

Assessment Evidence Guide

For

“Crush Plant Site Manager”

Level-5

Apply and Testing Basic Electronic Components
(Formative Assessment)



**National Vocational & Technical
Training Commission**

Title of Qualification: National Vocational Certificate Level 5 in Crush Plant Technology “Crush Plant Site Manager”	CS Code:	Level: 5	Version: 01
Competency Standard Title: Apply and Testing Basic Electronic Components Manage Safety at Crushing Plant Site	Assessment Date (DD/MM/YY): Assessment Time:		

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> <p>Assessment Task 1: Candidate is required to test and diagnose faults of basic electronics components and devices as per the requirement given by assessor.</p> <p>And complete:</p> <ol style="list-style-type: none"> 1. Knowledge assessment test (Written or Oral) 2. Portfolios at the time of assessment (if any)
Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Check connecting pins of sensor/transducer</p> <p>Performance Criteria 2: Apply required power to transducer/sensor power pins.</p> <p>Performance Criteria 3: Connect signal pin with multi-meter.</p> <p>Performance Criteria 4: Write down the obtained data.</p> <p>Performance Criteria 5: Check cable connections</p> <p>Performance Criteria 6: Check power supply</p> <p>Performance Criteria 7: Check the status of LEDs on Power Supply, CPU, I/O Cards</p> <p>Performance Criteria 8: Contact resistance, signal electrical parameters.</p> <p>Performance Criteria 9: Put PLC in test mode</p> <p>Performance Criteria 10: Check protective devices</p> <p>Performance Criteria 11: Check emergency stop buttons</p> <p>Performance Criteria 12: Check connection points of input and output devices</p> <p>Performance Criteria 13: Test software</p> <p>Performance Criteria 14: Collect and/or dispose of all waste in accordance with environmental requirements and workplace procedures</p> <p>Performance Criteria 15: Practice of Personal Protective Equipment (PPE)</p>

Continued on following page

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	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							
Each Assessment Task (with performance criteria)							

Assessment Task 1		Description of Assessment Task 1 Candidate is required to test and diagnose faults of basic electronics components and devices as per the requirement given by assessor.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Checks the connecting pins of sensor/transducer			
2.	Apply required Power to transducer/sensor power pins.			
3.	Connect signal pin with multi-meter.			
4.	Write down the obtained data.			
5.	Check cables connections			
6.	Check power supply			
7.	Check the status of LEDs on Power Supply, CPU, I/O Cards			
8.	Contact resistance, signal electrical parameters.			
9.	Put PLC in test mode			
10.	Check protective devices			
11.	Check emergency stop buttons			
12.	Checks connection points of input and output devices			
13.	Test software			
14.	Practice of Personal Protective Equipment (PPE)			
15.	Collect and/or dispose of all waste in accordance with environmental requirements and workplace procedures			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Written Assessment Guide
For
“Crush Plant Assistant”
Level 5

Apply and Testing Basic Electronic Components



National Vocational & Technical
Training Commission

Title of Qualification: National Vocational Certificate Level 5 in Crush Plant Technology “Crush Plant Site Manager”	CS Code:	Level: 5	Version: 01
Competency Standard Title: Apply and Testing Basic Electronic Components Manage Safety at Crushing Plant Site	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

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

Title of Qualification: National Vocational Certificate Level 5 in Crush Plant Technology “Crush Plant Site Manager”	CS Code:	Level: 5	Version: 01
Competency Standard Title: Apply and Testing the Basic Electronics Components Manage Safety at Crushing Plant Site	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

WRITTEN ASSESSMENT

Question	Candidate's answer
1. Describe diodes?	
2. Enlist types of diode	
3. Which type of semi conductor is used in manufacturing diodes?	
4. What are the characteristics of diode?	
5. Enlist the applications of Diode	
6. Name the diode which has the ability to produce coherent light	
7. Which is the diode used in solar cells and photometers	
8. Describe capacitors	
9. What are the household accessories in which capacitors are used?	
10. Describe working principle of capacitor?	
11. Describe Inductor.	
12. What is an inductor used for?	
13. Describe transducer.	
14. Enlist types of transducer.	
15. What is meant by unsafe act?	

ANSWER KEY

Sr.	Answers
1.	A diode is a two-terminal electronic component that conducts current primarily in one direction (asymmetric conductance); it has low (ideally zero) resistance in one direction, and high (ideally infinite) resistance in the other.
2.	Light Emitting diode Laser diode PN Junction diode Photo diode
3.	Silicon and germanium
4.	Forward-biased diode Reverse-biased diode Zero biased diode
5.	Diodes as a rectifier Diodes in the clipping circuit Diodes in clamping circuits Diodes in logical gates Diodes in reverse current protection
6.	LED diodes can produce coherent light.
7.	Photodiode is used in solar cells and photometers.
8.	The definition of a capacitor is a device to store an electronic charge for a short period of time that consists of two metallic plates separated by a dielectric.
9.	amplifiers, inverter and phone
10.	Capacitors are widely used in electronic circuits for blocking direct current while allowing alternating current to pass
11.	An inductor, also called a coil, chokes, or reactor, is a passive two-terminal electrical component that stores energy in a magnetic field when electric current flows through it.
12.	Inductors slow down current surges or spikes by temporarily storing energy in an electro-magnetic field and then releasing it back into the circuit.
13.	A transducer is an electronic device that converts energy from one form to another. Common examples include microphones, loudspeakers, thermometers, position and pressure sensors, and antenna.
14.	Capacitive transducer. Inductive transducer. Resistive transducer.
15.	task or other activity that is conducted in a manner that may threaten the health / safety of workers.

Assessment Evidence Guide

For

“Crush Plant Site Manager”

Level-5

Perform Sampling of Crushing Material
(Formative Assessment)



**National Vocational & Technical
Training Commission**

Title of Qualification: National Vocational Certificate Level 5 in Crush Plant Technology "Crush Plant Site Manager"	CS Code:	Level: 5	Version: 01
Competency Standard Title: Perform Sampling of Crushing Material Manage Safety at Crushing Plant Site	Assessment Date (DD/MM/YY): Assessment Time:		

