

# **Assessment Evidence Guide**

**for**

## **“Seed Processing Plant Technician”**

**Level-5**

**(Summative Assessment)**

**Paper-1**



**National Vocational & Technical  
Training Commission**

## Instruction Sheet for the Candidate

<b>Title of Qualification:</b> National Vocational Diploma Level 5 in Seed Processing & Biotechnology (Seed Processing Plant Technician)	<b>CS Code:</b>	<b>Level:5</b>	<b>Version:01</b>
<b>Competency Standard Title:</b> Develop Entrepreneurial Skills Practice Professionalism Operate Advance Seed Processing Machineries Perform Seed Packaging and Storage Maintain Inventory for Seed Processing Prepare Plantlets by Tissue Culture Tehnique Perform Seed Quality Test	<b>Assessment Date (DD/MM/YY):</b>  <b>Assessment Time: 5 hrs.</b>		

Candidate Details	Name: .....  Registration/Roll Number: .....																				
Guidance for Candidate	<p><b>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration &amp; assessment):</b></p> <p style="text-align: center;"><b>Assessment Task 1:</b> Candidate is required to prepare following stock solution:</p> <ul style="list-style-type: none"> <li>✓ Macronutrient</li> <li>✓ Micronutrient</li> <li>✓ Vitamin</li> <li>✓ Hormones</li> </ul> <p>As per instruction given by assessor.</p> <p><b>And complete:</b></p> <ol style="list-style-type: none"> <li>1. <b>Knowledge assessment test (Written or Oral)</b></li> <li>2. <b>Portfolios at the time of assessment (if any)</b></li> </ol>																				
Minimum Evidence Required	<p><b>During a practical assessment, under observation by an assessor, you will complete:</b></p> <p><b>Assessment Task 1</b></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 40%;">Performance criteria 1.</td> <td>Arrange the glassware &amp; chemicals</td> </tr> <tr> <td>Performance criteria 2.</td> <td>Perform sterilization of glassware's</td> </tr> <tr> <td>Performance criteria 3.</td> <td>Perform sterilization of plastic wares</td> </tr> <tr> <td>Performance criteria 4.</td> <td>Perform sterilization of tools and equipment</td> </tr> <tr> <td>Performance criteria 5.</td> <td>Prepare Macronutrient stock solution</td> </tr> <tr> <td>Performance criteria 6.</td> <td>Prepare Micronutrient stock solution</td> </tr> <tr> <td>Performance criteria 7.</td> <td>Prepare Vitamin stock solution</td> </tr> <tr> <td>Performance criteria 8.</td> <td>Prepare Hormones stock solution</td> </tr> <tr> <td>Performance criteria 9.</td> <td>Perform sterilization of stock solution</td> </tr> <tr> <td>Performance criteria 10.</td> <td>Follow health and safety guidelines</td> </tr> </table>	Performance criteria 1.	Arrange the glassware & chemicals	Performance criteria 2.	Perform sterilization of glassware's	Performance criteria 3.	Perform sterilization of plastic wares	Performance criteria 4.	Perform sterilization of tools and equipment	Performance criteria 5.	Prepare Macronutrient stock solution	Performance criteria 6.	Prepare Micronutrient stock solution	Performance criteria 7.	Prepare Vitamin stock solution	Performance criteria 8.	Prepare Hormones stock solution	Performance criteria 9.	Perform sterilization of stock solution	Performance criteria 10.	Follow health and safety guidelines
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	<p><b>Portfolios required at the time of assessment (if any) for</b></p> <ul style="list-style-type: none"> <li>i. Folder/file includes evidence for internship</li> <li>ii. Folder/file includes evidence for inventory management</li> <li>iii. Folder/file includes evidence for performance of different processing machinery operation</li> <li>iv. Folder/file includes evidence for seed quality test</li> </ul>
Performance criteria 1.	Portfolio Presentation Interview preparation
Performance criteria 2.	Perform Internship in Industry
Performance criteria 3.	Report the performance of internship
Performance criteria 4.	Perform cleanliness of required machinery
Performance criteria 5.	Perform sanitization of tools
Performance criteria 6.	Calibrate required tools and equipment
Performance criteria 7.	Perform trouble shooting
Performance criteria 8.	Operate seed Separator according to SOPs
Performance criteria 9.	Operate Colour grader according to SOPs
Performance criteria 10.	Operate seed polishing machines according to SOPs
Performance criteria 11.	Operate seed treatment machines according to SOPs
Performance criteria 12.	Operate seed packaging machines according to SOPs
Performance criteria 13.	Maintain stock register of seed lot as per standard format.
Performance criteria 14.	Maintain cash book on prescribed format.
Performance criteria 15.	Maintain fixed assets register as per prescribed format.
Performance criteria 16.	Maintain raw and processed seed registers according to standard format.
Performance criteria 17.	Maintain raw seed register.
Performance criteria 18.	Check quantity of raw seed received from field.
Performance criteria 19.	Maintain Processing register mentioning the time of starting and closing of the processing machines.
Performance criteria 20.	Maintain record of the following. <ul style="list-style-type: none"> <li>✓ Initial moisture of raw seed</li> <li>✓ Record of dried lots</li> <li>✓ Final moisture level of the dried lots</li> <li>✓ Quantity of raw seed processed.</li> <li>✓ Quality of processed seed obtained.</li> </ul>
Performance criteria 21.	Maintain register of seed treatments
Performance criteria 22.	Prepare sample according to quality test
Performance criteria 23.	Perform Tetrazolium (TZ) test according to SOPs
Performance criteria 24.	Prepare reports
Performance criteria 25.	Perform ELISA
Performance criteria 26.	Record results according to SOPs

