



QUALIFICATION FILE

Junior Engineer – Civil (Metro Rail)

☒ Short Term Training (STT) ☐ Long Term Training (LTT) ☐ Apprenticeship

☒ Upskilling ☐ Dual/Flexi Qualification ☐ For ToT ☐ For ToA

☒ General ☐ Multi-skill (MS) ☐ Cross Sectoral (CS) ☐ Future Skills ☐ OEM

NCrF/NSQF Level: 4.5

Submitted By:

DMRC Academy

East approach Road, Delhi Metro Train Depot

Shastri Park, Delhi-110053

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Section 1: Basic Details

1.	Qualification Name	Junior Engineer – Civil (Metro Rail)							
2.	Sector/s	Logistics							
3.	Type of Qualification: ☒ New ☐ Revised ☐ Has Electives/Options ☐ OEM	NQR Code & version of existing/previous qualification: NA	Qualification Name of existing/previous version: NA						
4.	a. OEM Name b. Qualification Name (Wherever applicable)	NA Junior Engineer – Civil (Metro Rail)							
5.	National Qualification Register (NQR) Code &Version (Will be issued after NSQC approval)	QG-4.5-TW-03514-2025-V1-DMRCA & v1.0	6. NCrf/NSQF Level: 4.5						
7.	Award (Certificate/Diploma/Advance Diploma/ Any Other (Wherever applicable specify multiple entry/exits also & provide details in annexure)	Certificate							
8.	Brief Description of the Qualification	A Junior Engineer - Civil (Metro Rail) is responsible for coordinating railway track maintenance and inspection, including LWR and associated track elements, ensuring adherence to inspection protocols. The individual oversees accident and emergency response, track renewal, and the use of P.Way tools and equipment for track maintenance. The role includes coordinating construction and maintenance activities in Metro projects and conducting site inspections for viaducts, stations, and treatment plants to ensure structural integrity and safety compliance.							
9.	Eligibility Criteria for Entry for Student/Trainee/Learner/Employee	a. Entry Qualification & Relevant Experience: <table border="1"> <thead> <tr> <th>S. No.</th> <th>Academic/Skill Qualification (with Specialization - if applicable)</th> <th>Required Experience (with Specialization - if applicable)</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>3 years Engineering Diploma* / equivalent</td> <td></td> </tr> </tbody> </table> *Diploma in Civil or in relevant field. b. Age: 18 years		S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)	1.	3 years Engineering Diploma* / equivalent	
S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)							
1.	3 years Engineering Diploma* / equivalent								
10.	Credits Assigned to this Qualification, Subject to Assessment (as per National Credit Framework (NCrF))	17	11. Common Cost Norm Category (I/II/III) (wherever applicable): I						
12.	Any Licensing requirements for Undertaking Training on This	NA							

	Qualification (wherever applicable)																				
13.	Training Duration by Modes of Training Delivery (Specify Total Duration as per selected training delivery modes and as per requirement of the qualification)	☒ Offline ☐ Online ☐ Blended																			
		<table border="1"> <thead> <tr> <th>Training Delivery Modes</th><th>Theory (Hours)</th><th>Practical (Hours)</th><th>OJT Mandatory (Hours)</th><th>OJT Recommended (Hours)</th><th>Total (Hours)</th></tr> </thead> <tbody> <tr> <td>Classroom (offline)</td><td>240</td><td>150</td><td>120</td><td></td><td>510</td></tr> <tr> <td>Online</td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>		Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)	Classroom (offline)	240	150	120		510	Online					
Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)																
Classroom (offline)	240	150	120		510																
Online																					
		(Refer Blended Learning Annexure for details)																			
14.	Aligned to NCO/ISCO Code/s (if no code is available mention the same)	NCO-2015/2153.9900																			
15.	Progression path after attaining the qualification (Please show Professional and Academic progression)	Junior Engineer – Civil (Metro Rail) (L4.5) Engineer – Civil (Metro Rail) (L6.0) →																			
16.	Other Indian languages in which the Qualification & Model Curriculum are being submitted	Hindi																			
17.	Is similar Qualification(s) available on NQR-if yes, justification for this qualification	☐ Yes ☒ No URLs of similar Qualifications:																			
18.	Is the Job Role Amenable to Persons with Disability	☐ Yes ☒ No If “Yes”, specify applicable type of Disability:																			
19.	How Participation of Women will be Encouraged	Encouraging the participation of women for the role of Junior Engineer - Civil (Metro Rail) in Metro Railway can be achieved through various strategies aimed at promoting diversity, inclusivity, and gender equality. Training and skill development programs specifically tailored can be offered to female candidates interested in pursuing careers in these roles. By ensuring that the workplace culture within the metro railway system is safe, respectful, and inclusive, free from harassment or discrimination.																			
20.	Are Greening/ Environment Sustainability Aspects Covered (Specify the NOS/Module which covers it)	☒ Yes ☐ No																			
21.	Is Qualification Suitable to be Offered in Schools/Colleges	Schools ☐ Yes ☒ No Colleges ☐ Yes ☒ No																			
22.	Name and Contact Details of Submitting / Awarding Body SPOC (In case of CS or MS, provide details of both Lead AB & Supporting ABs)	Name: Chandra Kishor Prasad Email: ckprasad@dmrc.org Website: https://dmra.delhimetrorail.com/ Contact No.: 99586 90650																			
23.	Final Approval Date by NSQC: 18-02-2025	24. Validity Duration: 3 Years post NSQC Approval	25. Next Review Date: 17-02-2028																		

Section 2: Module Summary

NOS/s of Qualifications

(In exceptional cases these could be described as components)

Mandatory NOS/s:

Specify the training duration and assessment criteria at NOS/ Module level. For further details refer curriculum document.

Th.-Theory Pr.-Practical OJT-On the Job Training Man.-Mandatory Rec.-Recommended Proj.-Project

S. No	NOS/Module Name	NOS/Module Code & Version (if applicable)	Core/ Non-Core	NCrF/NS QF Level	Credits as per NCrF	Training Duration (Hours)					Assessment Marks					
						Th.	Pr.	OJT-Man.	OJT-Rec.	Total	Th.	Pr.	Proj.	Viva	Total	Weightage (%) (if applicable)
1.	Implement Metro Operations Training and Safety Procedures	DMR/LSC/N9 901, v1.0	Core	4.5	3	60	30	00	-	90	20	20	-	10	50	10
2.	Coordinate the railway track maintenance and inspection	DMR/LSC/N0 402, v1.0	Core	4.5	3	30	20	40	-	90	20	20	-	10	50	15
3.	Coordinate the maintenance and inspection of LWR and associated track elements	DMR/LSC/N0 403, v1.0	Core	4.5	2	30	20	10	-	60	20	20	-	10	50	15
4.	Oversee accident and emergency response, track renewal, and implement inspection protocols	DMR/LSC/N0 405, v1.0	Core	4.5	1	10	10	10	-	30	20	20	-	10	50	15
5.	Use P-Way tools and equipment for track inspection maintenance	DMR/LSC/N0 401, v1.0	Core	4.5	2	30	20	10	-	60	20	20	-	10	50	15
6.	Coordinate construction, maintenance, and inspection in Metro projects	DMR/LSC/N0 406, v1.0	Core	4.5	3	30	20	40	-	90	20	20	-	10	50	15

S. No	NOS/Module Name	NOS/Module Code & Version (if applicable)	Core/ Non-Core	NCrF/NS QF Level	Credits as per NCrF	Training Duration (Hours)					Assessment Marks					
						Th.	Pr.	OJT-Man.	OJT-Rec.	Total	Th.	Pr.	Proj.	Viva	Total	Weightage (%) (if applicable)
7.	Conduct site visits for the inspection and maintenance of viaducts, stations, and treatment plants	DMR/LSC/N0 404, v1.0	Core	4.5	2	20	30	10	-	60	20	20	-	10	50	10
8.	Employability Skills (30 Hours)	DGT/VSQ/N0 101, v1.0	Non-Core	2.0	1	30	-	-	-	30	20	30	-	-	50	5
Duration (in Hours) / Total Marks					17	240	150	120	-	510	160	170		70	400	100

Assessment - Minimum Qualifying Percentage

Please specify **any one** of the following:

Minimum Pass Percentage – Aggregate at qualification level: 60 % (Every Trainee should score specified minimum aggregate passing percentage at qualification level to successfully clear the assessment.)

Minimum Pass Percentage – NOS/Module-wise: 60 % (Every Trainee should score specified minimum passing percentage in each mandatory and selected elective NOS/Module to successfully clear the assessment.)

Section 3: Training Related

1.	Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)	Educational Qualification: Graduate in Civil Engineering/Structural Engineering/Construction Management. Industry & Training Experience: 2 years of industry experience in relevant field Certification: "Trainer" mapped to the Qualification Pack "MEP/Q2601 Minimum accepted score is 80% aggregate
2.	Master Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)	Educational Qualification: Graduate in Civil Engineering/Structural Engineering/Construction Management. Industry & Training Experience: 4 years of industry experience in relevant field Certification: "Master Trainer" mapped to the Qualification Pack "MEP/Q2602" Minimum accepted score is 90% aggregate
3.	Tools and Equipment Required for Training	☒ Yes ☐ No (If "Yes", details to be provided in Annexure)

4.	In Case of Revised Qualification, Details of Any Upskilling Required for Trainer	NA
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Section 4: Assessment Related

1.	Assessor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)	Educational Qualification: Graduate in Civil Engineering/Structural Engineering/Construction Management. Industry & Training Experience: 2 years of industry experience in relevant field Certification: "Assessor" mapped to the Qualification Pack "MEP/Q2701" Minimum accepted score is 80% aggregate.
2.	Proctor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)	Educational Qualification: Graduate in Civil Engineering/Structural Engineering/Construction Management. Industry & Training Experience: 2 years of industry experience in relevant field Certification: "Assessor" mapped to the Qualification Pack "MEP/Q2701" Minimum accepted score is 80% aggregate.
3.	Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)	Educational Qualification: Graduate in Civil Engineering/Structural Engineering/Construction Management. Industry & Training Experience: 4 years of industry experience in relevant field Certification: "Lead Assessor" mapped to the Qualification Pack "MEP/Q2702" Minimum accepted score is 90% aggregate.
4.	Assessment Mode (Specify the assessment mode)	Offline/ Online
5.	Tools and Equipment Required for Assessment	☒ Same as for training ☐ Yes ☐ No (details to be provided in Annexure-if it is different for Assessment)

Section 5: Evidence of the need for the Qualification

Provide Annexure/Supporting documents name.