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> <p>Assessment Task 1: Candidate is required to collect samples of aggregates in accordance with sampling plan, preserve, label and store as per traceability requirements given by assessor</p> <p>And complete:</p> <p>3. Knowledge assessment test (Written or Oral)</p> <p>4. Portfolios at the time of assessment (if any)</p>
Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Select sampling equipment, sample container and accessories.</p> <p>Performance Criteria 2: Clean/decontaminate the sample container and sampling tools</p> <p>Performance Criteria 3: Identify faulty or unsafe components and equipment</p> <p>Performance Criteria 4: Plan work sequences for optimum efficiency and safety for collection of multiple samples.</p> <p>Performance Criteria 5: Collect required quantity of aggregates samples as per sampling plan</p> <p>Performance Criteria 6: Take photos/snaps of sampling sites and samples.</p> <p>Performance Criteria 7: Perform sample preparations(washing, weighing, & sieving) in required quantity of material</p> <p>Performance Criteria 8: Record sample appearance, environmental conditions and any other factors</p> <p>Performance Criteria 9: Collect required quantity of stone samples from the stacks as per sampling plan</p> <p>Performance Criteria 10: Take photos/snaps of sampling sites and samples.</p> <p>Performance Criteria 11: Perform test as per standard procedure for determining the physical properties of stone.</p> <p>Performance Criteria 12: Carry out weighing and packing of sample a as per standard sampling procedure</p> <p>Performance Criteria 13: Record sample appearance, environmental conditions and any other factors that may impact on sample integrity</p> <p>Performance Criteria 14: Prepare sub-samples and back-up sub-samples that are representative of the source.</p> <p>Performance Criteria 15: Seal the sample & sub-samples in the presence of witnesses</p> <p>Performance Criteria 16: Label samples in accordance with traceability requirements.</p> <p>Performance Criteria 17: Complete the sampling document; fill in the sample date, time, and weight/volume, sample ID, preservative used, sample location and sampler</p>

	<p>name etc.</p> <p>Performance Criteria 18: Store the sub-samples in accordance with the sampling procedure & rules for maintaining the sample integrity and traceability.</p> <p>Performance Criteria 19: Deliver sample store reception point in accordance with standard of operating procedures.</p> <p>Performance Criteria 20: Report any unwanted situation to management</p> <p>Performance Criteria 21: Identify physical and environmental hazards at work place</p> <p>Performance Criteria 22: Practice of Personal Protective Equipment (PPE)</p> <p>Performance Criteria 23: Collect and/or dispose of all waste in accordance with environmental requirements and workplace procedures</p> <p>Performance Criteria 24: Check condition and serviceability of equipment before storage.</p>
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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	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							
Each Assessment Task (with performance criteria)							

Assessment Task 1		Description of Assessment Task 1		
		Collect samples of aggregates in accordance with sampling plan, preserve, label and store as per traceability requirements given by assessor		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Select sampling equipment, sample container and accessories.			
2.	Clean/decontaminate the sample container and sampling tools			
3.	Identify faulty or unsafe components and equipment			
4.	Plan work sequences for optimum efficiency and safety for collection of multiple samples.			
5.	Collect required quantity of aggregates samples as per sampling plan			
6.	Take photos/snaps of sampling sites and samples.			
7.	Perform sample preparations(washing, weighing, & sieving) in required quantity of material			
8.	Record sample appearance, environmental conditions and any other factors			
9.	Collect required quantity of stone samples from the stacks as per sampling plan			
10.	Take photos/snaps of sampling sites and samples.			
11.	Perform test as per standard procedure for determining the physical properties of stone.			
12.	Carry out weighing and packing of sample a as per standard sampling procedure			
13.	Record sample appearance, environmental conditions and any other factors that may impact on sample integrity			
14.	Prepare sub-samples and back-up sub-samples that are representative of the source.			
15.	Seal the sample & sub-samples in the presence of witnesses			
16.	Label samples in accordance with traceability requirements.			
17.	Complete the sampling document; fill in the sample date, time, and weight/volume, sample ID, preservative used, sample location and sampler name etc.			
18.	Store the sub-samples in accordance with the sampling procedure & rules for maintaining the sample integrity and traceability.			
19.	Deliver sample store reception point in accordance with standard of operating procedures			
20.	Report any unwanted situation to management			
21.	Identify physical and environmental hazards at work place			
22.	Practice of Personal Protective Equipment (PPE)			
23.	Collect and/or dispose of all waste in accordance with environmental requirements and workplace procedures			
24.	Check condition and serviceability of equipment before storage.			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Written Assessment Guide

For

“Crush Plant Manager”

Level 5

Perform Sampling of Crushing Material



**National Vocational & Technical
Training Commission**

Title of Qualification: National Vocational Certificate Level 5 in Crush Plant Technology “Crush Plant Site Manager”	CS Code:	Level: 5	Version: 01
Competency Standard Title: Perform Sampling of Crushing Material Manage Safety at Crushing Plant Site	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

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

Title of Qualification: National Vocational Certificate Level 5 in Crush Plant Technology “Crush Plant Site Manager ”	CS Code:	Level: 5	Version: 01
Competency Standard Title: Perform sampling of crushing material Manage Safety at Crushing Plant Site	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

WRITTEN ASSESSMENT

Question	Candidate's answer
1. Enlist the different types of stones.	
2. What are the major types of aggregates according to size?	
3. Enlist any two steps for sample preparation.	
4. Describe the physical properties of stone?	
5. How we can protect the aggregates samples?	
6. Describe sampling rules for various materials.	
7. Describe major types of aggregates according to size?	
8. Define environmental hazard.	
9. What is smoke detector?	

ANSWER KEY

Sr.	Answers
1.	Basalt, Granite, Sandstone, Slate, Limestone, Laterite, Marble, Gneiss etc.
2.	Fine aggregates and Coarse Aggregates
3.	Washing, cleaning, drying, weighing, sieving etc.
4.	Density, Appearance, Strength, Hardness, Percentage Wear, Porosity and Absorption etc.
5.	Pack and seal the sample in bag
6.	no. of samples, witnesses and sealing of samples etc.
7.	<ol style="list-style-type: none">1. Rounded aggregates2. Irregular or partly rounded aggregates3. Angular aggregates4. Flaky aggregates5. Elongated aggregates6. Flaky and elongated aggregates
8.	An environmental hazard is any condition, process, or state adversely affecting the environment.
9.	A fire-protection device that automatically detects and gives a warning of the presence of smoke.

