuring tape Steel rule

	Pencil/marker Pipe wrench Monkey wrench 3-wheel pipe cutter Hacksaw PVC/UPVC pipe cutter Pipe vice Pipe reamer Hammer
Equipment:	Die stock set Drill machine Angle grinder PVC/UPVC welding set
Machinery:	N/A
Materials:	Teflon tape Hemp PVC solvent and primer PVC/UPVC pipe
PPE:	Apron Mask Safety helmet Gloves (long) Safety shoes

Set C: Practical Demonstration 1 – Observation Checklist

PRACTICAL DEMONSTRATION 1 – OBSERVATION CHECKLIST	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Plumbing
Task:	Installation of water supply pipe line using PVC/UPVC pipe
Assessment Centre:	
Date of Assessment:	
Instructions:	The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate. Performance can be observed in an actual workplace or in a simulated working environment. 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. The assessment activity (practical demonstration) should: ▪ 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**
Identified and followed safety signs and symbols	☐	☐
Selected and used personal protective equipment (PPE)	☐	☐
Maintained personal hygiene	☐	☐
Determined application of tools to job requirements	☐	☐
Prepared hand and power tools	☐	☐
Used appropriate hand tool for the job	☐	☐
Applied proper and safe use/operation of hand tools	☐	☐
Used power tools safely in accordance to manufacturer's specification	☐	☐
Selected appropriate measuring device for the job	☐	☐
Prepared measuring device	☐	☐
Calculated material quantities	☐	☐
Interpreted and communicated results to appropriate authority	☐	☐

Checked and calibrated measuring instruments	☐	☐
Identified required pipe size and dimension in accordance to plumbing plan/design	☐	☐
Selected and gathered pipes in accordance to specification	☐	☐
Clamped steel pipe using appropriate tool	☐	☐
Measured and cut pipe run length using appropriate tool	☐	☐
Measured and cut pipe length in accordance with plumbing/drawing and the type of attachment fittings	☐	☐
Clamped and fix steel pipes using pipe vice	☐	☐
Burred/removed of burr newly cut pipe using appropriate de burring tool	☐	☐
Adjusted and initiated die stocks into the pipe end squarely	☐	☐
Carried out thread cutting on pipes in accordance to workplace procedure	☐	☐
Used coolant during thread cutting operation	☐	☐
Checked thread to conform to the specified form and measurement in accordance with plan/drawing	☐	☐
Laid down pipes in accordance with the planned/designed pipe run	☐	☐
Assembled and fixed pipes and pipes fittings in accordance with planned/designed pipe run	☐	☐
Identified and gathered PVC/UPVC pipe sizes/schedules	☐	☐
Measured and marked PVC/UPVC pipes as per plan/drawing specification	☐	☐
Clamped PVC/UPVC pipes using appropriate cutting tool	☐	☐
Cut PVC/UPVC pipes within the specified dimension and considering specified tolerance	☐	☐
Positioned PVC/UPVC pipe runs on the corresponding location as per plumbing plan	☐	☐
Assembled PVC/UPVC piping joints and fittings using appropriate tools and sealant	☐	☐
Installed clamps and fixtures along pipe runs in accordance with plumbing plan	☐	☐
Cleaned and checked workplace, tools and equipment for normal operation	☐	☐
Dispose waste materials in accordance to workplace requirement	☐	☐
Feedback to candidate:		
Assessment decision for this assessment activity: ☐ **Competent** ☐ **Not Yet Competent**		

Candidate's Signature:		**Date:**	
Assessor' Signature:		**Date:**	

Set C: Practical Demonstration 2

PRACTICAL DEMONSTRATION 2	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Plumbing
Task:	Installation of water closet pan with foot rest and soil pipe connection
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	

Instructions:

Read and understand the directions carefully:

- this practical demonstration is based on the performance criteria from all or some of the units of competency in Plumbing
- 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:

- 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

Specification Information:

1. Collect commode set, necessary tools, equipment, materials and drawing.
2. Mark the floor and wall area as per layout.
3. Cut the floor/wall as per measurement and drawing.
4. Place the water closet pan on the floor as per instruction.
5. Fix the water closet pan with appropriate materials like cement, sand, concrete.
6. Level the installation area of water closet pan using white cement mixture.
7. Connect soil pipe with water closet pan as per layout.
8. Connect angle valve with cistern and water closet pan using connection pipe.
9. Mark the area to set the bib cock.
10. Fix the bib cock.
11. Place low down water tank for flashing and make connection.
12. Switch on-off the low down and check the performance.
13. Report to assessor for final evaluation.
14. Clean the workplace and restore the tools, equipment and extra materials.