1.	Latest Skill Gap Study (not older than 2 years) (Yes/No): Yes
2.	Latest Market Research Reports or any other source (not older than 2 years) (Yes/No): NA
3.	Government /Industry initiatives/ requirement (Yes/No): NA
4.	Number of Industry validation provided: -
5.	Estimated nos. of persons to be trained and employed: 1000

6.	Evidence of Concurrence/Consultation with Line Ministry/State Departments: <i>In Process</i> If “No”, why:
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Section 6: Annexure & Supporting Documents Check List

Specify Annexure Name / Supporting document file name

1.	Annexure: NCrf/NSQF level justification based on NCrf level/NSQF descriptors (<i>Mandatory</i>)	<i>Annexure 1</i>
2.	Annexure: List of tools and equipment relevant for qualification (<i>Mandatory, except in case of online course</i>)	<i>Annexure 2</i>
3.	Annexure: Detailed Assessment Criteria (<i>Mandatory</i>)	<i>Annexure 6</i>
4.	Annexure: Assessment Strategy (<i>Mandatory</i>)	<i>Annexure 7</i>
5.	Annexure: Blended Learning (<i>Mandatory, in case selected Mode of delivery is “Blended Learning”</i>)	<i>NA</i>
6.	Annexure: Multiple Entry-Exit Details (<i>Mandatory, in case qualification has multiple Entry-Exit</i>)	<i>NA</i>
7.	Annexure: Acronym and Glossary (<i>Optional</i>)	<i>Annexure 8</i>
8.	Supporting Document: Model Curriculum (<i>Mandatory – Public view</i>)	<i>Attached</i>
9.	Supporting Document: Career Progression (<i>Mandatory - Public view</i>)	<i>Attached</i>
10.	Supporting Document: Occupational Map (<i>Mandatory</i>)	<i>Attached</i>
11.	Supporting Document: Assessment SOP (<i>Mandatory</i>)	<i>Attached</i>
12.	Any other document you wish to submit:	<i>NO</i>

Annexure 1: Evidence of Level

NCrf/NSQF Level Descriptors	Key requirements of the job role/ outcome of the qualification	How the job role/ outcomes relate to the NCrf/NSQF level descriptor	NCrf/NSQF Level
Professional Theoretical Knowledge/Process	- Knowledge of core civil engineering concepts for infrastructure inspection and maintenance. - Familiarity with concrete and steel spans, bearings, joints, and drainage systems in viaducts and bridges. - Proficiency in methods for detecting cracks, corrosion, and wear in structural components.	The role of a Junior Engineer - Civil (Metro Rail) involves overseeing the maintenance and inspection of civil infrastructure within the metro network. This includes conducting regular site visits to assess the condition of viaducts, bridges, stations, and treatment plants. The Junior Engineer is responsible for ensuring that all	4.5

	• Knowledge of tools and equipment needed for comprehensive inspections of infrastructure. • Understanding safety measures and the correct use of PPE during inspections and maintenance activities. • Familiarity with regulations like IRC 83, IRICEN, and RDSO for infrastructure maintenance. • Knowledge of the maintenance needs of station components like ceilings, flooring, and fire doors. • Understanding of operational and maintenance procedures for WTP, STP, and ETP. • Ability to categorize and prioritize defects in station components for maintenance. • Understanding the roles of various departments in joint inspections and collaborative problem-solving. • Awareness of environmental standards and regulations for water and sewage treatment. • Knowledge of maintenance schedules and proper documentation practices for inspections and repairs. • Understanding techniques for identifying defects and recommending corrective actions for infrastructure improvement.	necessary tools, safety gear, and inspection forms are prepared and carried for each visit. Additionally, they lead the inspection process, identifying defects and maintenance needs in structural elements, drainage systems, and station components. The Junior Engineer plays a key role in ensuring compliance with relevant standards, such as IRC and Metro manuals, and recommends maintenance actions based on inspection findings. They are also responsible for coordinating with other departments and teams to ensure timely completion of maintenance tasks, maintaining accurate records, and following up on corrective actions. The job requires a methodical approach to conducting inspections, analyzing technical data, and ensuring that all work is carried out according to established procedures. The Junior Engineer is expected to collaborate with different wings, ensure proper documentation, and prioritize maintenance tasks. The role is integral to maintaining the safety, integrity, and operational efficiency of the metro infrastructure, guided by clear protocols and regulations.	
Professional and Technical Skills/ Expertise/ Professional Knowledge	• Expertise in conducting detailed inspections of viaducts, bridges, and stations to identify maintenance needs. • Ability to assess the structural integrity of concrete and steel spans, bearings, and drainage systems. • Proficiency in using inspection tools and equipment for accurate analysis of infrastructure conditions. • Skill in documenting findings in structured formats, including bridge inspection registers and defect reports. • Knowledge of maintenance procedures for station components, including false ceilings, flooring, and fire	The role of a Junior Engineer - Civil (Metro Rail) requires a thorough understanding of both technical and professional knowledge in civil engineering, particularly within the context of metro rail infrastructure. The Junior Engineer must be skilled in the inspection, maintenance, and repair of critical structures such as viaducts, bridges, stations, and treatment plants. They are responsible for ensuring that all structures are safe, compliant with regulations, and operationally efficient. Their technical expertise includes understanding the intricacies of concrete and steel spans, bearings, drainage systems, and station components, as well as knowledge of relevant	4.5

	safety systems. • Expertise in conducting joint inspections with cross-functional teams, ensuring collaborative problem-solving. • Ability to evaluate water treatment plant (WTP) operations and identify maintenance needs for pumps, valves, and filtration systems. • Proficiency in reviewing technical documentation like maintenance schedules, operational logs, and inspection checklists. • Understanding of environmental compliance and regulatory requirements for treatment plants. • Ability to recommend and prioritize maintenance tasks based on inspection findings and established protocols. • Expertise in identifying corrective actions for structural issues and plant operation irregularities. • Skill in following up on unresolved inspection issues, ensuring compliance with safety and operational standards. • Ability to manage and communicate inspection outcomes effectively to relevant stakeholders and departments.	standards such as IRC and Metro manuals. In addition to their technical knowledge, the Junior Engineer must be proficient in conducting inspections, identifying maintenance needs, and ensuring corrective actions are implemented. They must have a strong understanding of inspection tools, documentation practices, and maintenance schedules. The role also requires high-level professional skills, including effective decision-making, communication, and leadership, as the Junior Engineer must coordinate with cross-functional teams, manage inspections, and ensure that maintenance activities are performed on time and to the required standards. This role demands a high level of professional autonomy, responsibility, and decision-making, in line with NSQF level descriptors related to technical proficiency and leadership.	
Employment Readiness & Entrepreneurship Skills & Mind-set/Professional Skill	• Ability to independently conduct site inspections and assessments, ensuring high-quality standards in civil infrastructure. • Skill in collaborating with cross-functional teams for joint inspections and coordinated maintenance efforts. • Strong attention to detail in identifying defects and proposing actionable solutions to enhance infrastructure longevity. • Proficiency in maintaining compliance with industry standards and safety protocols during inspections and repairs. • Ability to prioritize maintenance tasks and efficiently manage time to meet deadlines and ensure operational	The role of a Junior Engineer - Civil (Metro Rail) not only demands technical proficiency but also requires strong employment readiness and entrepreneurial skills. A Junior Engineer must possess leadership qualities, critical thinking, and the ability to solve problems effectively in a fast-paced and dynamic work environment. They are responsible for managing teams, ensuring smooth coordination with multiple departments, and maintaining a focus on safety, quality, and operational efficiency. The Junior Engineer is expected to make independent decisions, particularly when addressing maintenance issues or assessing the structural integrity of metro infrastructure.	4.5

	continuity. • Skill in preparing comprehensive inspection reports, highlighting defects, and recommending corrective actions to management. • Confidence in leading maintenance activities, ensuring tasks are completed according to specifications and timelines. • Knowledge of regulatory frameworks and compliance standards for metro infrastructure, water treatment, and waste management. • Ability to foster effective communication with stakeholders to ensure alignment on project goals and inspection findings. • Skill in resolving technical issues on-site, taking proactive steps to avoid project delays and cost overruns. • Capability to handle multiple tasks and coordinate different departments to maintain infrastructure efficiently. • Entrepreneurial mindset in identifying opportunities for system improvements, cost-saving measures, and enhanced operational efficiency. • Ability to manage work under pressure, balancing multiple projects while ensuring quality standards are met.	Furthermore, the role requires a mindset geared towards continuous improvement, adaptability to new technologies, and proactive risk management, promoting an entrepreneurial approach to problem-solving and innovation. These competencies align with NSQF level descriptors, as the Junior Engineer must demonstrate autonomy in decision-making, manage resources effectively, and be accountable for the overall performance of the team and the infrastructure. The role requires a proactive and adaptable approach, with a constant focus on improving processes and ensuring operational readiness and safety across all civil infrastructure.	
Broad Learning Outcomes/Core Skill	• Understand how to conduct thorough site inspections for civil infrastructure, ensuring the safety and quality of metro projects. • Know how to identify maintenance needs and defects in structural components, including viaducts, bridges, and stations. • Understand how to effectively use inspection tools and equipment for accurate assessments of concrete, steel, bearings, and drainage systems. • Know how to apply industry standards and best practices for bridge and viaduct maintenance, including IRC and Metro manuals.	The Junior Engineer - Civil (Metro Rail) role emphasizes the development of key core skills essential for managing the maintenance and operation of civil infrastructure within the metro system. These skills include technical expertise in inspecting and maintaining structures such as viaducts, stations, and treatment plants, along with the ability to identify and assess defects or maintenance needs. Junior Engineers must also be adept at coordinating inspection schedules, managing maintenance activities, and overseeing compliance with safety standards and regulations. Strong communication skills are crucial for collaborating with different	4.5