Assessment Evidence Guide

For

“Crush Plant Site Manager”

Level-5

Perform Testing of Stones before Crushing
(Formative Assessment)



**National Vocational & Technical
Training Commission**

Title of Qualification: National Vocational Certificate Level 5 in Crush Plant Technology “Crush Plant Site Manager ”	CS Code:	Level: 5	Version: 01
Competency Standard Title: Perform Testing of Stones before Crushing Manage Safety at Crushing Plant Site	Assessment Date (DD/MM/YY): Assessment Time:		

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> <p>Assessment Task 1: Candidate is required to perform water absorption test for stone samples, assign by assessor.</p> <p>Assessment Task 2: Candidate is required to perform durability test for stone samples assign by assessor.</p> <p>Assessment Task 3: Candidate is required to perform abrasion test for stone samples assign by assessor.</p> <p>Assessment Task 4: Candidate is required to perform crushing strength test for stones assign by assessor.</p> <p>And complete:</p> <p>5. Knowledge assessment test (Written or Oral)</p> <p>6. Portfolios at the time of assessment (if any)</p>
Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Prepare workplace for task</p> <p>Performance Criteria 2: Interpret test request to confirm samples to be tested</p> <p>Performance Criteria 3: Collect required equipment and materials</p> <p>Performance Criteria 4: Plan task sequences for optimum efficiency</p> <p>Performance Criteria 5: Collect sample</p> <p>Performance Criteria 6: Weight the sample</p> <p>Performance Criteria 7: Dip sample in water for specified time</p> <p>Performance Criteria 8: Differentiate sample weight</p> <p>Performance Criteria 9: Calculate percentage of absorption</p> <p>Performance Criteria 10: Record test data in register</p> <p>Performance Criteria 11: Practice of Personal Protective Equipment (PPE)</p> <p>Performance Criteria 12: Implement health and safety practices and ensure it is followed by subordinates</p> <p>Assessment Task 2</p> <p>Performance Criteria 1: Collect sample</p> <p>Performance Criteria 2: Drop sample from specified height on hard surface</p> <p>Performance Criteria 3: Segregate the sample</p> <p>Performance Criteria 4: Calculate average weight of samples</p> <p>Performance Criteria 5: Maintain record in register</p> <p>Performance Criteria 6: Provide safe access at work place for movement of workers & materials.</p>

	<p>Assessment Task 3</p> <p>Performance Criteria 1:Collect samples in required numbers and weight</p> <p>Performance Criteria 2:Put sample in drum in specified numbers</p> <p>Performance Criteria 3:Lock the Drum</p> <p>Performance Criteria 4:Check angle of inclination for drum</p> <p>Performance Criteria 5: Rotate drum for specified revolutions and time.</p> <p>Performance Criteria 6:Open Drum Safely</p> <p>Performance Criteria 7:Clean &Weigh the samples</p> <p>Performance Criteria 8: Compute result percentage.</p> <p>Performance Criteria 9: Maintain Test record in register.</p> <p>Performance Criteria 10: Collect and/or dispose of all waste in accordance with environmental requirements and workplace procedures</p>
	<p>Assessment Task 4</p> <p>Performance Criteria 1:Select sample</p> <p>Performance Criteria 2:Apply Capping</p> <p>Performance Criteria 3:Fix stone in Compressive testing machine</p> <p>Performance Criteria 4:Apply load at convenient rate on fixed sample</p> <p>Performance Criteria 5: Note crushing strength on monitor.</p> <p>Performance Criteria 6:Maintain record in register</p>

Continued on following page

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	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							

Each Assessment Task (with performance criteria)

Assessment Task 1	Description of Assessment Task 1 Perform water absorption test for stone samples, assign by assessor.
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During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Prepare workplace for task			
2.	Interpret test request to confirm samples to be tested			
3.	Collect required equipment and materials			
4.	Plan task sequences for optimum efficiency			
5.	Collect sample			
6.	Weight the sample			
7.	Dip sample in water for specified time			
8.	Differentiate sample weight			
9.	Calculate percentage of absorption			
10.	Record test data in register			
11.	Practice of Personal Protective Equipment (PPE)			
12.	Implement health and safety practices and ensure it is followed by subordinates			

Competent <input type="checkbox"/>	Not Yet Competent <input type="checkbox"/>
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Assessment Task 2		Description of Assessment Task 2 Perform durability test for stone samples assign by assessor.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Collect sample			
2.	Drop sample from specified height on hard surface			
3.	Segregate the sample			
4.	Calculate average weight of samples			
5.	Maintain record in register			
6.	Provide safe access at work place for movement of workers & materials.			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 3		Description of Assessment Task 3 Perform abrasion test for stone samples assign by assessor.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Collect samples in required numbers and weight			
2.	Put sample in drum in specified numbers			
3.	Lock the Drum			
4.	Check angle of inclination for drum			
5.	Rotate drum for specified revolutions and time.			
6.	Open Drum Safely			
7.	Clean & Weigh the samples			
8.	Compute result percentage.			
9.	Maintain Test record in register.			
10.	Collect and/or dispose of all waste in accordance with environmental requirements and workplace procedures			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 4		Description of Assessment Task 4		
		Perform crushing strength test for stones assign by assessor.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Select sample			
2.	Apply Capping			
3.	Fix stone in Compressive testing machine			
4.	Apply load at convenient rate on fixed sample			
5.	Note crushing strength on monitor.			
6.	Maintain record in register			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Written Assessment Guide

For

“Crush Plant Assistant”

Level 5

Perform Testing of Stones before Crushing



**National Vocational & Technical
Training Commission**

Title of Qualification: National Vocational Certificate Level 5 in Crush Plant Technology “Crush Plant Site Manager ”	CS Code:	Level: 5	Version: 01
Competency Standard Title: Perform Testing of Stones before Crushing Manage Safety at Crushing Plant Site	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

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

Title of Qualification: National Vocational Certificate Level 5 in Crush Plant Technology “Crush Plant Site Manger ”	CS Code:	Level: 5	Version: 01
Competency Standard Title: Perform Testing of Stones before Crushing Manage Safety at Crushing Plant Site	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

WRITTEN ASSESSMENT

Question	Candidate's answer
1. What is the durability of stones?	
2. What is the water absorption of stones?	
3. Minimum duration required for water absorption?	
4. Define Porosity.	
5. What kind of test is performed for wear and tear of stone?	
6. Enlist types of physical test performed on stones.	
7. Differentiate between Hardness and Crushing strength?	
8. Describe safety signs?	
9. What is air pollution?	

ANSWER KEY

Sr.	Answers
1.	It is the capacity of stone to resist disintegration and decomposition
2.	Water absorption is the proportion of water which can be absorbed by stone under specific immersion conditions
3.	24 Hours
4.	Porosity is the percentage of void space in a stone
5.	Abrasion test
6.	<ol style="list-style-type: none">1. Acid test2. Crushing test3. Freezing and thawing test4. Hardness Test5. Impact test6. Water absorption test
7.	Strength is defined as the ability to withstand an applied load without failure. Hardness, on the other hand, is defined as the ability to resist deformation
8.	Safety signs and symbols are important safety communicating tools, they help to indicate various hazards that present in plant site or workplace
9.	Air pollution is a mixture of solid particles and gases in the air.