## Assessors Judgment Guide

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

Candidate Details	Name: ..... Registration/Roll Number: .....  Candidate Signature:.....
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/>  Name of the Assessor: ..... Assessor's code: .....  Signature of the Assessor:.....

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

Observation Checklist				
<b>Assessment Task 1</b>		<b>Description of Assessment Task</b> Prepare following stock solution: <ul style="list-style-type: none"> <li>✓ Macronutrient</li> <li>✓ Micronutrient</li> <li>✓ Vitamin</li> <li>✓ Hormones</li> </ul> As per instruction given by assessor.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Arrange the glassware & chemicals			
2.	Perform sterilization of glassware's			
3.	Perform sterilization of plastic wares			
4.	Perform sterilization of tools and equipment			
5.	Prepare Macronutrient stock solution			
6.	Prepare Micronutrient stock solution			
7.	Prepare Vitamin stock solution			
8.	Prepare Hormones stock solution			
9.	Perform sterilization of stock solution			
10.	Follow health and safety guidelines			

Competent <input type="checkbox"/>	Not Yet Competent <input type="checkbox"/>
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Portfolio		Description of Portfolio		
		<ul style="list-style-type: none"> <li>▪ Folder/file includes evidence for internship</li> <li>▪ Folder/file includes evidence for inventory management</li> <li>▪ Folder/file includes evidence for performance of different processing machinery operation</li> <li>▪ Folder/file includes evidence for seed quality test</li> </ul>		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Portfolio Presentation Interview preparation			
2.	Perform Internship in Industry			
3.	Report the performance of internship			
4.	Perform cleanliness of required machinery			
5.	Perform sanitization of tools			
6.	Calibrate required tools and equipment			
7.	Perform trouble shooting			
8.	Operate seed Separator according to SOPs			
9.	Operate Colour grader according to SOPs			
10.	Operate seed polishing machines according to SOPs			
11.	Operate seed treatment machines according to SOPs			
12.	Operate seed packaging machines according to SOPs			
13.	Maintain stock register of seed lot as per standard format.			
14.	Maintain cash book on prescribed format.			
15.	Maintain fixed assets register as per prescribed format.			
16.	Maintain raw and processed seed registers according to standard format.			
17.	Maintain raw seed register			
18.	Check quantity of raw seed received from field.			
19.	Maintain Processing register mentioning the time of starting and closing of the processing machines.			
20.	Maintain record of the following. Initial moisture of raw seed Record of dried lots Final moisture level of the dried lots Quantity of raw seed processed. Quality of processed seed obtained.			
21.	Maintain register of seed treatments			
22.	Prepare sample according to quality test			
23.	Perform Tetrazolium (TZ) test according to SOPs			
24.	Prepare reports			
25.	Perform ELISA Record results according to SOPs			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