	• Understand the maintenance and operation of water, sewage, and effluent treatment plants, ensuring compliance with environmental regulations. • Know how to document inspection findings, categorize defects, and provide detailed maintenance reports. • Understand how to collaborate with cross-functional teams, including mechanical, electrical, and civil departments, to ensure comprehensive maintenance. • Know how to manage and prioritize maintenance tasks, optimizing resources to minimize downtime and ensure operational efficiency. • Understand the requirements and procedures for joint inspections, ensuring coordinated efforts across various departments. • Know how to assess station maintenance, including evaluating the condition of internal and external elements such as false ceilings, flooring, and fire doors. • Understand how to assess the operational efficiency of water treatment plants, including pumps, valves, and filtration systems, and ensure they meet industry standards. • Know how to navigate regulatory and compliance frameworks for metro infrastructure and the importance of adhering to scheduled maintenance activities. • Understand how to work effectively within a team-oriented environment, contributing to the overall success of metro infrastructure projects and their maintenance.	departments and ensuring that maintenance tasks are carried out smoothly and efficiently. In addition, critical thinking, problem-solving, and analytical skills are essential for diagnosing issues, implementing corrective actions, and ensuring that all infrastructure is safe and operational. Attention to detail is necessary to comply with operational standards and protocols during inspections and repairs. These core skills align with NSQF level descriptors, as the Junior Engineer is expected to exhibit responsibility, autonomy, and expertise in managing complex civil infrastructure tasks. The role also nurtures transferable skills such as teamwork, time management, and leadership, enabling the Junior Engineer to manage multiple tasks and contribute effectively to the metro rail operations.	
Responsibility	• Ensure site inspection tools, forms, and safety gear are prepared and carried. • Accurately record inspection findings in the Bridge Inspection Register. • Assess the structural integrity of viaducts, bridges, and stations. • Coordinate with staff to gather inspection schedules and checklists.	The Junior Engineer - Civil (Metro Rail) role involves significant responsibility, requiring a high level of autonomy and accountability in managing the maintenance and operation of civil infrastructure within the metro system. The Junior Engineer is responsible for overseeing the daily inspections and maintenance of viaducts, stations, and treatment plants, ensuring that all elements are in optimal condition to support safe and	4.5

	- Recommend maintenance actions based on detailed inspections. - Coordinate joint inspections and prioritize key maintenance issues. - Communicate and follow up on recommendations from joint inspections. - Ensure compliance with industry standards and Metro manuals. - Inspect treatment plants for compliance with environmental regulations. - Review and update maintenance schedules and logs for treatment plants. - Document defects, maintenance categories, and timelines for resolution. - Ensure timely completion of maintenance activities per Metro standards. - Maintain water treatment components in line with operational standards.	efficient metro operations. This includes coordinating inspection teams, coordinating maintenance activities, and ensuring adherence to safety protocols and operational standards. The role also involves making critical decisions on defect identification, prioritizing maintenance tasks, and allocating resources to minimize downtime and maintain the structural integrity of metro infrastructure. The Junior Engineer is expected to ensure compliance with relevant regulatory standards and operational procedures, ensuring that all work is conducted safely and effectively. Additionally, the Junior Engineer must lead by example, maintaining workplace discipline, fostering a collaborative team environment, and ensuring timely resolution of maintenance issues. These responsibilities align with the NSQF level descriptors, as the Junior Engineer is expected to demonstrate leadership, decision-making capabilities, and the ability to manage and maintain civil infrastructure autonomously while ensuring safety and operational efficiency.	
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Annexure 2: Tools and Equipment (Lab Set-Up)

List of Tools and Equipment

Batch Size: 30

S. No.	Tool / Equipment Name	Specification	Quantity for specified Batch size
1.	Track Gauge	Nos.	2
2.	Rail Profile Grinder	Nos.	1
3.	Rail Cutting Machine	Nos.	2

4.	Jim Crow	Nos.	1
5.	Ultrasonic Rail Flaw Detector	Nos.	2
6.	Torque Wrench	Nos.	3
7.	Rail Welding Equipment (AT welding)	Sets	1
8.	Tamping Machine	Nos.	1
9.	Track Jack	Nos.	1
10.	Plumb Bob	Nos.	1
11.	Shovels	Nos.	2
12.	Rakes	Nos.	1
13.	Fastening Tightening Machines	Nos.	1
14.	Hammer	Nos.	2
15.	Crowbar	Nos.	1
16.	Rail Drilling Machine	Nos.	1
17.	Vernier Caliper	Nos.	1
18.	Track Geometry Trolley	Nos.	2
19.	Toe Load Measuring Device	Nos.	2
20.	Rail Grinding Machine (RGM)	Nos.	1
21.	Push Trolleys	Nos.	1
22.	PWI Kit	Nos.	1
23.	Emergency Lights	Nos.	2
24.	Pre Stressing mock up	Nos.	1
25.	Bearings Elastomeric	Nos.	1
26.	Bearings POT PTFE	Nos.	1
27.	1 Meter Fish plate	Nos.	1
28.	Joggled Fish plate	Nos.	1
29.	336 fastening system	Nos.	1
30.	Double resilient fastening system	Nos.	1
31.	Vibration attenuation fastening system	Nos.	1
32.	Worn out rail sample	Nos.	1
33.	Fractured rail sample	Nos.	1
34.	Weld Fracture Sample	Nos.	1
35.	Rail wear measuring device	Nos.	1

Classroom Aids

The aids required to conduct sessions in the classroom are:

1. Whiteboard
2. Projector
3. Computer/Laptop
4. Chairs

5. Tables
6. Whiteboard marker
7. Duster

Annexure 3: Industry Validations Summary

Provide the summary information of all the industry validations in table. This is not required for OEM qualifications.

S. No	Organization Name	Representative Name	Designation	Contact Address	Contact Phone No	E-mail ID	LinkedIn Profile (if available)
1.							
2.							

Annexure 4: Training & Employment Details

Training and Employment Projections:

Year	Total Candidates		Women		People with Disability	
	Estimated Training #	Estimated Employment Opportunities	Estimated Training #	Estimated Employment Opportunities	Estimated Training #	Estimated Employment Opportunities
2025	200	75	10	5	5	5
2026	300	100	15	10	10	10
2027	500	200	25	10	10	10

Data to be provided year-wise for next 3 years

Training, Assessment, Certification, and Placement Data for previous versions of qualifications:

Qualification Version	Year	Total Candidates				Women				People with Disability			
		Trained	Assessed	Certified	Placed	Trained	Assessed	Certified	Placed	Trained	Assessed	Certified	Placed

Applicable for revised qualifications only, data to be provided year-wise for past 3 years.

List Schemes in which the previous version of Qualification was implemented:

1.
2.

Content availability for previous versions of qualifications:

☐ Participant Handbook ☐ Facilitator Guide ☐ Digital Content ☐ Qualification Handbook ☐ Any Other:

Languages in which Content is available:

Annexure 5: Blended Learning

Blended Learning Estimated Ratio & Recommended Tools:

Refer NCVET “Guidelines for Blended Learning for Vocational Education, Training & Skilling” available on:

<https://ncvet.gov.in/sites/default/files/Guidelines%20for%20Blended%20Learning%20for%20Vocational%20Education,%20Training%20&%20Skilling.pdf>

S. No.	Select the Components of the Qualification	List Recommended Tools – for all Selected Components	Offline : Online Ratio
1	☐ Theory/ Lectures - Imparting theoretical and conceptual knowledge	Classroom Training through PPTs	60:40
2	☐ Imparting Soft Skills, Life Skills, and Employability Skills /Mentorship to Learners	Classroom Training through PPTs	60:40
3	☐ Showing Practical Demonstrations to the learners	Practical demonstrations at Metro Stations	60:40
4	☐ Imparting Practical Hands-on Skills/ Lab Work/ workshop/ shop floor training	Practical demonstrations & OJT at Metro Stations	60:40
5	☐ Tutorials/ Assignments/ Drill/ Practice	Drills / Practice at DMRC Academy & Metro Stations	60:40
6	☐ Proctored Monitoring/ Assessment/ Evaluation/ Examinations	Online Examination in DMRC Academy Computer Lab	60:40
7	☐ On the Job Training (OJT)/ Project Work Internship/ Apprenticeship Training	OJT at Metro Stations	60:40

Annexure 6: Detailed Assessment Criteria

Detailed assessment criteria for each NOS/Module are as follows:

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
DMR/LSC/N9901: Implement metro operations training and safety procedures	<i>Training Module Overview</i>	2	2	-	1
	PC1. follow schedules for weekly activities and guidelines on punctuality, discipline, and conduct.	-	-	-	-
	PC2. conduct identity verification and maintain attendance records	-	-	-	-
	PC3. ensure adherence to training timelines and program deliverables	-	-	-	-
	<i>Safety Overview</i>	2	2	-	1
	PC4. identify the role of the safety department and follow measures for personal, passenger, and system safety	-	-	-	-

PC5. use appropriate Personal Protective Equipment (PPE) in all designated areas	-	-	-	-
PC6. follow the hazard identification and risk assessment processes	-	-	-	-
<i>Store Management and Procurement</i>	2	2	-	1
PC7. perform store management activities, including stock handling, documentation, and interdepartmental coordination for procurement.	-	-	-	-
PC8. monitor inventory levels and ensure timely requisitions for required materials	-	-	-	-
PC9. maintain records of procurement processes and vendor communication	-	-	-	-
<i>Overview of Telecom, Signaling, and Track Systems</i>	2	2	-	1
PC10. identify telecom components (AFC, CCTV, PIDS, radio systems, clocks) and perform basic functional checks	-	-	-	-
PC11. identify signaling systems (CATC, CBTC) and observe/report signal functioning during visits.	-	-	-	-
PC12. identify P-Way components (rails, sleepers, crossings) and report track conditions through basic patrolling tasks	-	-	-	-
PC13. report malfunctions in telecom, signaling, or track systems using the correct reporting protocols	-	-	-	-
<i>Overview of Traction, SCADA, and E&M Systems</i>	2	2	-	1
PC14. identify traction power and SCADA components and interpret sectioning diagrams	-	-	-	-
PC15. identify E&M systems (RSS, ASS, DG sets, UPS) and perform basic checks to understand their functionality	-	-	-	-
PC16. report unusual system performance and assist in routine inspections	-	-	-	-
<i>OCC and Rolling Stock Overview</i>	2	2	-	1
PC17. familiarize with OCC systems, tools, and the role of OCC controllers	-	-	-	-
PC18. identify rolling stock components and their maintenance procedures	-	-	-	-
PC19. report rolling stock irregularities observed during operations	-	-	-	-
<i>Operations and Customer Care</i>	2	2	-	1
PC20. familiarize with station operations, revenue management, and crew control functions	-	-	-	-
PC21. identify public complaint channels, possible causes, and resolve complaints using proper processes	-	-	-	-
PC22. assist in managing passenger inquiries and ensuring customer satisfaction	-	-	-	-
<i>Practical Visits</i>	1	1	-	0.5
PC23. conduct visits to OCC, stations, depots, and tunnels to observe layouts, facilities, and operations	-	-	-	-
PC24. document key observations during practical visits for knowledge reinforcement	-	-	-	-
PC25. identify operational challenges during visits and suggest improvement areas	-	-	-	-
<i>First Aid Training</i>	1	1	-	0.5
PC26. identify the role and scope of first aid, including key human body functions	-	-	-	-