Assessment Evidence Guide

For

“Crush Plant Site Manager”

Level-5

Manage and Supervise the Job Activities
(Formative Assessment)



**National Vocational & Technical
Training Commission**

Title of Qualification: National Vocational Certificate Level 5 in Crush Plant Technology “Crush Plant Site Manager ”	CS Code:	Level: 5	Version: 01
Competency Standard Title: Manage & Supervise the Job Activities	Assessment Date (DD/MM/YY): Assessment Time:		

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> <p>Assessment Task 1: Candidate is required to design supervision program for crushing plant activities as per instructions given by assessor.</p> <p>Assessment Task 2: Candidate is required to conduct inspection of crushing plant and develop inspection report as per instructions given by assessor.</p> <p>And complete:</p> <p>7. Knowledge assessment test (Written or Oral)</p> <p>8. Portfolios at the time of assessment (if any)</p>
Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1:Consult with the client to obtain required information</p> <p>Performance Criteria 2: Prepare SOP's in accordance with the identified requirements.</p> <p>Performance Criteria 3: Prepare the process flow diagram in order to achieve Quality outcome.</p> <p>Performance Criteria 4:Break down work of activities into small achievable components and efficient sequences</p> <p>Performance Criteria 5:Recognize site hazards and the personal protective equipment (PPE) and safety procedures specified for job</p> <p>Performance Criteria 6:Organize site induction for support personnel as required</p> <p>Performance Criteria 7:Plan housekeeping activities prior to and post completion of work</p> <p>Performance Criteria 8:List and arrange required resources prior to commencement of work</p> <p>Performance Criteria 9: Recognize the areas of work which could result in a delay of work, wastage of material or damage to tools.</p> <p>Performance Criteria 10: Allocate appropriate responsibility to appropriate team member to avoid conflicts.</p> <p>Performance Criteria 11:Review work plan in response to new information, urgent requests, changed situations or instructions from appropriate personnel</p>

	<p>Performance Criteria 12: Cooperate with team members to negotiate and achieve agreed outcomes, timelines and priorities</p>
	<p>Assessment Task 2</p> <p>Performance Criteria 1: Conduct inspection of processes & materials in accordance with the inspection plan</p> <p>Performance Criteria 2: Identify the defects and deficiencies in product & processes and record with evidence</p> <p>Performance Criteria 3: Perform test as per standard procedure for determining the physical properties of materials and product.</p> <p>Performance Criteria 4: Collect the samples of materials & products for lab testing as per standards</p> <p>Performance Criteria 5: Pack and seal the sample & sub-samples in the presence of witnesses as per standards</p> <p>Performance Criteria 6: Complete the sampling document as per requirement</p> <p>Performance Criteria 7: Check the actions taken for rectification of snag list.</p> <p>Performance Criteria 8: Record the non-compliance and expected breaches of contract as per SOPs.</p> <p>Performance Criteria 9: Collect and review the information relevant to inspection activities for recoding inspection results</p> <p>Performance Criteria 10: Verify the integrity of information supplied by other party as a part of the inspection process.</p> <p>Performance Criteria 11: Write the inspection observations and findings</p> <p>Performance Criteria 12: Suggest the necessary corrective actions for tackling the identified problems.</p>

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	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							
Each Assessment Task (with performance criteria)							

Assessment Task 1		Description of Assessment Task 1 Design supervision program for crushing plant activities as per instructions given by assessor.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Consult with the client to obtain required information			
2.	Prepare SOP's in accordance with the identified requirements.			
3.	Prepare the process flow diagram in order to achieve Quality outcome.			
4.	Break down work of activities into small achievable components and efficient sequences			
5.	Recognize site hazards and the personal protective equipment (PPE) and safety procedures specified for job			
6.	Organize site induction for support personnel as required			
7.	Plan housekeeping activities prior to and post completion of work			
8.	List and arrange required resources prior to commencement of work			
9.	Recognize the areas of work which could result in a delay of work, wastage of material or damage to tools.			
10.	Allocate appropriate responsibility to appropriate team member to avoid conflicts.			
11.	Review work plan in response to new information, urgent requests, changed situations or instructions from appropriate personnel			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 2		Description of Assessment Task 2 Conduct inspection of crushing plant and develop inspection report as per instructions given by assessor.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Conduct inspection of processes & materials in accordance with the inspection plan			
2.	Identify the defects and deficiencies in product & processes and record with evidence			
3.	Perform test as per standard procedure for determining the physical properties of materials and product.			
4.	Collect the samples of materials & products for lab testing as per standards			
5.	Pack and seal the sample & sub-samples in the presence of witnesses as per standards			
6.	Complete the sampling document as per requirement			
7.	Check the actions taken for rectification of snag list.			
8.	Record the non-compliance and expected breaches of contract as per SOPs.			
9.	Collect and review the information relevant to inspection activities for recoding inspection results			
10.	Verify the integrity of information supplied by other party as a part of the inspection process.			
11.	Write the inspection observations and findings			
12.	Suggest the necessary corrective actions for tackling the identified problems.			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Written Assessment Guide

For

“Crush Plant Site Manager”

Level 5

Manage & Supervise the job Activities



**National Vocational & Technical
Training Commission**

Title of Qualification: National Vocational Certificate Level 5 in Crush Plant Technology “Crush Plant Site Manager ”	CS Code:	Level: 5	Version: 01
Competency Standard Title: Manage & Supervise the Job Activities	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

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

Title of Qualification: National Vocational Certificate Level 5 in Crush Plant Technology “Crush Plant Site Manager ”	CS Code:	Level: 5	Version: 01
Competency Standard Title: Manage & Supervise the Job Activities	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

WRITTEN ASSESSMENT

Question	Candidate's answer
1. What is WBS?	
2. Define Critical Path.	
3. Define quality of work.	
4. Enlist the steps of site Inspection?	
5. Explain different types of defect for inspection activities?	
6. Define project management.	