## Knowledge Assessment

<b>Title of Qualification:</b> National Vocational Diploma Level 5 in Seed Processing & Biotechnology (Seed Processing Plant Technician)	<b>CS Code:</b>	<b>Level:05</b>	<b>Version:01</b>
<b>Competency Standard Title:</b> Develop Entrepreneurial Skills Practice Professionalism Operate Advance Seed Processing Machineries Perform Seed Packaging and Storage Maintain Inventory for Seed Processing Prepare Plantlets by Tissue Culture Tehnique Perform Seed Quality Test	<b>Assessment Date (DD/MM/YY):</b>  <b>Assessment Time:</b> 30 min		

Guidance for Candidate	<b>To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.</b>
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Candidate Details	Name: ..... Registration/Roll Number: Candidate Signature:.....
Written Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: ..... Assessor's code: Signature of the Assessor:.....

Question	Candidate's answer
Answer these questions.	
1. What are the advantages of seed processing?	
2. What is seed scalper?	
3. Define acclimatization.	
4. Define sterilization.	
5. Define Hardening?	

Question	Candidate's answer
Answer these questions.	
6. Define inventory management and write down the components involved in inventory management?	
7. Enlist any three-tissue culture solution.	
8. Define explant.	
9. Explain seed treatment and enlist different seed treatment chemicals?	
10. What is Pathogenicity test and name the stages of Pathogenicity?	



**ANSWER KEY**

Question	Candidate's answer
1. What are the advantages of seed processing?	These includes improve more uniform planting rates by proper sizing, improve seed marketing, improve seed quality and to prevent spread of weed seed
2. What is seed scalper?	Seed scalper removes the larger inert matter from seeds.
3. Define acclimatization.	It is the process in which an individual plant adjusts to a change in its environment.
4. Define sterilization.	The process of making something free from microorganisms.
5. Define Hardening?	Gradual exposing off of plantlets to outer environment is called hardening
6. Define inventory management and write down the components involved in inventory management?	Inventory management refers to the process of ordering, storing, using, and selling of stock products. The components involved in inventory management are, <ul style="list-style-type: none"> <li>• Daily report</li> <li>• summary</li> <li>• Ledger</li> <li>• Invoice</li> <li>• Stock register</li> <li>• Cashbook</li> <li>• Logbook</li> </ul>
7. Enlist any three-tissue culture solution.	Vitamin Nutrient Hormone
8. Define explant.	An explant is a part of the plant by which a whole plant can be produced through plant tissue culture technique.
9. Explain seed treatment and enlist different seed treatment chemicals?	Seed treatment or seed dressing is a chemical, typically antimicrobial or fungicidal treatment with which seeds are treated before planting. The chemical includes, <ul style="list-style-type: none"> <li>• Pythium</li> <li>• Metalaxyl</li> <li>• Azoxystrobin</li> <li>• Captan</li> <li>• Thiram etc.</li> </ul>
10. What is Pathogenicity test and name the stages of Pathogenicity?	The Pathogenicity test is the main criterion for the identification of microorganism suspected of being the aetiological agents of plant disease <ul style="list-style-type: none"> <li>• Exposure (contact)</li> <li>• Adhesion (colonization)</li> <li>• Invasion</li> <li>• Infection</li> </ul>