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GENERATOR MECHANIC



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TRAINER GUIDE

National Vocational Certificate Level 1

Version 1 - November, 2019



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1. Introduction

Competence-based training helps to bridge the gap between what is taught in training and what tasks will be performed on the job. Training trainees to perform actual job functions helps to ensure that future front-line workers have the skills, knowledge and abilities required to perform their jobs properly, safely and effectively. In addition to competence-based training, assessment based on the performance of actual work competencies helps to ensure that:

- trainees are performing their work tasks as safely as possible
- performance gaps are recognized prior to serious incidents
- training can be implemented to improve competence.

There are significant benefits to competence-based training:

1.1. Cost effectiveness

Since training activities and assessments in a competence-based approach are goal-oriented, trainers focus on clearly defined areas of skills, knowledge and understanding that their own industry has defined in the competence standards. At the same time, trainees are more motivated to learn when they realize the benefits of improved performance.

1.2. Efficiency

The transfer gap between the training environment and working on the job is reduced substantially in a competence-based approach. This is because training and assessment are relevant to what needs to be done on the job. As a result, it takes less time for trainees to become competent in the required areas. This, in turn, contributes to improved efficiency where training and assessment are concerned.

1.3. Increased productivity

When trainees become competent in the competence standards that their own industry has defined, when they know what the performance expectations are and receive recognition for their abilities through successful assessments, they are likely to be more motivated and experience higher job satisfaction. The result is improved productivity for organizations. The communication and constructive feedback between future employers and employees will improve as a result of a competence-based approach, which can also increase productivity.

1.4. Reduced risk

Using a competence-based approach to training, development, and assessment, employers are able to create project teams of people with complementary skills. A trainee's record of the skills, knowledge and understanding relating to the competence standards they have achieved can be used by a future employer to identify and provide further relevant training and assessment for new skills areas. Competence standards can shape employee development and promotional paths within an organization and give employees the opportunity to learn more competencies beyond their roles. It can also provide organizations with greater ability to scale and flex as needed, thereby reducing the risk they face.

1.5. Increased customer satisfaction

Employees who have been trained and assessed using a competence-based approach are, by the definition of the relevant competence standards, able to perform the required tasks associated with a job. The knock-on effect is that, in service-related industries, they are able to provide high service levels, thereby increasing customer satisfaction. In production or manufacturing industries, they are able to work closely to industry standards in a more effective and efficient way.

2. Lesson plans

This manual provides a series of lesson plans that will guide delivery of each module for the Generator Mechanic Level 1 qualification. It is important for trainers to be flexible and be ready to adapt lesson plans to suit the context of the subject and the needs of their trainees.

Good teachers acknowledge that CBT means each and every trainee in the class learns at a different speed. The good teacher is prepared to throw aside the day's lesson plan and do something different (and unplanned) for the class even if it means 'writing' a lesson plan for each trainee to match their learning pace for that day or week.

Learning by doing is different from learning theory and then applying it. To learn to do something, trainees need someone looking over their shoulder saying 'it's not quite like that, it's like this', 'you do it like this because ...', or even 'tell me why you chose to do it like this?'

In this way, trainees learn that theoretical knowledge is meaningless if it is not seen in the context of what they are doing. In other words, if a trainee doesn't know why they do something, they will not do it competently (skills underpinned by knowledge = competent performer).

This is how a *Generator Mechanic* acquires a practical grasp of the standards expected. It's not by learning it in theory, but because those standards are acquired through correction by people who show what the standards are, and correct the trainee where they do not meet those standards, and where they repeat it correction until they have internalized those standards.

3. Demonstration of skill

Demonstration or modeling a skill is a powerful tool, which is used, in vocational training. The instructions for trainers for demonstration are as under:

- a) Read the procedure mentioned in the Trainer Guide for the relevant Learning Unit before demonstration.
- b) Arrange all tools, equipment and consumable material, which are required for demonstration of a skill.
- c) Practice the skill before demonstration to trainees, if possible.
- d) Introduce the skill to trainees clearly at the commencement of demonstration.
- e) Explain how the skill relates to the skill(s) already acquired and describe the expected results or show the objects to trainees.
- f) Carry out demonstration in a way that can be seen by all trainees.
- g) Use the same tools and materials that the learner will be using.
- h) Go through EACH of the steps involved in performing the skill.
- i) Go SLOWLY - describe each step as it is completed.
- j) Encourage the learners to move around and watch what you are doing from a number of different angles.
- k) Identify critical or complex steps, or steps that involve safety precautions to be followed.
- l) Explain theoretical knowledge where applicable and ask questions to trainees to test their understanding.
- m) Try to involve the learners: Ask them questions about why they think the process may work that way.
- n) Repeat critical steps in demonstration, if required.
- o) Summarize the demonstration by asking questions to trainees.