ANSWER KEY

Sr.	Answers
1.	Work Break Structure
2.	It is the longest path (i.e. path with the longest duration) from project start to finish.
3.	The value of work delivered by an individual, team or organization
4.	Planning, Overview meeting, Preparation, Inspection meeting, Rework and Follow-up
5.	Requirements, Incompleteness, Omitted/Missing, Incorrect, Ambiguous, Infeasible, Inconsistent, Over-specification etc.
6.	Project management is the use of specific knowledge, skills, tools and techniques to deliver something of value to people

Assessment Evidence Guide

For

“Crush Plant Site Manager”

Level-5

Perform Quality Test on Coarse Aggregates
(Formative Assessment)



**National Vocational & Technical
Training Commission**

Title of Qualification: National Vocational Certificate Level 5 in Crush Plant Technology “Crush Plant Site Manager ”	CS Code:	Level: 5	Version: 01
Competency Standard Title: Perform Quality Test on Coarse Aggregates Manage safety at Crushing Plant Site	Assessment Date (DD/MM/YY): Assessment Time:		

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> <p>Assessment Task 1: Candidate is required to perform the gradation test on stone coarse aggregate assign by assessor.</p> <p>Assessment Task 2: Candidate is required to compute the specific gravity and water absorption of the aggregate assign by assessor.</p> <p>Assessment Task 3: Candidate is required to perform flaky & elongated particles test on aggregate assign by assessor.</p> <p>Assessment Task 4: Candidate is required to perform the los Angeles abrasion test for a & b class material assign by assessor.</p> <p>Assessment Task 5: Candidate is required to perform the aggregate impact value test assign by assessor.</p> <p>Assessment Task 6: Candidate is required to execute the aggregate crushing value test assign by assessor.</p> <p>And complete:</p> <p>9. Knowledge assessment test (Written or Oral)</p> <p>10. Portfolios at the time of assessment (if any)</p>
Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1:Prepare workplace for task</p> <p>Performance Criteria 2:Interpret test request to confirm samples to be tested</p> <p>Performance Criteria 3:Collect required equipment and materials</p> <p>Performance Criteria 4:Prepare the test samples</p> <p>Performance Criteria 5:Select the apparatus to be used</p> <p>Performance Criteria 6:Conduct the test as per standard specifications</p> <p>Performance Criteria 7:Compute the results of the test</p> <p>Performance Criteria 8:Record the test result</p> <p>Performance Criteria 9:Plan task sequences for optimum efficiency</p> <p>Performance Criteria 10:Practice of Personal Protective Equipment (PPE)</p> <p>Assessment Task 2</p> <p>Performance Criteria 1:Prepare the test samples</p>

	<p>Performance Criteria 2:Select the apparatus to be used</p> <p>Performance Criteria 3:Conduct the test as per standard specifications</p> <p>Performance Criteria 4:Compute the results of the test</p> <p>Performance Criteria 5:Record the test result</p> <p>Performance Criteria 6: Use defined safe work practices and personal protective equipment to ensure personal safety at the workplace</p>
	<p>Assessment Task 3</p> <p>Performance Criteria 1:Prepare the test samples</p> <p>Performance Criteria 2:Select the apparatus to be used</p> <p>Performance Criteria 3:Conduct the test as per standard specifications</p> <p>Performance Criteria 4:Compute the results of the test</p> <p>Performance Criteria 5:Record the test result</p> <p>Performance Criteria 6:Implement health and safety practices and ensure it is followed by subordinates</p>
	<p>Assessment Task 4</p> <p>Performance Criteria 1:Prepare the test samples</p> <p>Performance Criteria 2:Select the apparatus to be used</p> <p>Performance Criteria 3:Conduct the test as per standard specifications</p> <p>Performance Criteria 4:Compute the results of the test</p> <p>Performance Criteria 5:Record the test result</p> <p>Performance Criteria 6: Check condition and serviceability of equipment before storage.</p>
	<p>Assessment Task 5</p> <p>Performance Criteria 1:Prepare the test samples</p> <p>Performance Criteria 2:Select the apparatus to be used</p> <p>Performance Criteria 3:Conduct the test as per standard specifications</p> <p>Performance Criteria 4:Compute the results of the test</p> <p>Performance Criteria 5:Record the test result</p> <p>Performance Criteria 6:Perform risk assessment and hazard identification at the workplace</p>
	<p>Assessment Task 6</p> <p>Performance Criteria 1:Prepare the test samples</p> <p>Performance Criteria 2:Select the apparatus to be used</p> <p>Performance Criteria 3:Conduct the test as per standard specifications</p> <p>Performance Criteria 4:Compute the results of the test</p> <p>Performance Criteria 5:Record the test result</p> <p>Performance Criteria 6: Check condition and serviceability of equipment before storage.</p>

Continued on following page

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	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							

Each Assessment Task (with performance criteria)

Assessment Task 1	Description of Assessment Task 1
	Perform the gradation test on stone coarse aggregate assign by assessor.

During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Prepare workplace for task			
2.	Interpret test request to confirm samples to be tested			
3.	Collect required equipment and materials			
4.	Prepare the test samples			
5.	Select the apparatus to be used			
6.	Conduct the test as per standard specifications			
7.	Compute the results of the test			
8.	Record the test result			
9.	Plan task sequences for optimum efficiency			
10.	Practice of Personal Protective Equipment (PPE)			

Competent <input type="checkbox"/>	Not Yet Competent <input type="checkbox"/>
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Assessment Task 2		Description of Assessment Task 2 Compute the specific gravity and water absorption of the aggregate assign by assessor.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Prepare the test samples			
2.	Select the apparatus to be used			
3.	Conduct the test as per standard specifications			
4.	Compute the results of the test			
5.	Record the test result			
6.	Check condition and serviceability of equipment before storage.			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 3		Description of Assessment Task 3 Perform flaky & elongated particles test on aggregate assign by assessor.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Prepare the test samples			
2.	Select the apparatus to be used			
3.	Conduct the test as per standard specifications			
4.	Compute the results of the test			
5.	Record the test result			
6.	Implement health and safety practices and ensure it is followed by subordinates			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 4		Description of Assessment Task 4 Perform the Los Angeles abrasion test for a & b class material assign by assessor.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Prepare the test samples			
2.	Select the apparatus to be used			
3.	Conduct the test as per standard specifications			
4.	Compute the results of the test			
5.	Record the test result			
6.	Use defined safe work practices and personal protective equipment to ensure personal safety at the workplace			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 5		Description of Assessment Task 5 Perform the aggregate impact value test assign by assessor.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Prepare the test samples			
2.	Select the apparatus to be used			
3.	Conduct the test as per standard specifications			
4.	Compute the results of the test			
5.	Record the test result			
6.	Perform risk assessment and hazard identification at the workplace			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 6		Description of Assessment Task 6 Execute the aggregate crushing value test assign by assessor.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Prepare the test samples			
2.	Select the apparatus to be used			
3.	Conduct the test as per standard specifications			
4.	Compute the results of the test			
5.	Record the test result			
6.	Check condition and serviceability of equipment before storage.			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Written Assessment Guide

For

“Crush Plant Site Manager”

