

Self-Assessment Checklist

Candidate Name	
Registration No.	
Qualification	National Vocational Certificate level 5, in Agriculture Sector (Soil, water and fertilizer testing lab technician)
Competency Standards	<ul style="list-style-type: none"> • Handling of sophisticated level Equipment 2 • Perform Ammonical Nitrogen In Soild, Liquid and Mixed Fertilizer By Kjeldahl Method • Nitrate-N in soild, liquid and mixed fertilizer by kjeldahl method • Perform Uric/Urease nitrogen (n) in soild, liquid and mixed fertilizer by kjeldahl method • Perform Potassium (K) in Soild, Liquid and Mixed Fertilizer by Flame Photometry Method • Perform water soluble micronutrients (Zn, Fe, Mn etc) in Fertilizers through AAS Method • Perform Soil Micronutrient Test • Perform Standard Test Method (STM) for Zinc chelated percentage • Perform Standard Test Method (STM) to evaluate Gypsum Requirement in soil • Generate test report • Ensure Test Quality
Assessment Task	<ul style="list-style-type: none"> • Execute calibration and operation of Spectrophotometer, Centrifuge machine, Auto clave, Reciprocating and Oscillator shaker, Atomic Absorption Spectrophotometer, Flow Injection Analyzer, Kjeldahl Unit, Laminar Flow etc. • Analyse fertilizer sample to assess N (Amonical, Nitrate & Uric), K₂O, Micronutrients and Zinc chelated. • Analyse soil sample for Micronutrients and Gypsum requirement • Prepare analysis report

I can.....

Performance Criteria	Yes	No
1. Ensure cleanliness of equipment before and after use	<input type="checkbox"/>	<input type="checkbox"/>
2. Ensure availability of standard operating procedure for every equipment	<input type="checkbox"/>	<input type="checkbox"/>
3. Maintain 'Repair and Maintenance history sheet' for each specific equipment as per given standard	<input type="checkbox"/>	<input type="checkbox"/>
4. Ensure proper placing of equipment after use as per lab protocols	<input type="checkbox"/>	<input type="checkbox"/>

5. Follow safety guidelines as per equipment manual	<input type="checkbox"/>	<input type="checkbox"/>
6. Follow SOPs for operating specific equipment as given in manuals	<input type="checkbox"/>	<input type="checkbox"/>
7. Inspect equipment properly before and after use	<input type="checkbox"/>	<input type="checkbox"/>
8. Perform intermediate checks of equipment according to set instructions before use as per requirement	<input type="checkbox"/>	<input type="checkbox"/>
9. Monitor all errors and record data as instructed	<input type="checkbox"/>	<input type="checkbox"/>
10. Perform basic troubleshoot as prescribed	<input type="checkbox"/>	<input type="checkbox"/>
11. Calibrate instruments as per given procedures in manuals	<input type="checkbox"/>	<input type="checkbox"/>
12. Check sample label for required test.	<input type="checkbox"/>	<input type="checkbox"/>
13. Maintain the Laboratory room temperature as per requirement.	<input type="checkbox"/>	<input type="checkbox"/>
14. Check for availability of N standard as per requirement.	<input type="checkbox"/>	<input type="checkbox"/>
15. Set up KJELDAHL apparatus and reagents in accordance with the standard work instructions.	<input type="checkbox"/>	<input type="checkbox"/>
16. Conduct pre-use and safety checks.	<input type="checkbox"/>	<input type="checkbox"/>
17. Prepare fertilizer sample to analyze N (Ammonical, Nitrate & Uric) contents	<input type="checkbox"/>	<input type="checkbox"/>
18. Analyse prepared sample according to standard test method to obtain Nitrogen (Ammonical, Nitrate & Uric)	<input type="checkbox"/>	<input type="checkbox"/>
19. Prepare fertilizer sample to analyze K ₂ O contents and perform Flame Photometry method to assess potassium contents in prepared sample	<input type="checkbox"/>	<input type="checkbox"/>
20. Prepare and analyze fertilizer sample to assess micronutrient (Zn, Fe, Mn etc) through atomic absorption spectrophotometer method	<input type="checkbox"/>	<input type="checkbox"/>
21. Perform titration to assess Zn chelated percentage in fertilizer sample	<input type="checkbox"/>	<input type="checkbox"/>
22. Analyze soil sample to assess micronutrients and gypsum requirement of soil through standard test method	<input type="checkbox"/>	<input type="checkbox"/>
23. Analyze three replicates.	<input type="checkbox"/>	<input type="checkbox"/>
24. Calibrate equipment as per lab quality assurance plan.	<input type="checkbox"/>	<input type="checkbox"/>