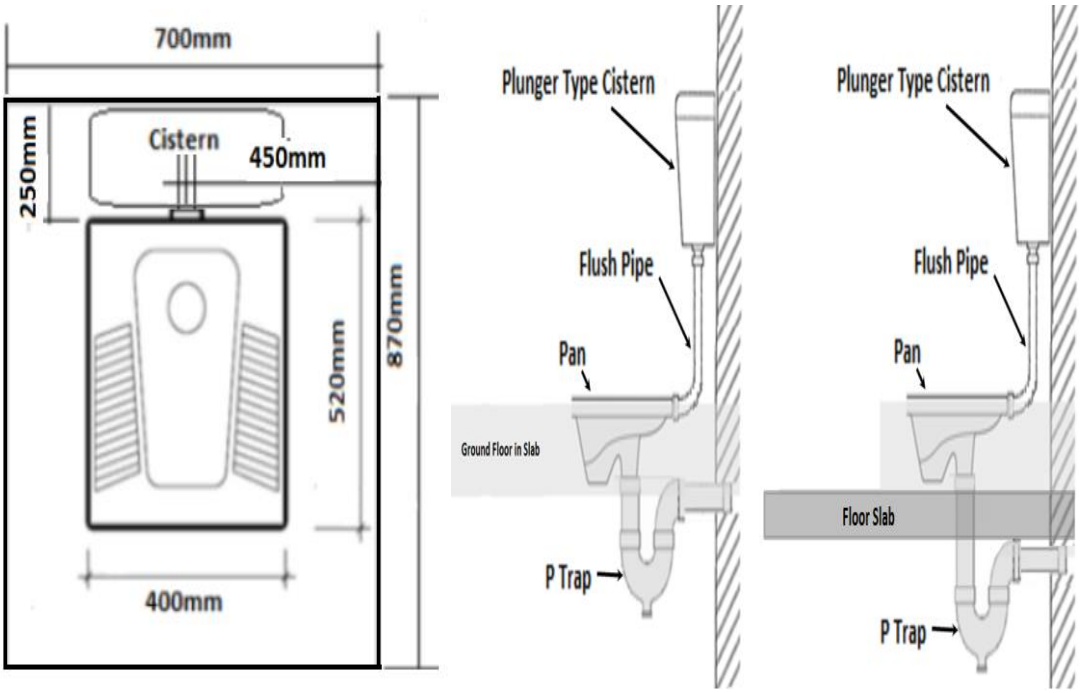
Drawing, Plan, Diagram or Sketch:

The diagram below is the blueprint of the task to be performed. During the construction process, you are to ensure:

- accuracy
- appropriate use of hand and power tools
- Low down cistern is installed securely in correct position
- Water closet pan must be level
- Bib cock must be operating without leakages
- Connection of soil pipe should be without leakages

Always observe safety practices.

This is a standard water closet pan with foot rest for your installation (please note that some parts may vary depending on the brand)



Resources Required:	
Tools:	Measuring tape Steel rule Pencil/marker Pipe wrench Monkey wrench 3-wheel pipe cutter Hacksaw PPR pipe cutter Pipe vice Pipe reamer Hammer Chisel Wire brush
Equipment:	Die stock set Drill machine Angle grinder

Machinery:	N/A
Materials:	Teflon tape Hemp PVC solvent and primer GI/PPR/HDP/PVC/UPVC pipe Cement Sand Brick/stone chips Water closet pan with foot rest Bib cock Angle stop cock Connection pipes Low down flashing tank Soil pipe Fittings
PPE:	Apron Mask Safety helmet Gloves (long) Safety shoes

Set C: Practical Demonstration 2 – Observation Checklist

PRACTICAL DEMONSTRATION 2 – OBSERVATION CHECKLIST	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Plumbing
Task:	Installation of water closet pan with foot rest and soil pipe connection
Assessment Centre:	
Date of Assessment:	
Instructions:	The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate. Performance can be observed in an actual workplace or in a simulated working environment. 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. The assessment activity (practical demonstration) should: ▪ 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