Level 5

Perform Quality Test on Coarse Aggregates



**National Vocational & Technical
Training Commission**

Title of Qualification: National Vocational Certificate Level 5 in Crush Plant Technology “Crush Plant Site Manager ”	CS Code:	Level: 5	Version: 01
Competency Standard Title: Perform Quality Test on Coarse Aggregates Manage Safety at Crushing Plant Site	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

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

Title of Qualification: National Vocational Certificate Level 5 in Crush Plant Technology “Crush Plant Site Manager ”	CS Code:	Level: 5	Version: 01
Competency Standard Title: Perform Quality Test on Coarse Aggregates Manage safety at Crushing Plant Site	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

WRITTEN ASSESSMENT

Question	Candidate's answer
1. Classify aggregates according to the nature of formation?	
2. Classify aggregates according to the Size?	
3. Classify aggregates according to Shape?	
4. Classify fine aggregates?	
5. Characteristics of Coarse aggregates?	
6. Describe process of Los Angeles Abrasion Test	
7. Define Specific Gravity	
8. What is smoke detector?	
9. Define Ventilation	

ANSWER KEY

Sr.	Answers
1.	Natural aggregates and Artificial aggregates
2.	Coarse and Fine aggregates
3.	<ol style="list-style-type: none">1. Rounded aggregates2. Irregular or partly rounded aggregates3. Angular aggregates4. Flaky aggregates5. Elongated aggregates6. Flaky and elongated aggregates
4.	<ol style="list-style-type: none">1. Clean & free from coatings of clay and silt.2. It should not contain any organic matter.3. Free from hygroscopic salt.4. Chemically inert.5. Strong and durable.
5.	<ol style="list-style-type: none">1. Angular or cubical in shape.2. Sound & durable.3. A Coarse Aggregate should be absolutely clean and free from any organic matter, chemicals and coating of clay.4. Hard and tough.
6.	<ol style="list-style-type: none">1. Prepare the test samples2. Select the apparatus to be used3. Apply PPEs4. Ensure the workability of the apparatus5. Compute the results of the test6. Prepare the test record sheet
7.	Ratio of the density of a substance to that of a standard substance
8.	An environmental hazard is any condition, process, or state adversely affecting the environment.
9.	A fire-protection device that automatically detects and gives a warning of the presence of smoke.

Assessment Evidence Guide

For

“Crush Plant Site Manager”

Level-5

**Plan for Owning and Operating
Crushing Plant
(Formative Assessment)**



**National Vocational & Technical
Training Commission**

Title of Qualification: National Vocational Certificate Level 5 in Crush Plant Technology "Crush Plant Site Manager"	CS Code:	Level: 5	Version: 01
Competency Standard Title: Plan for Owning and Operating Crushing Plant	Assessment Date (DD/MM/YY): Assessment Time:		

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> <p>Assessment Task 1: Candidate is required to calculate the depreciation cost per hour of a dumper being used at crushing plant any one given method and data by the assessor</p> <ul style="list-style-type: none"> • Straight line method • Declining balance method • Sum of years digit method • Sinking fund depreciation method <p>And complete:</p> <p>11. Knowledge assessment test (Written or Oral)</p> <p>12. Portfolios at the time of assessment (if any)</p>
Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Estimate The purchase price of equipment</p> <p>Performance Criteria 2: Estimate the 'Recovery' period</p> <p>Performance Criteria 3: Estimate the salvage value</p> <p>Performance Criteria 4: Select the method of depreciation as per data</p> <p>Performance Criteria 5: Compute the depreciation by selected formula</p> <p>Performance Criteria 6: Interpret the operational manual of machines for maintenance.</p> <p>Performance Criteria 7: Calculate the hourly and annual maintenance cost</p> <p>Performance Criteria 8: Identify the capacity and capability of engine</p> <p>Performance Criteria 9: Calculate fuel and lubricant cost</p> <p>Performance Criteria 10: Calculate the tire cost</p> <p>Performance Criteria 11: Calculate operator man hours</p> <p>Performance Criteria 12: Calculate the total operating cost</p> <p>Performance Criteria 13: Identify the factors affecting productivity.</p> <p>Performance Criteria 14: Gather data required for productivity calculation.</p> <p>Performance Criteria 15: Compute productivity of crushing plant.</p> <p>Performance Criteria 16: Identify the factors for productivity.</p> <p>Performance Criteria 17: Gather data required for productivity calculation.</p> <p>Performance Criteria 18: Compute productivity of Wheel Loader.</p> <p>Performance Criteria 19: Identify the factors for productivity.</p> <p>Performance Criteria 20: Gather data required for productivity calculation.</p> <p>Performance Criteria 21: Compute productivity of dumper truck</p> <p>Performance Criteria 22: Gather the data about initial cost</p> <p>Performance Criteria 23: Gather the calculated miscellaneous cost</p> <p>Performance Criteria 24: Compute the total ownership cost</p>

Continued on following page

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	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							
Each Assessment Task (with performance criteria)							

Assessment Task 1		Description of assessment task 1 Calculate the depreciation cost per hour of a dumper being used at crushing plant any one given method and data by the assessor <ul style="list-style-type: none"> • Straight line method • Declining balance method • Sum of years digit method • Sinking fund depreciation method 		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
25.	Estimate The purchase price of equipment			
26.	Estimate the 'Recovery' period			
27.	Estimate the salvage value			
28.	Select the method of depreciation as per data			
29.	Compute the depreciation by selected formula			
30.	Interpret the operational manual of machines for maintenance.			
31.	Calculate the hourly and annual maintenance cost			
32.	Identify the capacity and capability of engine			
33.	Calculate fuel and lubricant cost			
34.	Calculate the tire cost			
35.	Calculate operator man hours			
36.	Calculate the total operating cost			
37.	Identify the factors affecting productivity.			
38.	Gather data required for productivity calculation.			
39.	Compute productivity of crushing plant.			
40.	Identify the factors for productivity.			
41.	Gather data required for productivity calculation.			
42.	Compute productivity of Wheel Loader.			
43.	Identify the factors for productivity.			
44.	Gather data required for productivity calculation.			
45.	Compute productivity of dumper truck			
46.	Gather the data about initial cost			
47.	Gather the calculated miscellaneous cost			
48.	Compute the total ownership cost			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Written Assessment Guide

For

“Crush Plant Site manager”

Level 5

**Plan for Owning and Operating
Crushing Plant**



**National Vocational & Technical
Training Commission**

Title of Qualification: National Vocational Certificate Level 5 in Crush Plant Technology “Crush Plant Site Manager”	CS Code:	Level: 5	Version: 01
Competency Standard Title: Plan for Owning and Operating Crushing Plant	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

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

Title of Qualification: National Vocational Certificate Level 5 in Crush Plant Technology “Crush Plant Site Manager”	CS Code:	Level: 5	Version: 01
Competency Standard Title: Plan for Owning and Operating Crushing Plant	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

WRITTEN ASSESSMENT

Question	Candidate's answer
1. Define productivity	
2. Define ownership cost	
3. What are different ownership costs?	
4. Define depreciation.	
5. Enlist different methods of depreciation.	
6. Define salvage value of equipment.	
7. Enlist different operating costs.	
8. What do you mean by useful life of equipment?	