	(e.g., circulatory, respiratory systems)				
PC27.	follow appropriate techniques for treating bleeding, fractures, burns, shock, and unconsciousness	-	-	-	-
PC28.	perform artificial respiration, CPR, and safe transportation of injured persons using stretchers	-	-	-	-
PC29.	participate in simulated first aid scenarios to enhance preparedness	-	-	-	-
	<i>Fire Fighting Systems</i>	1	1	-	0.5
PC30.	identify elements of combustion, classes of fire, and appropriate extinguishing methods	-	-	-	-
PC31.	operate active/passive fire protection systems, including alarms, fire extinguishers, and fire hydrants	-	-	-	-
PC32.	conduct practical drills and identify fire suppression equipment at metro stations	-	-	-	-
PC33.	respond to fire incidents promptly, ensuring passenger and system safety	-	-	-	-
	<i>Security in Metro Systems</i>	1	1	-	0.5
PC34.	identify security threats, red alert situations, and follow protocols for disaster management	-	-	-	-
PC35.	handle theft cases, manage abandoned persons, and lodge FIRs as per protocol	-	-	-	-
PC36.	coordinate with security personnel to mitigate security breaches effectively	-	-	-	-
	<i>Metro Rail General Rules 2020</i>	1	1	-	0.5
PC37.	interpret key provisions under Metro Rail General Rules 2020, including signals, train speed limits, and safety protocols	-	-	-	-
PC38.	follow operational procedures for maintenance, station control duties, and driverless train systems	-	-	-	-
PC39.	ensure compliance with rules for safe and efficient train operations	-	-	-	-
	<i>Safety Circulars and Contingency Plans</i>	1	1	-	0.5
PC40.	implement procedures for the imposition of TSR, axle counter reset, Train ID management, and Computer Aided Train Supervision (CATS) operation	-	-	-	-
PC41.	follow guidelines for engineering possession and maintenance activities during non-revenue hours, including hot work, solar system testing/repair, and role-play exercises	-	-	-	-
PC42.	ensure compliance with procedures for stopping trains at platforms and during operational disruptions, such as earthquakes, high winds, and floods	-	-	-	-
PC43.	manage degraded mode operations, including train movement during interlocking failures	-	-	-	-
PC44.	oversee the issue, revision, updating, and deletion of SOPs, SWO/DWO, and timetable trials for new sections	-	-	-	-
PC45.	facilitate the initiation of revenue train services, including pilot train movement, ATO/UTO/ATB mode operations, and AFTC functionality checks	-	-	-	-
PC46.	execute procedures for negotiating neutral sections, managing pantograph	-	-	-	-

	failures, and monitoring Panto-OHE interface cameras				
	PC47. coordinate train stabling, depot entry/exit, train movement, and fitness checks	-	-	-	-
	PC48. conduct emergency evacuation using UG facilities, mid-tunnel shafts, and walkways for detrainment of passengers due to technical failure, explosion, or fire	-	-	-	-
	PC49. operate and manage non-ATP vehicles such as RGM and CMV/CTMC and address incidents like rail fractures, weld failures, rollback scenarios, radio communication issues and resetting of passenger alarms in train	-	-	-	-
	PC50. coordinate vehicle movement on link lines and rescue immobilized trains	-	-	-	-
	PC51. respond to fire/smoke incidents, including UG train fires, ensuring passenger and staff safety	-	-	-	-
	PC52. operate ETS/BLS plungers, remove foreign objects like kites from OHE, and follow OHE safety guidelines	-	-	-	-
	Total Marks	20	20	-	10
DMR/LSC/N0402: Coordinate the railway track maintenance and inspection	<i>Rails and Joints</i>	<i>4</i>	<i>4</i>	<i>-</i>	<i>2</i>
	PC1. identify and document the type and condition of rails (90 UTS and HH) during inspections, ensuring they meet required standards for grade and service life	-	-	-	-
	PC2. follow and implement safe and correct techniques for loading, unloading, and stacking high UTS and HH rails to prevent damage and ensure safety	-	-	-	-
	PC3. measure rail wear accurately and report any wear exceeding permissible limits to schedule timely maintenance or replacement	-	-	-	-
	PC4. carry out lubrication of outer rails on curves either manually or by operating electro-mechanical devices, ensuring even and adequate coverage	-	-	-	-
	PC5. check the electronic lubrication system's performance, including lubricant levels and sensor function, and report any discrepancies for corrective action	-	-	-	-
	PC6. inspect rails for corrosion and undertake anti-corrosion treatment where needed, documenting the treatment process for record-keeping	-	-	-	-
	PC7. inspect and secure fish-plates, fish-bolts, and jogged fish-plates, ensuring proper alignment and tightness to maintain joint integrity	-	-	-	-
	PC8. monitor and record rail temperature changes and assess any required adjustments to maintain safe expansion gaps according to environmental conditions	-	-	-	-
	PC9. inspect expansion joints for damage or misalignment, ensuring they allow for proper rail expansion and contraction, and report any issues needing maintenance	-	-	-	-
	PC10. examine insulated glued joints for signs of wear or separation and confirm that alignment meets standards for track stability and signaling	-	-	-	-
	<i>Ballast less Track</i>	<i>2</i>	<i>2</i>	<i>-</i>	<i>1</i>
	PC11. demonstrate an understanding of the principles of ballast less track design, including key features, benefits, and challenges compared to traditional ballasted tracks	-	-	-	-

PC12.	implement the key steps for constructing ballastless tracks using both top-down and bottom-up methods	-	-	-	-
PC13.	oversee and document routine maintenance activities on ballastless track, such as inspecting track alignment, fastening systems, and expansion joints, to ensure track integrity and safety	-	-	-	-
PC14.	inspect for the correct installation and alignment of different elastic fastening systems (such as Fastening System 336 and Fastening System 300) to ensure proper load distribution	-	-	-	-
PC15.	measure and document the toe load of fastening systems (including System 336, System 300, Fastening, and Rheda 2000) to conform to ballastless track application standards	-	-	-	-
PC16.	inspect the plinth beam profile and anti-derailment arrangements in tunnels and viaducts, ensuring they comply with design specifications for safe rail operations	-	-	-	-
<i>Formation & Ballast</i>		3	3	-	1
PC17.	inspect track formation to ensure it meets specified design and structural requirements, including stability and load-bearing capacity	-	-	-	-
PC18.	check the functions of track formation, focusing on load distribution, stability, and support for track components	-	-	-	-
PC19.	check the typical cross-sectional elements of formation on embankments for single and double lines on Broad Gauge (BG), noting any deviations from the standard profile	-	-	-	-
PC20.	inspect and maintain the drainage system around the track formation, ensuring it effectively diverts water to prevent erosion or structural damage	-	-	-	-
PC21.	measure and verify the slope on top of the formation, ensuring it meets design specifications for optimal drainage and stability	-	-	-	-
PC22.	inspect side and catch water drains for blockages or damage, ensuring they are clear and functional to prevent water accumulation on the formation	-	-	-	-
PC23.	identify common causes of formation failure, such as poor drainage or soil erosion, and report findings for preventive maintenance planning	-	-	-	-
PC24.	coordinate remedial actions on weak formations, including cess repair, side slope correction, and cess widening, following standard procedures for stabilization	-	-	-	-
PC25.	inspect ballast sections on BG tracks, including straights and curves, to verify they meet specifications for single and double lines on Long Welded Rail (LWR) sections	-	-	-	-
PC26.	collect and test track ballast samples as per specifications, documenting measurements to confirm ballast quality and adherence to standards	-	-	-	-
<i>Sleepers & Fastenings</i>		4	4	-	2
PC27.	inspect concrete sleepers for any signs of damage or wear, ensuring they meet structural requirements for load-bearing and track stability	-	-	-	-

PC28.	check the installation and alignment of mono-block pre-stressed sleepers, ensuring they are correctly positioned and securely fastened	-	-	-	-
PC29.	apply the understanding of the general properties and advantages of different types of sleepers, focusing on durability, stability, and compatibility with various track conditions	-	-	-	-
PC30.	inspect special sleepers installed at level crossings for proper alignment and secure fastening, ensuring smooth and safe vehicular passage	-	-	-	-
PC31.	check turnout sleepers for correct alignment and fastening to ensure they accommodate track switching without compromising stability	-	-	-	-
PC32.	examine special sleepers at Switch Expansion Joints (SEJ) locations, bridge approaches, and sharp curves to verify they meet design requirements for flexibility and support	-	-	-	-
PC33.	measure and verify rail coning on sleepers, ensuring it meets standards to maintain rail stability and minimize lateral movement	-	-	-	-
PC34.	implement proper handling and stacking techniques for Pre-stressed Concrete (PSC) sleepers to prevent damage during transportation and storage	-	-	-	-
PC35.	inspect inserts in PSC sleepers for wear or damage, ensuring they provide secure anchorage for rail fastenings	-	-	-	-
PC36.	install and inspect Elastic Rail Clips (MK-III) on PSC sleepers to confirm they provide sufficient rail restraint and elasticity	-	-	-	-
PC37.	measure the toe load of rail clips and document findings to verify they meet the specified requirements for rail restraint	-	-	-	-
PC38.	assess the condition of fastenings against renewal criteria and recommend replacement when fastenings show signs of fatigue or reduced effectiveness	-	-	-	-
PC39.	inspect and oversee the replacement of rubber pads under rails on PSC sleepers, ensuring they provide adequate cushioning and noise reduction	-	-	-	-
PC40.	examine rail liners for wear or displacement, and replace them if necessary to maintain track alignment and reduce rail seat wear	-	-	-	-
<i>Turnouts – Assembly, Layouts & Inspection</i>		3	3	-	2
PC41.	assemble and align turnouts with 1 in 8½, 1 in 12, 1 in 9, and 1 in 7 configurations, ensuring all components are correctly positioned according to specified dimensions and standards	-	-	-	-
PC42.	measure and verify the main dimensions of assembled turnouts, including rail gauge, spacing, and angle, to ensure adherence to design specifications	-	-	-	-
PC43.	identify and differentiate contrary and similar flexure turnouts (1 in 8½, 1 in 12, 1 in 9, and 1 in 7) based on layout and function, ensuring they are assembled correctly	-	-	-	-
PC44.	explain and identify components and configurations of diamond crossings and scissors crossovers, accurately using terminology in reference to track layout	-	-	-	-
PC45.	inspect and maintain switch components for proper alignment, movement, and secure fastening to facilitate smooth switching operations	-	-	-	-

