

Knowledge Assessment

Qualification	National Vocational Certificate level 2 to 5, in Agriculture Sector (Soil, water and fertilizer testing lab technician)
Competency Standard	Perform soil extractable phosphorus test
Purpose of Assessment	Formative Assessment
Candidate Details	Name: _____ Registration/Roll Number: _____ Candidate Signature: _____
Assessment Outcome	<div style="display: flex; justify-content: space-around; align-items: center;"> COMPETENT <input type="checkbox"/> NOT YETCOMPETENT <input type="checkbox"/> </div> Name of the Assessor: _____ Assessor's code: _____ Signature of the Assessor: _____

Candidate's response is not required to be identical, but similar concepts and/or keywords must be used. Oral questioning may be used to clarify candidate understanding of topic and its application.

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)		Satisfactory	Not Satisfactory
1.	What is optimum level of phosphorus in soil?		
2.	What is the role of phosphorus in soil?		
3.	What is available phosphorus in soil?		
4.	Will phosphorus lower soil pH?		
5.	Is Phosphorus easily leached from the soil?		

6.	What is the symbol of phosphorus?		
7.	What is the most common ion of phosphorus?		
8.	What is the number of phosphorus in essential major nutrients		
9.	Name of instruments to test water soluble phosphorus in soil		
10.	What are the three main components of a spectrophotometer?		
11.	What wavelength of spectrophotometer use for phosphorus test?		
12.	a) 410 nm b) 415 nm c) 510 nm d) 880 nm		
13.	What are the main parts of the spectrometer?		
14.	What coloring agent is used in phosphorus test		
15.	What is the formula of phosphorus in soil?		
16.	What color will develop in phosphorus test in Olsen's Method?		
17.	Name of reagents to test phosphorus in soil		
18.	What is the calculation formula for phosphorus test?		

Key

National Vocational Certificate level 2 to 5, in Agriculture Sector (Soil, Water and Fertilizer Testing Lab Technician)			
Perform soil extractable phosphorus test			
Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)		Satisfactory	Not Satisfactory
19.	What is optimum level of phosphorus in soil?		
	14-20 ppm is good level of phosphorus in soil		
20.	What is the role of phosphorus in soil?		
	Soil phosphorus helps plant to store and transfer energy produced by photosynthesis for use in growth and reproductive processes		
21.	What is available phosphorus in soil?		
	Inorganic form of phosphorus occurring in soil solution readily taken up by the plants for growth		
22.	Will phosphorus lower soil pH?		
	Phosphorus fertilizers have almost no effect on soil pH. It depends upon the source which is used for plant nutrition		
23.	Is Phosphorus easily leached from the soil?		
	Phosphorus does not readily leach out of the root zone except erosion and run off		
24.	What is the symbol of phosphorus?		
	The symbol of phosphorus is P or P ₂ O ₅		
25.	What is the most common ion of phosphorus?		
	Phosphorus always occurs as the orthophosphate ion.		
26.	What is the number of phosphorus in essential major nutrients		
	Phosphorus is considered 2 nd most important plant nutrient after N in Pakistani soils		
27.	Name of instruments to test water soluble phosphorus in soil		
	1. Weighing balance 2. Spectrophotometer 3. Hot plate 4. Beaker		

	5. Watch glass/ funnel 6. volumetric flask 7. filter paper 8. cuvettes		
28.	What are the three main components of a spectrophotometer?		
	1. A light source 2. Optics to deliver and collect the light 3. Detector		
29.	What wavelength of spectrophotometer use for phosphorus test?		
30.	e) 410 nm f) 415 nm g) 510 nm h) 880 nm		
31.	What are the main parts of the spectrometer?		
	collimator, prism table and Telescope		
32.	What coloring agent is used in phosphorus test		
	Ascorbic Acid		
33.	What is the formula of phosphorus in soil?		
	It has the formula P ₄		
34.	What color will develop in phosphorus test in Olsen's Method?		
	Bluish color		
35.	Name of reagents to test phosphorus in soil		
	Sodium bicarbonate solution, 0.5 M NaHCO ₃ : Dissolve 42.0 g NaHCO ₃ in app. 700 ml distilled water, shake well and make the volume 1000 ml. Adjust pH 8.5 using 5 N NaOH.		
36.	What is the calculation formula for phosphorus test?		
	$\text{Extractable phosphorous in soil (ppm)} = \text{ppm p} \times \frac{x A}{wt} \times \frac{50}{v} \dots$		