ANSWER KEY

Sr.	Answers
1.	Productivity may be defined as the ratio between output (number of items produced) and input (Various resources like land, building, equipment, machinery, material and labour etc.).
2.	Ownership cost is the total cost associated with the equipment for owning it.
3.	<p>The ownership cost consists of the following:</p> <ul style="list-style-type: none"> i. Initial cost ii. Salvage value iii. Insurance cost and taxes iv. Storage cost v. Interest cost
4.	Depreciation means decrease in value of any asset with the passage of time
5.	<ul style="list-style-type: none"> • Straight line method • Declining balance method • Sum of years digit method • Sinking fund depreciation method.
6.	Salvage value represents expected cash inflow that will be received by disposing of equipment at the end of its useful life
7.	<ul style="list-style-type: none"> a. Repair and maintenance cost b. Fuel cost c. Tire cost d. Cost of lubricating oil filter and grease e. Equipment operating wages
8.	It is the time period for which equipment remains useful.

Assessment Evidence Guide

For

“Crush Plant Site Manager”

Level-5

Plan a Project in Primavera P6
(Formative Assessment)



**National Vocational & Technical
Training Commission**

Title of Qualification: National Vocational Certificate Level 5 in Crush Plant Technology "Crush Plant Site Manager"	CS Code:	Level:5	Version:01
Competency Standard Title: Plan a Project in Primavera P6	Assessment Date (DD/MM/YY): Assessment Time:		

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> <p>Assessment Task 1: Candidate is required to prepare a project plan using Primavera, including:</p> <ul style="list-style-type: none"> • CPM • WBS <p>Note: Job description, duration and sequence must be provided by assessor</p> <p>And complete:</p> <p>13. Knowledge assessment test (Written or Oral)</p> <p>14. Portfolios at the time of assessment (if any)</p>
Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Load & unload primavera P6 Software.</p> <p>Performance Criteria 2: Prepare interface of software</p> <p>Performance Criteria 3: Customize P6 Screen Layout</p> <p>Performance Criteria 4: Display Gantt Chart</p> <p>Performance Criteria 5: Add Project in Primavera</p> <p>Performance Criteria 6: Create WBS of project in Primavera.</p> <p>Performance Criteria 7: Create Activities of project in Primavera.</p> <p>Performance Criteria 8: Create Relationships between activities of project in Primavera.</p> <p>Performance Criteria 9: Create Schedule of activities of project in Primavera.</p> <p>Performance Criteria 10: Add constraints of activities of project in Primavera.</p> <p>Performance Criteria 11: Create Calendar for activities of project in Primavera.</p> <p>Performance Criteria 12: Assign Calendars to activities of project in Primavera.</p> <p>Performance Criteria 13: Add Resources to activities of project in Primavera.</p> <p>Performance Criteria 14: Assign Resources of activities of project in Primavera.</p> <p>Performance Criteria 15: Add Cost of activities of project in Primavera.</p> <p>Performance Criteria 16: Analyze Resources of activities of project in Primavera.</p> <p>Performance Criteria 17: Perform Baseline process for Project.</p> <p>Performance Criteria 18: Status the Project</p> <p>Performance Criteria 19: Mitigate the schedule</p>

Continued on following page

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	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							

Each Assessment Task (with performance criteria)				
Assessment Task 1		Description of Assessment Task 1		
		Prepare a project plan using Primavera, including: <ul style="list-style-type: none"> • CPM • WBS 		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Load & unload primavera P6 Software.			
2.	Prepare interface of software			
3.	Customize P6 Screen Layout			
4.	Display Gantt Chart			
5.	Add Project in Primavera			
6.	Create WBS of project in Primavera.			
7.	Create Activities of project in Primavera.			
8.	Create Relationships between activities of project in Primavera.			
9.	Create Schedule of activities of project in Primavera.			
10.	Add constraints of activities of project in Primavera.			
11.	Create Calendar for activities of project in Primavera.			
12.	Assign Calendars to activities of project in Primavera.			
13.	Add Resources to activities of project in Primavera.			
14.	Assign Resources of activities of project in Primavera.			
15.	Add Cost of activities of project in Primavera.			
16.	Analyze Resources of activities of project in Primavera.			
17.	Perform Baseline process for Project.			
18.	Status the Project			
19.	Mitigate the schedule			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Written Assessment Guide

For

“Crush Plant Site Manager”

Level-5

Plan a Project in Primavera6



**National Vocational & Technical
Training Commission**

Title of Qualification: National Vocational Certificate Level 5 in Crush Plant Technology “Crush Plant Site Manager”	CS Code:	Level: 5	Version: 01
Competency Standard Title: Plan a Project in Primavera P6	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

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

Title of Qualification: National Vocational Certificate Level 5 in Crush Plant Technology “Crush Plant Site Manager”	CS Code:	Level: 5	Version: 01
Competency Standard Title: Plan a Project in Primavera P6	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

WRITTEN ASSESSMENT

Question	Candidate's answer
1. What is the role of planning engineer in a project?	
2. What is the importance of Primavera?	
3. What is a Gantt chart in Primavera?	
4. What does WBS, CPM and PERT stands for in Primavera?	
5. Define constraint in Primavera.	
6. What is the difference between recovery schedule and revised schedule?	
7. Define the Critical Path in primavera.	
8. Differentiate total float and free float?	
9. How will you make a manpower loading for your schedule?	
10. Explain the methods of calculating EV (earned value).	
11. How do you start planning without any information in hand?	
12. Explain project delay if earned value is more than planned value?	

Question	Candidate's answer
13. CPI stands for?	
14. SPI stands for?	