PC46.	inspect diamond crossings for wear, alignment, and stability, ensuring they meet operational standards for intersecting tracks	-	-	-	-
PC47.	lay and maintain fan-shaped turnouts by aligning components precisely and conducting routine maintenance to prevent wear and misalignment	-	-	-	-
PC48.	perform maintenance on turnouts with Cast Manganese Steel (CMS) crossings, inspecting for wear or cracking and ensuring secure fastening to the track base	-	-	-	-
PC49.	conduct detailed inspections of various turnout types, recording measurements, identifying defects, and ensuring components meet operational tolerances	-	-	-	-
PC50.	complete inspection formats accurately for each type of turnout, documenting track condition, alignment, and any deviations from standard parameters	-	-	-	-
PC51.	measure and confirm that turnout track parameters, such as gauge, alignment, and elevation, fall within the specified tolerance limits	-	-	-	-
<i>Ballast less Track Maintenance</i>		3	3	-	1
PC52.	conduct regular patrolling of ballastless track to identify any immediate issues or safety hazards, such as debris, cracks, or misalignments, and report findings promptly	-	-	-	-
PC53.	measure key track parameters (gauge, cross-level, twist, versines, alignment, wear) during inspections, recording data to ensure compliance with track tolerance standards	-	-	-	-
PC54.	measure and document toe loads on rail clips and fastenings to verify they meet specified requirements for securing rails on ballastless track	-	-	-	-
PC55.	inspect points and crossings for wear, alignment, and secure fastening, identifying any defects that require maintenance or adjustment	-	-	-	-
PC56.	verify that track measurements (gauge, alignment, cross-level) fall within approved tolerances using standard inspection methods, and document results accurately	-	-	-	-
PC57.	inspect the reinforced concrete plinth (anti-derailment beam) for cracks, spalling, or misalignment, and perform repairs as necessary to maintain structural integrity	-	-	-	-
PC58.	adjust gauge, alignment, and cross-level using eccentric insulating bushes and shim plates to ensure the track meets specified dimensions and tolerances	-	-	-	-
PC59.	oversee the replacement of worn or damaged ballastless elastic fastenings and elastomeric pads to maintain track stability and minimize vibrations	-	-	-	-
PC60.	assess track condition based on wear, age, and environmental factors to determine if renewal is required, following specified guidelines for ballastless track maintenance	-	-	-	-
<i>Ballasted Track Maintenance</i>		1	1	-	1
PC61.	inspect the gauge face of rails for wear and, where necessary, carry out gauge-face reversal to extend rail life, ensuring secure reassembly and alignment	-	-	-	-
PC62.	replace CMS crossings as needed, following safe handling procedures, securing	-	-	-	-

	fastenings, and ensuring proper alignment and track stability				
	PC63. replace worn or damaged rails by removing the existing rail, positioning the new rail accurately, and fastening it securely to maintain gauge and alignment	-	-	-	-
	PC64. replace base plates on ballast tracks by lifting the rail, aligning and securing the new base plate, and ensuring proper seating and fastening	-	-	-	-
	PC65. replace the second drive mechanism in point machines, ensuring proper alignment and secure connections to maintain precise point and crossing operations	-	-	-	-
	Total Marks	20	20	-	10
DMR/LSC/N0403: Coordinate the maintenance and inspection of LWR and associated track elements	<i>Long Welded Rails (LWR)</i>	<i>3</i>	<i>3</i>	-	<i>2</i>
	PC1. conduct regular patrolling and inspections, focusing on measuring track parameters (gauge, cross-level, twist, versines, alignment, wear), and recording findings to ensure the track is within standard tolerances	-	-	-	-
	PC2. measure toe loads on fastenings and inspect points and crossings for wear and secure alignment, ensuring all components function safely and meet required specifications	-	-	-	-
	PC3. verify that track tolerances, including gauge and alignment, fall within approved limits during inspections, noting any deviations and arranging for corrective actions as necessary	-	-	-	-
	PC4. perform seasonal maintenance by conducting pre-monsoon inspections, monitoring during the monsoon for water accumulation, and conducting post-monsoon checks to address any erosion or drainage issues on the LWR track	-	-	-	-
	PC5. adhere to limits for maximum lifting/lowering per session when lifting or lowering the track, install ramps at track ends, and verify adequate ballast cushioning and drainage post-adjustment	-	-	-	-
	PC6. perform conventional through packing or use off-track machines to compact ballast effectively around sleepers, ensuring stability and alignment of the LWR track	-	-	-	-
	PC7. conduct overhauling and deep screening of ballast to remove fine materials and restore ballast support, ensuring improved drainage and track stability	-	-	-	-
	PC8. inspect and maintain special track layouts, including points and crossings, ensuring components such as crossings and switch rails are aligned, secured, and function effectively	-	-	-	-
	PC9. perform scheduled periodic inspections and programmed maintenance attentions as per the LWR maintenance guidelines, documenting track conditions and scheduling necessary repairs	-	-	-	-
	<i>Welding of Rails</i>	<i>3</i>	<i>3</i>	-	<i>1</i>
	PC10. use different types of rail thermometers, identify their role in monitoring rail temperature for safe LWR/CWR (Continuous Welded Rail/Long Welded Rail) maintenance	-	-	-	-
	PC11. verify and select permitted locations for laying LWR/CWR, ensuring compliance	-	-	-	-

	with specified guidelines on track structure and environmental conditions				
PC12.	inspect the track structure of LWR/CWR, focusing on securing components such as fastenings and ballast, and ensuring alignment for stability under stress conditions	-	-	-	-
PC13.	perform de-stressing operations with or without rail tensors, ensuring that rails are stress-free at the desired temperature to prevent buckling or fracture	-	-	-	-
PC14.	identify and repair rail fractures and cases of buckling by applying standard procedures to restore track integrity and safety	-	-	-	-
PC15.	follow maintenance precautions for CWR/LWR, including correct fastening, inspection, and environmental adjustments, to prevent rail stress-related issues	-	-	-	-
PC16.	conduct patrolling in both hot and cold weather, monitoring rail conditions and expansion/contraction, and reporting any anomalies for immediate action	-	-	-	-
PC17.	determine and confirm the stress-free temperature for rail sections using established guidelines, ensuring that LWR/CWR remains stable across temperature variations	-	-	-	-
PC18.	inspect LWR sections, especially gaps at Switch Expansion Joints (SEJ), and implement corrective measures to ensure they meet the required gap tolerances	-	-	-	-
	<i>Rail Flaws & Testing</i>	2	2	-	1
PC19.	identify common types of rail and weld defects, such as cracks, corrosion, and misalignment, and report these defects accurately for further inspection and maintenance	-	-	-	-
PC20.	perform a visual examination of rails and welds during patrols, identifying surface-level defects and anomalies, and documenting findings for scheduled maintenance	-	-	-	-
PC21.	conduct Ultrasonic Flaw Detection (USFD) testing on rails and welds to detect internal flaws, interpreting results to determine the need for repair or replacement	-	-	-	-
	<i>Horizontal Curves</i>	3	3	-	1
PC22.	identify and classify the degree and types of curves on a section of track, verifying compliance with design specifications and logging details accurately in the curve register	-	-	-	-
PC23.	measure and calculate the relationship between degree, radius, chord, and versine on curves, ensuring they align with specified geometric standards for safe train operations	-	-	-	-
PC24.	calculate and verify the super elevation (equilibrium can't), maximum cant, can't deficiency, and can't excess for curves, adjusting as necessary to optimize train stability and comfort	-	-	-	-
PC25.	apply the formula for safe and equilibrium speed on curves, determining permissible speeds based on existing cant, radius, and track conditions	-	-	-	-
PC26.	calculate the required cant for a given curve and the corresponding permissible	-	-	-	-

	speed, ensuring adjustments align with track safety standards				
PC27.	determine the transition length and maximum cant gradient, confirming that transitions are smooth and meet specifications for track geometry on curves	-	-	-	-
PC28.	measure and adjust the rate of running out of cant and cant deficiency, verifying that the rate aligns with specified standards to maintain smooth curve transitions	-	-	-	-
PC29.	inspect and implement required widening of gauge and extra clearance on curves, adjusting to accommodate lateral forces and prevent excessive wear on rail components	-	-	-	-
PC30.	verify that the minimum required length of straight track between reverse curves is provided, ensuring smooth transitions and maintaining train stability	-	-	-	-
	<i>Vertical Curves</i>	2	2	-	1
PC31.	identify the need for vertical curves at gradient changes to provide a smooth transition for trains, minimizing stress on rails and ensuring passenger comfort	-	-	-	-
PC32.	calculate the equivalent radius for vertical curves to assess curvature impact on train movement, ensuring it meets specified safety and comfort standards	-	-	-	-
PC33.	inspect and maintain vertical curves specifically on LWR sections, ensuring that the curves are stable, within tolerance limits, and do not induce excessive stress on welded rails	-	-	-	-
	<i>Reconditioning of CMS Crossings & Switches</i>	2	2	-	1
PC34.	assess and recondition worn-out Cast Manganese Steel (CMS) crossings and switches by identifying worn areas, preparing surfaces, and restoring profiles to extend service life and maintain safe track conditions	-	-	-	-
PC35.	select and use the appropriate type of electrodes for welding and reconditioning CMS crossings and switches, ensuring compatibility with CMS material to achieve durable and safe repairs	-	-	-	-
	<i>Mechanized Maintenance</i>	2	2	-	1
PC36.	use various small track machines for maintenance tasks, to improve efficiency and safety in track upkeep	-	-	-	-
PC37.	apply off-track tampers to provide spot attention on sections requiring immediate alignment correction, ensuring quick and accurate adjustments to maintain track stability	-	-	-	-
PC38.	verify all pre-requisites for machine tamping, including securing clearance, checking track geometry, and ensuring equipment functionality before tamping work begins	-	-	-	-
PC39.	perform pre-tamping inspections, monitor during tamping operations, and conduct post-tamping checks with the Unimat-Compact to confirm track stability and alignment	-	-	-	-
PC40.	identify Rail Contact Fatigue (RCF) defects and corrugation on rail surfaces, understanding the need for regular inspections to prevent severe rail degradation	-	-	-	-