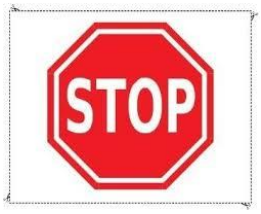
OBSERVATION RECORD		
Performance Criteria	Place a ✓ to show if evidence has been demonstrated competently	
	Yes	**No**
Identified and followed safety signs and symbols	☐	☐
Selected and used personal protective equipment (PPE)	☐	☐
Maintained personal hygiene	☐	☐
Determined application of tools to job requirements	☐	☐
Identified, selected and prepared hand and power tools	☐	☐
Used appropriate hand and power tools for the job	☐	☐
Used hand tools properly and safely in accordance with manufacturer's specification	☐	☐
Used power tools properly and safely in accordance with manufacturer's specifications	☐	☐
Removed dust and foreign matter from power tools and instruments in accordance with standard operating procedure	☐	☐
Selected and prepared appropriate measuring device for the job	☐	☐
Calculated material quantities	☐	☐

Interpreted and communicated results to appropriate authority	☐	☐
Checked and calibrated measuring instruments	☐	☐
Gathered building drawing/plumbing plan	☐	☐
Interpreted building drawing/plumbing plans	☐	☐
Made lay out for access/encroachment work	☐	☐
Installed water closet pan with foot rest in place	☐	☐
Fixed bib cock	☐	☐
Connected soil pipe as per requirement	☐	☐
Installed the water closet tank on the bowl in accordance with manufacturer's instruction	☐	☐
Installed plumbing fixtures in accordance with plumbing plan and following manufacturer's instruction/specification	☐	☐
Cleaned and checked workplace, tools and equipment for normal operation	☐	☐
Dispose waste materials in accordance to workplace requirement	☐	☐
Feedback to candidate:		
Assessment decision for this assessment activity: ☐ **Competent** ☐ **Not Yet Competent**		

Candidate's Signature:		**Date:**	
Assessor' Signature:		**Date:**	

Oral Questions (Optional)

ORAL QUESTIONS - INSTRUCTIONS	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Plumbing
Unit of Competency	
Generic Competencies	
SEIP-CON-PLU-01-G	Perform computations using basic mathematical concepts
SEIP-CON-PLU-02-G	Apply occupational health and safety (OHS) practices in the workplace
SEIP-CON-PLU-03-G	Communicate in English in the workplace
SEIP-CON-PLU-04-G	Operate in a self-directed team
Sector-specific Competencies	
SEIP-CON-PLU-01-S	Translate drawings, plans and specifications
SEIP-CON-PLU-02-S	Work with hand tools and power tools
SEIP-CON-PLU-03-S	Carry-out measurements and calculations
Occupation-specific Competencies	
SEIP-CON-PLU-01-O	Perform pipe threading operation
SEIP-CON-PLU-02-O	Perform access cutting and encroachment works
SEIP-CON-PLU-03-O	Carry out water supply line installation using G.I. PPR/HDP pipes
SEIP-CON-PLU-04-O	Carry out water supply line installation using PVC/UPVC pipes
SEIP-CON-PLU-05-O	Carry out sewer pipe line installation
SEIP-CON-PLU-06-O	Carry out plumbing fixtures installation
SEIP-CON-PLU-07-O	Perform pressure testing of piping system
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	
Instructions:	
Read and understand the directions carefully: ▪ these oral questions are based on the performance criteria from all the units of competency in Plumbing ▪ 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.	Poor work practices create hazards – give examples of poor practices in plumbing works	☐	☐
2.	Interpret the following visual information (as applied to plumbing works) 	☐	☐
3.	What kind of work does a plumber do?	☐	☐
4.	What is meant by plan, section and elevation?	☐	☐
5.	What is the difference between pipe wrench and monkey wrench?	☐	☐
6.	What is the official system of measurement in almost every country in the world?	☐	☐
7.	How many thread per inch (TPI) is required for ½ “and ¾ “diameter pipe?	☐	☐
8.	What are the possible lines of encroachments for plumbing works?	☐	☐
9.	What is the advantage of a pressure reducing valve?	☐	☐
10.	What is the function of a union?	☐	☐
11.	Why do you think traps are used in sewer line?	☐	☐
12.	What actions will you take in case of fire while you are in the workstation of your institute for plumbing works?	☐	☐
13.	What measures will you do if leaks are found to exist in your pipe connections?	☐	☐
14.	What are the tools, equipment and materials required for replacement of a kitchen sink?	☐	☐
15.	Mr. Badrul Alam lives in an old house. He observed some problems in his toilet and found the walls near the water line damaged. He observed water spillage on the wall. As a plumber, please state the possible reasons for the problem; state the remedial measures that you may take to solve the problems.	☐	☐
16.	Sumon is a plumber, he visited an overhead water tank of his neighbour which is made of cement concrete and found the bottom & sides of the tank is wetted. How can he solve this problem give at least 3 materials needed to do the job.	☐	☐