ANSWER KEY

Sr.	Answers
1.	Planning Engineer can work along with the project team to develop a complete time schedule including cost of resources.
2.	Primavera p6 is complete, optimum performance, multi-project planning and control software. It helps organizations manage any type of portfolio and gives numerous ways to organize, projects, filter and sort activities and resources.
3.	The Primavera P6 Gantt chart is a powerful visualization of the project schedule. It tabulates the late start and late finish of activities.
4.	Work Breakdown Structure, Critical Cost Method and Program Evaluation and Review Technique
5.	Constraints in primavera is to fix the early or late start or finish dates of an activity.
6.	Recovery schedule keeps the same finish date with some corrective actions to recover the delay such as add more resources and break down some activities. Revised schedule we have a new finish date because of claims or adding a new scope of work.
7.	Simply filter the activities with Zero Total Float.
8.	Total float represents the number of days that can be delayed without affecting the completion of the project, whereas free float determines the number of days that can be delayed without affecting the successor activity
9.	Required Man Hours = QTY / (Productivity Rate)
10.	<ol style="list-style-type: none"> 1. Updating actual cost of activities 2. Updating the actual budgeted units of activities 3. Updating the actual resources comparing to budgeted ones
11.	Gather the necessary Materials, such as the Scope requirements, project start and finish dates and any documents needed to produce project objective.
12.	The contractor has performed better in areas which are not on longest path "The Critical Path". In another words, the contractor executed the right quantity in the wrong place.
13.	Cost Performance Index
14.	Schedule Performance Index

Assessment Evidence Guide

For

“Crush Plant Site Manager”

Level-5

Install & Commissioning of Crushing Plant
(Formative Assessment)



National Vocational & Technical
Training Commission

Title of Qualification: National Vocational Certificate Level 5 in Crush Plant Technology "Crush Plant Site Manager"	CS Code:	Level: 5	Version: 01
Competency Standard Title: Install & Commissioning of Crushing Plant	Assessment Date (DD/MM/YY): Assessment Time:		

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> <p>Assessment Task 1: Candidate is required to commission a crushing plant according to installation manual given by assessor.</p> <p>And complete:</p> <p>15. Knowledge assessment test (Written or Oral)</p> <p>16. Portfolios at the time of assessment (if any)</p>
Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Interpret the Installation drawing through instruction manual</p> <p>Performance Criteria 2: Identify the risk of falling hazards.</p> <p>Performance Criteria 3: Inspect visually for any impact damage and leakage of oils etc.</p> <p>Performance Criteria 4: Coordinate with rigger for erection of plant units as per Installation drawings.</p> <p>Performance Criteria 5: Align the conveyors, hoppers and crusher as per standards.</p> <p>Performance Criteria 6: Stabilize the crusher by raising & lowering the legs and tighten the all bolts.</p> <p>Performance Criteria 7: Fit the clips & pins to secure the feed hopper</p> <p>Performance Criteria 8: Position the mast into working position</p> <p>Performance Criteria 9: Position the dust suppression bucket</p> <p>Performance Criteria 10: Install bracing across the feed conveyor</p> <p>Performance Criteria 11: Configure the plant</p> <p>Performance Criteria 12: View the engine information</p> <p>Performance Criteria 13: Carryout machine settings</p> <p>Performance Criteria 14: Set fuel levels</p> <p>Performance Criteria 15: Set track operations</p> <p>Performance Criteria 16: Turn the battery isolation switch to on position</p> <p>Performance Criteria 17: Turn ignition key to the first run position</p> <p>Performance Criteria 18: Press emergency stop reset button, flashing for few seconds and alarm will start</p> <p>Performance Criteria 19: Turn the ignition key to start position and release it slowly</p> <p>Performance Criteria 20: Perform the pre-operative checks</p> <p>Performance Criteria 21: Inspect the Material buckets</p> <p>Performance Criteria 22: Inspect the electric and electronic circuits</p> <p>Performance Criteria 23: Start the engine</p> <p>Performance Criteria 24: Report the malfunctions if any</p> <p>Performance Criteria 25: Shutdown the machine</p>

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	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							
Each Assessment Task (with performance criteria)							

Assessment Task 1		Description of Assessment Task 1		
		Commission a crushing plant according to installation manual given by assessor.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Interpret the Installation drawing through instruction manual			
2.	Identify the risk of falling hazards.			
3.	Inspect visually for any impact damage and leakage of oils etc.			
4.	Coordinate with rigger for erection of plant units as per Installation drawings.			
5.	Align the conveyors, hoppers and crusher as per standards.			
6.	Stabilize the crusher by raising & lowering the legs and tighten the all bolts.			
7.	Fit the clips & pins to secure the feed hopper			
8.	Position the mast into working position			
9.	Position the dust suppression bucket			
10.	Install bracing across the feed conveyor			
11.	Configure the plant			
12.	View the engine information			
13.	Carryout machine settings			
14.	Set fuel levels			
15.	Set track operations			
16.	Turn the battery isolation switch to on position			
17.	Turn ignition key to the first run position			
18.	Press emergency stop reset button, flashing for few seconds and alarm will start			
19.	Turn the ignition key to start position and release it slowly			
20.	Perform the pre-operative checks			
21.	Inspect the Material buckets			
22.	Inspect the electric and electronic circuits			
23.	Start the engine			
24.	Report the malfunctions			
25.	Shutdown the machine			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Written Assessment Guide

For

**“Crush Plant Site
Manager”**

Level-5

**Install & Commissioning of Crushing
Plant**



**National Vocational & Technical
Training Commission**

Title of Qualification: National Vocational Certificate Level 5 in Crush Plant Technology “Crush Plant Site Manager”	CS Code:	Level: 5	Version: 01
Competency Standard Title: Install & Commissioning of Crushing Plant	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

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

Title of Qualification: National Vocational Certificate Level 5 in Crush Plant Technology "Crush Plant Site Manager"	CS Code:	Level: 5	Version: 01
Competency Standard Title: Install & Commissioning of Crushing Plant	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

WRITTEN ASSESSMENT

Question	Candidate's answer
1. Open Side Setting means in crushing process:	
2. Close Side Setting means in crushing process:	
3. Drive side means in crushing process:	
4. Non drive side means in crushing process:	
5. Flywheel means in crushing process:	
6. Nip angle means in crushing process:	
7. Jaw plates means in crushing process:	
8. Fixed jaw means in crushing process:	

ANSWER KEY

Sr.	Answers
1.	Maximum distance between jaw plates for a given setting. (this is the distance when the jaw is at rest)
2.	Minimum distance between jaw plates derived from the OSS and the stroke.
3.	Side of the crusher fitted with a grooved pulley couple to the crusher drive.
4.	Opposite side of the crusher from the drive side.
5.	Large wheels used as part of the crusher drive and to store inertia.
6.	Inclusive angle between jaw plates indicative of the crushers' ability to crush and draw rock.
7.	Replaceable liner plates available with different profiles for certain applications to help achieve the required output grading whilst protecting the jaw stocks from wear.
8.	Replaceable liner plate attached to the fixed frame.