	PC41. measure and record RCF defects and corrugation on rails using appropriate inspection tools, ensuring accurate data collection for maintenance planning	-	-	-	-
	PC42. operate, inspect, and maintain the Rail Grinding Machine (RGM) to address RCF defects and corrugation, ensuring effective grinding for extended rail life and smooth track surface	-	-	-	-
	<i>Use of Trolley/Lorry/Dolly</i>	2	2	-	1
	PC43. operate push trolleys, lorries, and motor trolleys safely, considering their specific functions, capacities, and limitations for on-track operations	-	-	-	-
	PC44. ensure all required safety equipment is available and functional before deploying any trolley or lorry, implementing protection procedures to prevent track obstructions	-	-	-	-
	PC45. operate rail dollies for the movement of rails and materials, following protection protocols to secure the track section during dolly use and prevent interference with train operations	-	-	-	-
	<i>Protection, Restrictions & Indications</i>	1	1	-	1
	PC46. use hand signals with flags during the day and lamps at night to communicate effectively with train operators and other track workers, ensuring clear and consistent signaling	-	-	-	-
	PC47. deploy banner flags and engineering indicators accurately to mark work areas or hazards, ensuring appropriate placement of temporary and permanent indicators	-	-	-	-
	PC48. implement appropriate protection measures during emergencies, such as setting up caution orders and ensuring warning signals and indicators are visible to approaching trains	-	-	-	-
	PC49. apply appropriate speed restrictions for various track attention activities/failures, ensuring trains are informed of and adhere to safe operational speeds	-	-	-	-
	Total Marks	20	20	-	10
	DMR/LSC/N0405: Oversee accident and emergency response, track renewal, and implement inspection protocols	5	5	-	2
	<i>Accidents & Unusual Occurrences</i>	5	5	-	2
	PC1. follow Metro's Accident Rules (2002) for accident reporting, ensuring accurate documentation and immediate communication of accidents to relevant authorities	-	-	-	-
	PC2. coordinate the duties of P-Way officials during an accident, including securing the site, assessing track damage, setting up protection measures, etc.	-	-	-	-
	PC3. implement appropriate safety protocols like securing the area and communicating with control centers during unusual occurrences e.g. fire, smoke, flooding, or track obstructions	-	-	-	-
	PC4. assess and mark the area of defective tracks, and arrange for necessary repairs	-	-	-	-
	PC5. ensure safe and timely track restoration after accidents or buckling incidents	-	-	-	-
	PC6. maintain records of accidents and unusual occurrences, documenting all relevant details, actions taken, and lessons learned for future reference and	-	-	-	-

	compliance				
PC7.	inspect and ensure that emergency materials and equipment are readily available and in good condition for immediate use in track restoration or accident response situations	-	-	-	-
PC8.	analyze past accident and incident cases in the P-Way wing, identifying lessons learned and best practices to improve future response strategies	-	-	-	-
	<i>Track Renewals</i>	4	4	-	2
PC9.	execute casual and complete track renewal procedures by identifying sections requiring renewal, preparing necessary materials, and ensuring work completion to maintenance standards	-	-	-	-
PC10.	perform through rail renewals by assessing track segments against un-serviceability criteria, determining sections that require replacement, and conducting renewal activities to restore track integrity	-	-	-	-
PC11.	replace worn or damaged elastic pads and fastenings as part of track renewal, ensuring secure and proper installation to maintain track stability	-	-	-	-
PC12.	ensure proper handling and storage of track materials (rails, pads, fastenings) during the renewal process to prevent damage and maintain them in optimal condition	-	-	-	-
PC13.	apply appropriate speed restrictions during track renewal activities, coordinating with train operations to ensure safe passage of trains near work zones	-	-	-	-
	<i>Inspections, Track Recording & Monitoring</i>	4	4	-	2
PC14.	conduct inspections with the objective of assessing track safety and riding quality, identifying any irregularities that may affect passenger comfort or train stability	-	-	-	-
PC15.	measure and evaluate the riding index using established metrics to ensure the track meets standards for smooth train operation and passenger comfort	-	-	-	-
PC16.	operate an oscillograph car and interpret Oscillation Monitoring System (OMS) data to assess track geometry and detect irregularities that require attention	-	-	-	-
PC17.	use Calipri and Miniprof tools to measure rail wear and profile, ensuring accurate data collection to inform maintenance decisions	-	-	-	-
PC18.	conduct track geometry inspections with a track geometry trolley, capturing data on alignment, gauge, and level to maintain track quality standards	-	-	-	-
	<i>Schedule of Dimensions (SoD)</i>	3	3	-	2
PC19.	identify and apply the key dimensions and clearance requirements specific to Broad Gauge (1676 mm) in the Metro SoD to ensure compliance during maintenance and construction activities	-	-	-	-
PC20.	identify and apply the Standard Gauge (1435 mm) SoD specifications, ensuring track and infrastructure elements adhere to these dimensions for safe and efficient operations on standard gauge sections	-	-	-	-
PC21.	implement the specific SoD requirements for Standard Gauge (1435 mm) on the	-	-	-	-

	Airport Line, considering additional factors such as platform alignment and structural clearances tailored for this line				
	PC22. apply the SoD specifications for Standard Gauge (1435 mm) with Wide Rolling Stock, ensuring that infrastructure and track components provide sufficient clearance for wider vehicles on the designated lines	-	-	-	-
	<i>Inspection Schedule of Engineers and Junior Engineers</i>	4	4	-	2
	PC23. conduct regular foot and cab inspections of the track to assess the condition of rails, sleepers, and fastenings, identifying any immediate or potential issues for prompt maintenance action	-	-	-	-
	PC24. inspect curves for alignment, gauge, and wear to ensure they meet safety and operational standards, taking corrective actions if deviations are observed	-	-	-	-
	PC25. inspect points and crossings for proper alignment, wear, and functionality, ensuring safe movement across junctions and implementing adjustments or repairs as needed	-	-	-	-
	PC26. perform detailed inspections of Long Welded Rail (LWR) and Continuous Welded Rail (CWR) track sections, checking for track stability and any signs of rail stress or buckling	-	-	-	-
	PC27. accompany track recording and OMS operations to observe data collection, assist with inspections, and address any identified irregularities in real-time	-	-	-	-
	PC28. oversee the execution of works affecting track conditions, ensuring that all maintenance and construction work complies with safety standards and has minimal operational disruption	-	-	-	-
	PC29. implement emergency response actions by securing the track, coordinating with relevant teams, and ensuring that appropriate protection and caution measures are in place	-	-	-	-
	PC30. maintain and organize stores and inventory, ensuring that all essential track materials and equipment are available, in good condition, and correctly documented	-	-	-	-
	PC31. update all relevant inspection and maintenance registers regularly, ensuring accurate reporting and compliance with Metro standards for documentation and record-keeping	-	-	-	-
	Total Marks	20	20	-	10
DMR/LSC/N0401: Use P-Way tools and equipment for track inspection maintenance	<i>P-Way Tools and Equipment</i>	20	20	-	10
	PC1. identify and correctly use tools and equipment specific to point and crossing inspection, e.g. gauge measuring tools, track jacks, and alignment bars, ensuring accurate measurement and alignment checks during maintenance operations	-	-	-	-
	PC2. identify and properly use tools and equipment for curve and SEJ inspection, e.g. versine measurement tools, alignment gauges, and thermometers, to accurately assess curve alignment, super-elevation, and SEJ functionality	-	-	-	-
	PC3. identify and accurately use tools and equipment for measuring toe load and	-	-	-	-

	ensure the correct installation and maintenance of ballastless and ballasted track fittings				
	PC4. identify and correctly use tools and equipment required for buffer stop inspection, including measurement tapes for distance checks, alignment bars for positional accuracy, and torque wrenches for securing fastenings	-	-	-	-
	PC5. operate the tools and equipment specific to Oscillation Monitoring System (OMS), Ultrasonic Flaw Detection (USFD), and Miniprof applications, using them to measure track geometry, detect internal rail flaws, and assess rail profiles for wear and alignment	-	-	-	-
	PC6. identify and use the Calipri measurement tool and the track geometry trolley, to record track parameters like rail profile, gauge, cross-level, and alignment, ensuring that track geometry meets specified tolerances and safety standards	-	-	-	-
	PC7. identify and correctly use tools and equipment, including lifting slings, clamps, and the gantry crane, to safely handle, lift, and position P.Way materials such as rails, sleepers, and fastenings	-	-	-	-
	PC8. operate tools and equipment for greasing curves, including manual and automated greasing machines, applying appropriate lubrication to the outer rail of curves to reduce friction and wear, while ensuring even and controlled application	-	-	-	-
	PC9. use appropriate tools and equipment for packing sleepers, such as ballast tamping tools, track jacks, and packing hammers, to compact ballast under sleepers, ensuring proper support, alignment, and stability of the track	-	-	-	-
	PC10. identify and correctly operate tools and equipment specific to AT welding, including crucibles, molds, pre-heating torches, and grinding machines, to safely and effectively execute rail welding, ensuring strong, defect-free welds	-	-	-	-
	Total Marks	20	20	-	10
DMR/LSC/N0406: Coordinate construction, maintenance, and inspection in Metro projects	<i>Overview of Construction Activities in Metro</i>	<i>2</i>	<i>2</i>	<i>-</i>	<i>1</i>
	PC1. identify the main construction stages and components of underground and elevated metro stations, including excavation, foundation laying, and superstructure construction	-	-	-	-
	PC2. identify the appropriate tools and equipment for constructing viaducts and bridges, including U girders, single and twin segmental box girders, and I-girders	-	-	-	-
	PC3. identify special spans, including cantilever and extra dosed bridge spans, and the specific equipment and support structures required to construct and stabilize the spans	-	-	-	-
	PC4. apply the cut-and-cover method and top-bottom and bottom-up techniques, understanding their applications in constructing metro tunnels within densely populated urban environments	-	-	-	-
	PC5. identify the basic operations of Tunnel Boring Machines (TBMs), including the equipment setup, tunneling stages, and safety protocols essential for efficient and safe TBM usage in metro tunneling	-	-	-	-