17.	Mention the possible reasons for block of the sewer line of a residential building.	☐	☐
18.	What is a sewer?	☐	☐
19.	What is sewage?	☐	☐
20.	In pressure testing for plumbing works, which method is mostly used?	☐	☐
21.	How can you start de-pressurization process in plumbing works?	☐	☐

Feedback to candidate:

Assessment decision for this assessment activity:

☐ **Competent** ☐ **Not Yet Competent**

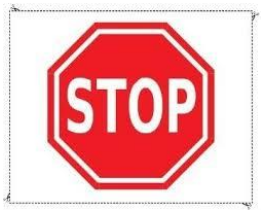
Candidate's Signature:		**Date:**	
Assessor' Signature:		**Date:**	

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.	Poor work practices create hazards - give examples of poor practices in plumbing works.	The following unsafe work practices may create hazards: • ***Using defective tools or equipment or using tools or equipment in unsafe ways*** • ***Operating at unsafe speeds or in violation of safe work practices*** • ***Failing to use and/or maintain, or improperly using personal protective equipment or safety devices*** • ***Standing or working under suspended loads, scaffolds, shafts, or open hatches*** • ***Repairing or adjusting equipment that is in motion, under pressure, or electrically charged***
2.	Interpret the following visual information (as applied to plumbing works)  	***Do not move forward, no entry, entry restricted.***
3.	What kind of work does a Plumber do?	***Plumbers install and repair water supply lines, waste disposal systems, and related appliances and fixtures too keep homes and businesses flowing smoothly.***
4.	What is meant by plan, section and elevation?	***Plan: A plan is a horizontal section through an object.*** ***Section: A section is a vertical slice through a building with one half removed so we can look inside.*** ***Elevation: Elevations are a projection on a plane in front of the object with no distortion because of perspective. Each line and surface that is parallel to the plane of projection is a true dimension.***

5.	What is the difference between pipe wrench and monkey wrench?	***A monkey wrench has a smooth surface, while a pipe wrench has teeth. A pipe wrench is capable of handling all the jobs a monkey wrench can but a monkey wrench is best for turning nuts and bolts rather than gripping the pipe.***
6.	What is the official system of measurement in almost every country in the world?	***Metric system of measurement.***
7.	How many thread per inch (TPI) is required for ½ "and ¾ "diameter pipe?	***Thread per inch (TPI) must be 14 for ½" and ¾" diameter pipe.***
8.	What are the possible lines of encroachments for plumbing works?	***The possible line of encroachments may include: Floor/slab, wall, ceiling, beam, column, etc.***
9.	What is the advantage of a pressure reducing valve?	***The advantage of a pressure reducing valve is to maintain a pre-set (desired) constant pressure in the downstream of the valve.***
10.	What is the function of a union?	***The function of a union is to open a pipe line to replace a damaged section or to cut into an existing line.***
11.	Why do you think traps are used in sewer line?	***In plumbing, a trap is a device which has a shape that uses a bending path to capture water to prevent sewer gases from entering buildings.***
12.	What actions will you take in case of fire while you are in the workstation of your institute for plumbing works?	***Stop from your work, leave the place immediately.***
13.	What measures will you do if leaks are found to exist in your pipe connections?	***Identify location of leakage point, stop the water supply with minimum disruptions, slightly tighten the pipe and wait for result, if the result is not positive then take measurement to replace the damaged part.***
14.	What are the tools, equipment and materials required for replacement of a kitchen sink?	***For replacement of a kitchen sink, the following tools, equipment and materials will be required: Measuring tape, pipe wrench, adjustable wrench, hammer, screw driver, hacksaw with blade, combination pliers, Teflon tape.***
15.	Mr. Badrul Alam lives in an old house. He observed some problems in his toilet and found the walls near the water line damaged. He observed water spillage on the wall. As a plumber, please state the possible reasons for the problem; state the remedial measures that you may take to solve the problems.	***Possible reasons of the problem: supply line maybe blocked; pipe maybe damaged or cracked; joints maybe loosened. Remedy: Try to remove the blockage; identify the damaged or cracked part of the pipe and replace; and tightened the loose joint(s) or replace the fittings.***
16.	Sumon is a plumber, he visited an overhead water tank of his neighbour which is made of cement concrete and found the bottom & sides of the tank is wetted. How can he solve this problem give at least 3 materials needed to do the job.	***Empty the tank, remove the damaged plaster and renew the inner side of tank with cement, sand and chips as required.***
17.	Mention the possible reasons for block of the sewer line of a residential building.	***The blockage of a sewer line of a residential building is due to improper slope of sewer line, over loaded by***