25. Run blank sample accordingly.	<input type="checkbox"/>	<input type="checkbox"/>
26. Run Laboratory Control samples as per standard.	<input type="checkbox"/>	<input type="checkbox"/>
27. Perform replicate/re-testing as per lab standards.	<input type="checkbox"/>	<input type="checkbox"/>
28. Record quality control data as per lab procedure.	<input type="checkbox"/>	<input type="checkbox"/>
29. Calculate and Note down the Results on analyst workbook.	<input type="checkbox"/>	<input type="checkbox"/>
30. Submit the results to lab In-charge	<input type="checkbox"/>	<input type="checkbox"/>
31. Clear and restore work area.	<input type="checkbox"/>	<input type="checkbox"/>
32. Handle distillation unit as per SOP.	<input type="checkbox"/>	<input type="checkbox"/>
33. Ensure sample digestion in fume hood as per standard requirement.	<input type="checkbox"/>	<input type="checkbox"/>
34. Dispose-off waste as per SOP.	<input type="checkbox"/>	<input type="checkbox"/>
35. Handle acids as per MSDS.	<input type="checkbox"/>	<input type="checkbox"/>
36. Ensure safety protocols as per standard requirement.	<input type="checkbox"/>	<input type="checkbox"/>
37. Generate test report for performed analysis as per standard format	<input type="checkbox"/>	<input type="checkbox"/>
38. Ensure quality of performed test by proper supervision of whole process	<input type="checkbox"/>	<input type="checkbox"/>

Candidate's Signature_____

Assessor's Signature_____

Date: _____

Instruction Sheet for the Candidate

Qualification	National Vocational Certificate level 5, in Agriculture Sector (Soil, water and fertilizer testing lab technician)
Competency Standard(s)	<ol style="list-style-type: none"> 1. Handling of sophisticated level Equipment 2 2. Perform Ammonical Nitrogen In Solid, Liquid and Mixed Fertilizer By Kjeldahl Method 3. Nitrate-N in solid, liquid and mixed fertilizer by kjeldahl method 4. Perform Uric/Urease nitrogen (n) in soild, liquid and mixed fertilizer by kjeldahl method 5. Perform Potassium (K) in Soild, Liquid and Mixed Fertilizer by Flame Photometry Method 6. Perform water soluble micronutrients (Zn, Fe, Mn etc) in Fertilizers through AAS Method 7. Perform Soil Micronutrient Test 8. Perform Standard Test Method (STM) for Zinc chelated percentage 9. Generate test report 10. Ensure Test Quality

Candidate Details	Name _____ Registration/Roll Number _____
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <ol style="list-style-type: none"> 1. Execute calibration and operation of Spectrophotometer, Centrifuge machine, Autoclave, Reciprocating and Oscillator shaker, Atomic Absorption Spectrophotometer, Flow Injection Analyzer, Kjeldahl Unit, Laminar Flow etc. 2. Analyze fertilizer sample to assess N (Amonical, Nitrate & Uric), K₂O, Micronutrients and Zinc chelated. 3. Analyze soil sample for Micronutrients and Gypsum requirement

	4. Prepare analysis report
Time: 4 hrs	During a practical assessment, under observation by an assessor, you are required to
Minimum Evidence Required	<ul style="list-style-type: none"> • Execute calibration and operation of Spectrophotometer, Centrifuge machine, Autoclave, Reciprocating and Oscillator shaker, Atomic Absorption Spectrophotometer, Flow Injection Analyzer, Kjeldahl Unit, Laminar Flow etc. • Analyze fertilizer sample to assess N (Ammonical, Nitrate & Uric), K₂O, Micronutrients and Zinc chelated. • Analyze soil sample for Micronutrients and Gypsum requirement • Prepare analysis report <p>Demonstrating the following criteria:</p> <ol style="list-style-type: none"> 1. Ensure cleanliness of equipment before and after use 2. Ensure availability of standard operating procedure for every equipment 3. Maintain 'Repair and Maintenance history sheet' for each specific equipment as per given standard 4. Ensure proper placing of equipment after use as per lab protocols 5. Follow safety guidelines as per equipment manual 6. Follow SOPs for operating specific equipment as given in manuals 7. Inspect equipment properly before and after use 8. Perform intermediate checks of equipment according to set instructions before use as per requirement 9. Monitor all errors and record data as instructed 10. Perform basic troubleshoot as prescribed 11. Calibrate instruments as per given procedures in manuals 12. Check sample label for required test. 13. Maintain the Laboratory room temperature as per requirement. 14. Check for availability of N standard as per requirement. 15. Set up KJELDAHL apparatus and reagents in accordance with the standard work instructions. 16. Conduct pre-use and safety checks. 17. Prepare fertilizer sample to analyze N (Ammonical, Nitrate & Uric) contents 18. Analyse prepared sample according to standard test method to obtain Nitrogen (Ammonical, Nitrate & Uric) 19. Prepare fertilizer sample to analyze K₂O contents and perform Flame Photometry method to assess potassium contents in