PC6.	apply the New Austrian Tunneling Method (NATM) in controlled ground excavation and use shotcrete for tunnel support, ensuring stability and safety in tunnel construction	-	-	-	-
<i>Metro Station Building - Elevated & Underground</i>		2	2	-	1
PC7.	identify the functions and access points of key components of elevated and underground Metro stations, including system rooms like the Station Master Room (SMR), Central Control Center (CCC), Emergency Fire Office (EFO), Tunnel Ventilation Room, and structures like Pre-Engineered Building (PEB)	-	-	-	-
PC8.	identify the common maintenance requirements for station building components such as false ceilings, false flooring, fire doors, and glasswork, explaining appropriate materials and methods for upkeep and repair to maintain safety and aesthetic standards	-	-	-	-
PC9.	apply the correct procedures for maintenance work in public areas, including use of barricades to secure areas, adherence to the hot work permit system, and ensuring minimal disruption to passengers during repairs in operational stations	-	-	-	-
PC10.	update and maintain station registers such as the Petty Repair Register, and categorize defects (A, B, C) as per Metro guidelines, conducting joint inspections with relevant wings and ensuring comprehensive documentation of maintenance activities	-	-	-	-
<i>Duties and Responsibilities of Works Junior Engineer</i>		1	1	-	1
PC11.	perform inspections for stations, colonies, depots, bridges, tunnels, and influence zones (viaducts & tunnels), noting observations in relevant registers and coordinating joint inspections with other departments per specified frequencies	-	-	-	-
PC12.	record inspection findings in designated registers and document follow-up actions to ensure timely compliance	-	-	-	-
PC13.	oversee routine and inspection-driven maintenance, prioritizing tasks that impact passenger safety, and ensure all works meet Metro standards	-	-	-	-
<i>Viaducts/Bridge/Foundation/Steel Structure - Inspection & Maintenance</i>		2	2	-	1
PC14.	inspect concrete and steel spans, documenting findings in the Bridge Inspection Register and following procedures for POT/PTFE and neoprene bearing checks per IRC 83 standards	-	-	-	-
PC15.	examine bearings for shear and compression limits, referencing IRC codes, IRICEN, and RDSO guidelines for compliance	-	-	-	-
PC16.	oversee viaduct maintenance activities, including structural repairs like jacketing, anti-carbonation painting, and drainage system repairs on elevated spans, according to the viaduct maintenance manual	-	-	-	-
PC17.	record all observations and track compliance in maintenance registers to ensure follow-up on inspection and maintenance actions	-	-	-	-
<i>Horticulture Works in O&M</i>		2	2	-	1

PC18.	oversee horticulture maintenance for trees, shrubs, lawns, hedges, and seasonal flowers in Metro operations	-	-	-	-
PC19.	follow the scheduled care and upkeep of horticulture items, ensuring seasonal maintenance of plants per Metro guidelines	-	-	-	-
PC20.	apply Delhi Schedule of Rates (DSR) standards to horticulture work, maintaining quality and cost compliance	-	-	-	-
PC21.	monitor horticulture contracts, ensuring that contractors meet Metro's requirements and schedules for landscape maintenance	-	-	-	-
<i>Maintenance of Stations Elevated and Underground</i>		2	2	-	1
PC22.	oversee the painting of steel structures, external and internal building surfaces, ensuring adherence to maintenance schedules and quality standards	-	-	-	-
PC23.	inspect and maintain false ceiling and flooring systems, including repairs and replacements as needed to ensure functionality and aesthetics	-	-	-	-
PC24.	oversee repairs and maintenance of flooring and cladding materials such as Kota stone, granite (dry and wet cladding), tiles, and yellow tactile surfaces to maintain durability and safety	-	-	-	-
PC25.	oversee the replacement or repair of fire door accessories, including locks, panic bars, and related components, ensuring compliance with safety standards	-	-	-	-
PC26.	maintain paving stones, kerb stones, and external façades of station buildings to preserve structural integrity and aesthetics	-	-	-	-
PC27.	ensure the upkeep of public amenities, including regular maintenance of toilets and fittings in disabled-accessible toilets, addressing wear and tear promptly	-	-	-	-
<i>Maintenance of Tunnels</i>		2	2	-	0.5
PC28.	inspect and maintain tunnel cross-sectional elements, including walkways, fire pipelines, PTM lines, valves, cross passages, and doors to ensure functionality and safety	-	-	-	-
PC29.	conduct detailed inspections of tunnels and underground station shafts (e.g., fire shafts, mid-tunnel shafts), documenting findings in the Tunnel Inspection Register	-	-	-	-
PC30.	check and maintain cross-passage doors and other fire doors in tunnels, ensuring they are operational and compliant with safety regulations	-	-	-	-
PC31.	identify and treat leakages in underground structures using waterproofing techniques, maintaining expansion joints to ensure structural integrity	-	-	-	-
<i>Concrete Technology and Pre-stressed Concrete</i>		1	1	-	0.5
PC32.	perform grading of aggregates and evaluate its importance, ensuring quality control of cement and water through standard testing methods	-	-	-	-
PC33.	oversee accurate batching, mixing, placing, and consolidation of concrete, adhering to quality standards for durability and uniformity	-	-	-	-
PC34.	implement appropriate curing methods (curing compounds, membrane curing) to ensure optimal concrete strength and longevity	-	-	-	-
PC35.	apply suitable admixtures and manage the use of ready-mixed concrete to	-	-	-	-

	enhance workability and achieve project specifications				
PC36.	coordinate pre-stressing and post-tensioning, ensuring proper application and performance of pre-stressed concrete	-	-	-	-
	<i>Metro Building Specifications</i>	1	1	-	0.5
PC37.	coordinate earthwork activities, ensuring adherence to Metro technical specifications for excavation, filling, compaction, and disposal of surplus earth	-	-	-	-
PC38.	monitor concrete production and placement, ensuring compliance with Metro specifications for mix design, strength, and durability	-	-	-	-
PC39.	inspect and oversee the installation and removal of formwork, ensuring it meets Metro standards for alignment, stability, and finish quality	-	-	-	-
PC40.	verify reinforcement placement, including cutting, bending, and binding, as per Metro specifications for spacing, lap lengths, and anchorage	-	-	-	-
PC41.	implement waterproofing measures for building structures, ensuring materials and methods conform to Metro standards for leak prevention and durability	-	-	-	-
PC42.	inspect and ensure proper installation of roof sheeting materials, adhering to Metro guidelines for weatherproofing and load-bearing capacity	-	-	-	-
PC43.	oversee road construction and maintenance, ensuring compliance with Metro specifications for subgrade, pavement layers, and surfacing	-	-	-	-
PC44.	monitor building works, including masonry, plastering, and finishing, to ensure alignment with Metro technical specifications and quality standards	-	-	-	-
	<i>Water Supply</i>	1	1	-	0.5
PC45.	inspect and manage water supply systems in elevated and underground stations, including bore wells, DJB supply, and PTM pipelines, ensuring functionality and compliance	-	-	-	-
PC46.	oversee bore well redevelopment and maintenance of bore well pumps, coordinating with the E&M wing for seamless operation	-	-	-	-
PC47.	conduct water sampling and testing per IS 10500:1991 standards, ensuring the quality of drinking water through periodic checks and external validation	-	-	-	-
PC48.	coordinate cleaning of storage tanks and manage water distribution in stations, colonies, and depots, ensuring proper use of valves and meters in compliance with Metro's water policy	-	-	-	-
PC49.	oversee the maintenance of water treatment plants, including softening plants and RO systems, as per contract BOQs, ensuring water quality in depots and staff quarters	-	-	-	-
PC50.	inspect and maintain rainwater harvesting systems installed in depots, stations, and viaducts, ensuring optimal performance	-	-	-	-
PC51.	coordinate maintenance of fire systems, including pipelines, specifications, fittings, and firefighting contract items, ensuring readiness and safety standards compliance	-	-	-	-
	<i>Sanitation</i>	1	1	-	0.5
PC52.	inspect and maintain drainage and sewerage systems in stations, colonies, and	-	-	-	-

	depots, including surface drainage and sewer lines, ensuring effective operation and timely cleaning				
	PC53. oversee maintenance of sanitary installations such as septic tanks, soak pits, and bio-digesters, ensuring compliance with standard specifications for water supply fittings	-	-	-	-
	PC54. coordinate the operation and maintenance of STP/ETP plants of various types and capacities installed in Metro, ensuring adherence to the maintenance contract BOQ and functionality standards	-	-	-	-
	<i>PTM Pipeline</i>	1	1	-	0.5
	PC55. inspect the layout of PTM pipelines, including the configuration of the PTM pumping room and the various pumps installed	-	-	-	-
	PC56. ensure compliance with specifications of pipelines used in Metro, including material type, pressure ratings, and durability	-	-	-	-
	PC57. inspect various fittings and valves installed in the PTM pipeline system, ensuring their proper function	-	-	-	-
	PC58. coordinate maintenance activities of PTM pipelines and related components as per typical maintenance contract BOQs, ensuring all operations meet performance and safety standards	-	-	-	-
	<i>Estimates</i>	1	1	-	0.5
	PC59. prepare detailed estimates for metro projects, incorporating DSR and NDSR items, ensuring alignment with metro technical guidelines	-	-	-	-
	PC60. conduct rate analysis, including a market survey of new items, and utilize methodologies like considering three latest LARs for accurate costing	-	-	-	-
	PC61. submit estimates for vetting by the Finance wing, ensuring compliance with 's financial procedures and documentation standards	-	-	-	-
	<i>Tender and Contract for Works and Standard Specifications</i>	1	1	-	0.5
	PC62. interpret and apply general and special conditions of contract in the preparation and execution of contract agreements	-	-	-	-
	PC63. verify the proper submission of earnest money and security deposits as per tender guidelines	-	-	-	-
	PC64. assist in tender evaluation by the tender committee, ensuring adherence to procedures for delayed or late tenders	-	-	-	-
	PC65. monitor contractor classifications, manage advance payments, and ensure the application of liquidated damages in case of contract delays	-	-	-	-
	Total Marks	20	20	-	10
DMR/LSC/N0404: Conduct site visits for the inspection and maintenance of viaducts, stations, and treatment plants	<i>Site Visit to Inspect Viaduct/Bridge</i>	6	6	-	4
	PC1. ensure necessary tools, inspection forms, and safety gear are prepared and carried for the site visit	-	-	-	-
	PC2. conduct detailed inspections of viaduct/bridge elements, including concrete and steel spans, bearings (POT/PTFE and neoprene), joints, and drainage systems, to identify defects or maintenance needs	-	-	-	-