		sewage, damage or crack of the sewer, under size of septic tank, faulty connection with main sewer and over delay for maintenance.
18.	What is a sewer?	***Sewer is an underground conduit for carrying off drainage water and waste matter.***
19.	What is a sewage?	***Sewage is waste water and excrement conveyed in sewers.***
20.	In pressure testing for plumbing works, which method is mostly used?	***Hydrostatic testing method.***
21.	How can you start de-pressurization process in plumbing works?	***Start de-pressurization by opening the vent valve slowly.***

Assessment Evidence Summary Sheet

EVIDENCE SUMMARY SHEET			
Candidate Name:			
Assessor Name:			
Qualification:	Certificate in Plumbing		
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	☐	☐
	Practical Demonstration 1 (Set ….)	☐	☐
	Practical Demonstration 2 (Set ….)	☐	☐
	Oral Questioning (optional)	☐	☐
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			
❑ Issuance of Statement of Achievement *(indicate title of SOA, if full Certificate is not met)*	❑ Submission of additional documents Specify:	❑ Reassessment Specify:	
Did the candidate overall performance meet the required evidence/standard?		☐ Yes ☐ No	
Overall Evaluation:	❑ **Competent** ❑ **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 Plumbing		
Name of Candidate:		**Date:**	
Name at Assessment Centre:		**Date:**	
Assessment Results:	❑ **Competent** ❑ **Not Yet Competent**		
Recommendation:	❑ Issuance of SOA *(indicate title of SOA, if full certificate is not met)*		
	❑ Submission of additional documents – specify:		
	❑ 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 assess:

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

Unit of Competency:	SEIP-CON-PLU-01-G – Perform computations using basic mathematical concepts		
Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Identify calculation requirements in the workplace	1	A1, A2, B1, B2, C1, C2	
2. Select appropriate mathematical methods/concepts for the calculation	1	A1, A2, B1, B2, C1, C2	
3. Use tool/instrument to perform calculations	1	A1, A2, B1, B2, C1, C2	
Unit of Competency:	SEIP-CON-PLU-02-G – Apply occupational health and safety (OHS) practices in the workplace		
Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Identify OHS policies and procedures		A1, A2, B1, B2, C1, C2	1
2. Apply personal health and safety practices		A1, A2, B1, B2, C1, C2	
3. Report hazards and risks	9		
4. Respond to emergencies	20		
Unit of Competency:	SEIP-CON-PLU-03-G – Communicate in English in the workplace		
Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Read and understand workplace documents in English			2
2. Write simple workplace communications in English	11		

3. Listen and comprehend to English conversations	11	A1, A2, B1, B2, C1, C2	
4. Perform conversations in English language		A1, A2, B1, B2, C1, C2	2

Unit of Competency:	SEIP-CON-PLU-04-G – Operate in a self-directed team

Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Identify team goals and work processes			3
2. Communicate and cooperate with team members		A1, A2, B1, B2, C1, C2	
3. Work as a team member	3	A1, A2, B1, B2, C1, C2	
4. Solve problem as a team member		A1, A2, B1, B2, C1, C2	