	<p>prepared sample</p> <p>20. Prepare and analyze fertilizer sample to assess micronutrient (Zn, Fe, Mn etc) through atomic absorption spectrophotometer method</p> <p>21. Perform titration to assess Zn chelated percentage in fertilizer sample</p> <p>22. Analyze soil sample to assess micronutrients and gypsum requirement of soil through standard test method</p> <p>23. Analyze three replicates.</p> <p>24. Calibrate equipment as per lab quality assurance plan.</p> <p>25. Run blank sample accordingly.</p> <p>26. Run Laboratory Control samples as per standard.</p> <p>27. Perform replicate/re-testing as per lab standards.</p> <p>28. Record quality control data as per lab procedure.</p> <p>29. Calculate and Note down the Results on analyst workbook.</p> <p>30. Submit the results to lab In-charge</p> <p>31. Clear and restore work area.</p> <p>32. Handle distillation unit as per SOP.</p> <p>33. Ensure sample digestion in fume hood as per standard requirement.</p> <p>34. Dispose-off waste as per SOP.</p> <p>35. Handle acids as per MSDS.</p> <p>36. Ensure safety protocols as per standard requirement.</p> <p>37. Generate test report for performed analysis as per standard format</p> <p>38. Ensure quality of performed test by proper supervision of whole process</p>
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Assessors Judgment Guide

Qualification	National Vocational Certificate level 5, in Agriculture Sector (Soil, water and fertilizer testing lab technician)
Competency Standard(s)	<ol style="list-style-type: none"> 1. Comply with Work Health and Safety Policies 2. Obey the Workplace Policies and Procedures

	3. Follow Basic Communication Skills (General) 4. Operate Computer Functions(General) 5. Demonstrate Basic Literacy Skills 6. Maintain Tools and Equipment
Candidate Details	Name: _____ Registration/Roll Number: _____ Signature: _____
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor _____ Assessor's code: _____ Signature: _____

Assessment Summary (to be filled by the assessor)							
Activity	Method					Result	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment		✓					
Other Requirement							

Observation Checklist

Assessment Task		<ul style="list-style-type: none">• Execute calibration and operation of Spectrophotometer, Centrifuge machine, Auto clave, Reciprocating and Oscillator shaker, Atomic Absorption Spectrophotometer, Flow Injection Analyzer, Kjeldahl Unit, Laminar Flow etc.• Analyse fertilizer sample to assess N (Amonical, Nitrate & Uric), K₂O, Micronutrients and Zinc chelated.• Analyse soil sample for Micronutrients and Gypsum requirement• Prepare analysis report		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Ensured cleanliness of equipment before and after use			
2.	Ensured availability of standard operating procedure for every equipment			
3.	Maintained 'Repair and Maintenance history sheet' for each specific equipment as per given standard			
4.	Ensured proper placing of equipment after use as per lab protocols			
5.	Followed safety guidelines as per equipment manual			
6.	Followed SOPs for operating specific equipment as given in manuals			
7.	Inspected equipment properly before and after use			
8.	Performed intermediate checks of equipment according to set instructions before use as per requirement			
9.	Monitored all errors and record data as instructed			
10.	Performed basic troubleshoot as prescribed			
11.	Calibrated instruments as per given procedures in manuals			
12.	Checked sample label for required test.			
13.	Maintained the Laboratory room temperature as per requirement.			
14.	Checked for availability of N standard as per requirement.			
15.	Set up KJELDAHL apparatus and reagents in accordance with the standard work instructions.			
16.	Conducted pre-use and safety checks.			
17.	Prepared fertilizer sample to analyze N(Amonical, Nitrate & Uric) contents			
18.	Analysed prepared sample according to standard test method to obtain Nitrogen (Amonical, Nitrate &			

	Uric)			
19.	Prepared fertilizer sample to analyze K ₂ O contents and perform Flame Photometry method to assess potassium contents in prepared sample			
20.	Prepared and analyze fertilizer sample to assess micronutrient (Zn, Fe, Mn etc) through atomic absorption spectrophotometer method			
21.	Performed titration to assess Zn chelated percentage in fertilizer sample			
22.	Analyzed soil sample to assess micronutrients and gypsum requirement of soil through standard test method			
23.	Analyzed three replicates.			
24.	Calibrated equipment as per lab quality assurance plan.			
25.	Run blank sample accordingly.			
26.	Run Laboratory Control samples as per standard.			
27.	Performed replicate/re-testing as per lab standards.			
28.	Recorded quality control data as per lab procedure.			
29.	Calculated and Note down the Results on analyst workbook.			
30.	Submitted the results to lab In-charge			
31.	Cleared and restore work area.			
32.	Handled distillation unit as per SOP.			
33.	Ensured sample digestion in fume hood as per standard requirement.			
34.	Disposed-off waste as per SOP.			
35.	Handled acids as per MSDS.			
36.	Ensured safety protocols as per standard requirement.			
37.	Generated test report for performed analysis as per standard format			
38.	Ensured quality of performed test by proper supervision of whole process			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Feedback to the Candidate	
Candidate's Signature_____	Assessor's Signature_____