	PC3. record inspection findings accurately in the Bridge Inspection Register, noting observations such as shear/compression limits of bearings and structural condition	-	-	-	-
	PC4. assess compliance of viaduct/bridge conditions with standards and best practices by referring to IRC, IRICEN, and metro manuals	-	-	-	-
	PC5. recommend maintenance activities like repair of structural elements, drainage systems, and anti-carbonation treatments, and ensure proper follow-up through compliance recording	-	-	-	-
	<i>Station Visit and Maintenance Overview</i>	8	8	-	3
	PC6. coordinate with JE/Works and other relevant staff to gather station inspection schedules, tools, and checklists	-	-	-	-
	PC7. conduct detailed inspections of station components such as false ceilings, false floorings, external and internal painting, fire doors (including locks and panic bars), and other station building elements to assess their condition and maintenance needs	-	-	-	-
	PC8. participate in joint inspections with officials from different wings, ensuring collaborative identification and prioritization of maintenance tasks	-	-	-	-
	PC9. record inspection findings in relevant formats, including defects identified, category of maintenance needs (A, B, C), and proposed timelines for resolution, as per station inspection protocols	-	-	-	-
	PC10. ensure recommendations from the joint inspection report are communicated and monitored for timely action and compliance with metro standards	-	-	-	-
	<i>Site Visit to WTP, STP, and ETP</i>	6	6	-	3
	PC11. collect technical documentation, maintenance schedules, and operational logs for the Water Treatment Plant (WTP), Sewage Treatment Plant (STP), and Effluent Treatment Plant (ETP) to understand the scope of inspection	-	-	-	-
	PC12. conduct inspections of key components, including pipelines, pumps, valves, treatment tanks, filtration systems, and chemical dosing systems, to assess functionality and compliance with standards	-	-	-	-
	PC13. review the maintenance history, performance parameters, and upkeep of treatment processes, ensuring adherence to routine and preventive maintenance schedules	-	-	-	-
	PC14. observe plant operations, including water purification, sewage processing, and effluent treatment procedures, to ensure compliance with environmental regulations and metro policies	-	-	-	-
	PC15. document inspection findings, highlight any irregularities or maintenance needs, and propose corrective actions, ensuring alignment with plant operation protocols and maintenance contracts	-	-	-	-
Total Marks		20	20	-	10
DGT/VSQ/N0101: Employability Skills (30)	<i>Introduction to Employability Skills</i>	1	1	-	-
	PC1. understand the significance of employability skills in meeting the job	-	-	-	-

Hours)	requirements				
	<i>Constitutional values – Citizenship</i>	1	1	-	-
PC2.	identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
	<i>Becoming a Professional in the 21st Century</i>	1	3	-	-
PC3.	explain 21st Century Skills such as Self- Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.	-	-	-	-
	<i>Basic English Skills</i>	2	3	-	-
PC4.	speak with others using some basic English phrases or sentences	-	-	-	-
	<i>Communication Skills</i>	1	1	-	-
PC5.	follow good manners while communicating with others	-	-	-	-
PC6.	work with others in a team	-	-	-	-
	<i>Diversity & Inclusion</i>	1	1	-	-
PC7.	communicate and behave appropriately with all genders and PwD	-	-	-	-
PC8.	report any issues related to sexual harassment	-	-	-	-
	<i>Financial and Legal Literacy</i>	3	4	-	-
PC9.	use various financial products and services safely and securely	-	-	-	-
PC10.	calculate income, expenses, savings etc.	-	-	-	-
PC11.	approach the concerned authorities for any exploitation as per legal rights and laws	-	-	-	-
	<i>Essential Digital Skills</i>	4	6	-	-
PC12.	operate digital devices and use its features and applications securely and safely	-	-	-	-
PC13.	use internet and social media platforms securely and safely	-	-	-	-
	<i>Entrepreneurship</i>	3	5	-	-
PC14.	identify and assess opportunities for potential business	-	-	-	-
PC15.	identify sources for arranging money and associated financial and legal challenges	-	-	-	-
	<i>Customer Service</i>	2	2	-	-
PC16.	identify different types of customers	-	-	-	-
PC17.	identify customer needs and address them appropriately	-	-	-	-
PC18.	follow appropriate hygiene and grooming standards	-	-	-	-
	<i>Getting ready for apprenticeship & Jobs</i>	1	3	-	-
PC19.	create a basic biodata	-	-	-	-
PC20.	search for suitable jobs and apply	-	-	-	-
PC21.	identify and register apprenticeship opportunities as per requirement	-	-	-	-
	Total Marks	20	30	-	-
	Grand Total	160	170	-	70

Annexure 7: Assessment Strategy

This section includes the processes involved in identifying, gathering, and interpreting information to evaluate the Candidate on the required competencies of the program.

1. Assessment System Overview:

- Batches assigned to the assessment agencies for conducting the assessment on SIDH
- The batch allocation Matrix prepared for each month based on previous months' performance of AAs, which determines the quantum of Assessment which can be allocated to each AA for a month
- Post allocation of assessment, Assessment agencies send the assessment confirmation to AB
- Assessment agency deploys the ToA certified Assessor for executing the assessment
- AB monitors the assessment process.

2. Testing Environment:

- A combination of Theory and practical/demonstration test is deployed to assess knowledge and Skill respectively of Learners.
- Assessment is conducted at Training center in in-person/offline mode
- For Skill assessment, environment is simulated to create a realistic Working Environment that should replicate the key features of the workplace. In job roles, where it is difficult to replicate the same, the OJT assessment is implemented.
- During the practical task, trainees are assessed on their workmanship, quality of finished product, time management, etc., based on the performance criteria (PC), knowledge and understanding and their professional and soft skills as specified in the qualification pack.
- Knowledge assessment is done through closed ended questions up to level 4 and from level 5 onwards, it is mixture of open ended and closed ended questions

3. Assessment Quality Assurance levels/Framework

- Assessment criteria is developed for each QP which acts as a guide for developing question set /banks
- Sample questions aligned with Assessment criteria for each QP are developed by AB and validated by industry
- Taking reference of Assessment criteria and Sample Questions, AAs create the question bank which is further validated by AB
- Questions are mapped to the specified assessment criteria
- It is mandatory that Assessor and Trainer must be ToA certified & ToT Certified respectively
- Continuous Monitoring through virtual and In-person mode are conducted to ensure the assessment is conducted as per stipulated process
- Process and Technical audit of assessment batches by quality team are conducted to avoid the errors in assessment process
- A well -defined comprehensive framework of NON-COMPLIANCE MATRIX is defined and implemented to identify the non-compliance made by assessor and AA and punitive actions are taken correspondingly.
- The capacity building sessions are conducted regularly for assessors and assessment agencies to update them about best practices in assessment

4. Types of evidence or evidence-gathering protocol:

- Post Assessment, the evidences are uploaded by Assessor to assessment agency and further assessment agency to AB as per stipulated TAT
- Evidences are broadly the photographic and video graphic in nature
- Assessment agencies upload the evidence on SIDH and detailed evidence on AB digital platform (ZoHO)
- Evidences are; NOS wise-Geotagged photographs and videos of Theory Test & Practical Tasks, Attendance sheet, result summary sheet, group photographs.

5. Method of verification or validation:

- The process and technical audit of assessment batches are done by AB
- Attendance of each candidate is verified and it is ensured that only those candidates are assessed by assessors who are meeting the stipulated minimum percentage of attendance

- The result of each candidate is verified, it is verified that that result on SIDH are matching with respect to summary sheet submitted by AAs
- Under detailed technical audit for sample of batches, the knowledge and skill assessment results for each candidate is checked in technical aspect.
- All the evidences of batches are preserved on server of AB digital platform

On the Job Training:

On job training (OJT), candidates undergo training and leaning at actual workplace for a fixed period of time and a certain weightage of assessment is allocated out of total skill weightage of Qualification Pack for undergoing OJT as stipulated by DMRC Academy. This OJT score and assessors' end point score are combined to arrive at final Marking/grading of trainees' skill test. The OJT score is determined by Supervisor of company under which candidates undergo on job training.

Annexure 8: Acronym and Glossary

Acronym

Acronym	Description
AA	Assessment Agency
AB	Awarding Body
ISCO	International Standard Classification of Occupations
NCO	National Classification of Occupations
NCrF	National Credit Framework
NOS	National Occupational Standard(s)
NQR	National Qualification Register
NSQF	National Skills Qualifications Framework
OJT	On the Job Training
DMRA	Delhi Metro Rail Academy
MR	Metro Railway
PSI	Power Supply Installation
SCADA	Supervisory Control and Data Acquisition
OHE	Overhead Electrification
DERC	Delhi Electricity Regulatory Commission
HERC	Haryana Electricity Regulatory Commission
UPPCL	Uttar Pradesh Power Corporation Limited
RSS	Remote Sub-Station
PTW	Permit to Work
TPC	Traction Power Controller
OCC	Operations Control Center
CBs	Circuit Breakers
CT	Current Transformer
PT	Potential Transformer
LA	Lightning Arrestor
GIS	Gas Insulated Switchgear
BDV	Breakdown Voltage
DGA	Dissolved Gas Analysis
SAS	Substation Automation System
LVS	Low Voltage Switchgear
ROCS	Railway Overhead Catenary System
ATD	Auto Tensioning Device
DPR	Daily Progress Report
SHPK	Sub Head Post Kiln
CMV	Control and Monitoring Voltage
OMV	Operating and Monitoring Voltage
SIDH	Skill India Digital Hub

Glossary

Term	Description
National Occupational Standards (NOS)	NOS define the measurable performance outcomes required from an individual engaged in a particular task. They list down what an individual performing that task should know and also do.
Qualification	A formal outcome of an assessment and validation process which is obtained when a competent body determines that an individual has achieved learning outcomes to given standards
Qualification File	A Qualification File is a template designed to capture necessary information of a Qualification from the perspective of NSQF compliance. The Qualification File will be normally submitted by the awarding body for the qualification.
Sector	A grouping of professional activities on the basis of their main economic function, product, service or technology.
Long Term Training	Long-term skilling means any vocational training program undertaken for a year and above. https://ncvet.gov.in/sites/default/files/NCVET.pdf