Unit of Competency:	SEIP-CON-PLU-01-S – Translate drawings, plans and specifications

Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Access information from manuals, designs and plans		A1, A2, B1, B2, C1, C2	
2. Interpret drawings and specifications from manuals, designs and plans	5	A1, A2, B1, B2, C1, C2	4
3. Store manual, designs and plans			4

Unit of Competency:	SEIP-CON-PLU-02-S – Work with hand tools and power tools

Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Inspect hand tools and power tools for usability	4, 12	A1, A2, B1, B2, C1, C2	5
2. Use hand tools properly and safely	4, 12, 16, 18, 21	A1, A2, B1, B2, C1, C2	

3. Operate power tools properly and safely		A1, A2, B1, B2, C1, C2	
4. Clean/maintain hand tools and power tools after use		A1, A2, B1, B2, C1, C2	

Unit of Competency:	SEIP-CON-PLU-03-S – Carry out measurements and calculations

Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Check usability of measuring devices	17	A1, A2, B1, B2, C1, C2	
2. Carry out accurate construction work measurements		A1, A2, B1, B2, C1, C2	6
3. Execute simple construction work calculations		A1, A2, B1, B2, C1, C2	
4. Clean and maintain measuring instruments		A1, A2, B1, B2, C1, C2	

Unit of Competency:	SEIP-CON-PLU-01-O – Perform pipe threading operation

Element	**Assessment Evidence Method**		
	Written	**Practical**	**Oral**
1. Gather and check tools, equipment and materials		A1, B1, C1	7
2. Carry out steel pipe cutting operation		A1, B1, C1	
3. Carry out thread cutting operation	13, 14	A1, B1, C1	
4. Assemble pipe run		A1, B1, C1	
5. Clean/maintain the work area		A1, B1, C1	

Unit of Competency:	SEIP-CON-PLU-02-O – Perform access cutting and encroachment works

Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Interpret drawings and plumbing plans	6		8

2. Inspect encroachment work area		A1, A2, B1, B2, C1, C2	
3. Gather tools, equipment and materials		A1, A2, B1, B2, C1, C2	
4. Cut and make access through walls and floors		A1, A2, B1, B2, C1, C2	
5. Clean/maintain the work area		A1, A2, B1, B2, C1, C2	

Unit of Competency:	SEIP-CON-PLU-03-O – Carry out water supply line installation using G.I. pipes and HDP pipes

Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Gather and inspect tools, equipment and materials	7, 8, 14	A1	9
2. Perform pipe cutting operation	8	A1	
3. Perform pipe threading operation		A1	
4. Assemble pipe runs	7, 8, 14	A1	9
5. Clean/maintain the work area		A1	

Unit of Competency:	SEIP-CON-PLU-04-O – Carry out water supply line installation using PVC/UPVC pipes

Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Gather and inspect tools, equipment and materials	7, 8	C1	10
2. Perform PVC/UPVC pipe cutting operation	8	C1	10
3. Perform PVC/UPVC pipe run assembly	7, 8	C1	
4. Clean/maintain the work area		C1	

Unit of Competency:	SEIP-CON-PLU-05-O – Carry out sewer pipe line installation

Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Plan for sewer pipe line installation	24		17, 18, 19

2. Gather and inspect tools, equipment and materials	24, 25		11, 18, 19
3. Carry out trenching and bedding works	2		
4. Lay sewer pipe	24		18
5. Finish final pipe run	24		18
6. Clean/maintain the work area		A1, B1, C1	

Unit of Competency:	SEIP-CON-PLU-06-O – Carry out plumbing fixtures installation

Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Prepare for plumbing fixture installation	15	A2, B2, C2	14
2. Gather and inspect tools, equipment and materials		A2, B2, C2	14
3. Install a new toilet bowl (commode)	15	A2, B2, C2	
4. Install other plumbing fixtures	19	A2, B2, C2	
5. Clean/maintain the work area		A2, B2, C2	

Unit of Competency:	SEIP-CON-PLU-07-O – Perform pressure testing of piping system

Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Prepare for pressure testing	22, 23	A2, B2, C2	13, 16, 20
2. Gather tools, equipment and materials	22	A2, B2, C2	16
3. Carry out pressure testing	22	A2, B2, C2	15, 21
4. Clean/maintain the work area		A2, B2, C2	