Involvement in the process (actively seeing) is important at this stage. When you work on getting involved, getting people to participate, you make them a part of what is happening. Questions for clarification or explanation are important throughout the demonstration. It is up to the learners to ask questions about things they do not understand, but it is also important for trainers to seek out and elicit questions from learners. A trainer may need to do repeated demonstrations of difficult or complex skills.

4. Overview of the program

Course: *Generator Mechanic Level 1*

Total Course Duration: 240 Hours

Course Overview:

In this training program trainee will learn and acquire specialized knowledge and practical skills required to function as a Generator mechanic both at domestic and commercial levels. Generator Mechanic will be responsible to maintain personal safety standards and maintain tools and equipment. Generator Mechanic will be responsible for ensuring PPE's, Maintaining First aid box and Fire extinguisher, ensuring safeguard of machines, adopting company policies and procedures, adopting environmental regulations, attaining health and safety training, preparing and responding for emergencies, arranging tools and equipment, maintaining toolbox, insulating tools and equipment, calibrating measuring tools, and managing inventory of tools and equipment. The specific objectives of developing these qualifications are as under:

- Improve the overall quality of training delivery and setting national benchmarks for training of generator mechanic in the country
- Provide flexible pathways and progressions to learners enabling them to receive relevant, up-to-date and recent skills
- Provide basis for competency-based assessment which is recognized and accepted by employers
- Establish a standardized and sustainable system of training for generator mechanic in the country

Module Title and Aim	Learning Units	Theory hours	Workplace hours	Timeframe of Modules
<p>Module 1: Comply with Work Health and Safety Policies</p> <p>Aim: After completing this module, the learner will be able to know skills and knowledge required to apply general work health and safety requirements in the workplace. Communicate work and health safety assess at work place. It describes generic work health and safety responsibilities applicable to employees without managerial or supervisory responsibilities.</p>	<p>LU-1: Work safely at work place LU-2: Communicate work health and safety (WHS) assess at work place LU-3: Minimize risks to personal safety at work place LU-4: Minimize risks to public safety</p>	06	24	30
<p>Module 2: Obey the Workplace Policies and Procedures</p> <p>Aim: After completing this module, the learner will be able to obey the workplace personal appearance and hygiene, follow work ethics, Demonstrate the workplace behavior, Communicate the workplace policy and procedure and review the implementation of workplace policy and procedures.</p>	<p>LU-1: Obey the workplace personal appearance and hygiene LU-2: Follow work ethics LU-3: Demonstrate the Work place behaviors LU-4: Communicate workplace policy & procedures LU-5: Review the implementation of workplace policy & procedures</p>	04	16	20

<p>Module 3: Follow Basic Communication Skills (General)</p> <p>Aim: After completing this module, the learner will be able to listen attentively, develop non-verbal communication, and identify communication barriers, interview preparation for job and different communication platforms in the workplace and throughout your career.</p>	<p>LU-1: Adopt Effective listening to Skills LU-2: Develop Nonverbal communication with peers LU-3: Prepare for Interview to get a job LU-4: Use communication platform at workplace LU-5: Identify communication barriers to improve interpersonal skills</p>	10	40	50
<p>Module 4: Operate Computer Functions (General).</p> <p>Aim: After completing this module, the learner will be able to have skills and knowledge required to setup a computer system, organize files in folders, and shutdown a computer system.</p>	<p>LU1. Set up the computer for use LU2. Organize files in folder LU3. Shut down computer system</p>	10	40	50
<p>Module 5: Identify Tools & Equipment</p> <p>Aim: After completing this module, the learner will be able to arrange tools/equipment, maintain tool box, calibrate measuring tools and manage proper inventory of used/unused tools/equipment</p>	<p>LU1: Arrange Tools and Equipment LU2: Maintain Tool Box LU3: Insulate Tools and Equipment LU4: Calibrate measuring tools LU5: Manage Inventory of tools and equipment</p>	16	34	50
<p>Module 6: Identify Generators & its Components</p> <p>Aim: After completing this module, the learner will be able to identify generator and its engine parts, identify components/attachments, identify capabilities of Generator and Identify basic tools and supplies</p>	<p>LU1. Identify generator and its engine LU2. Identify components & attachments LU3. Identify capacity of generator LU4. Identify capabilities of generator LU5. Identify basic tools and supplies associated with generator</p>	10	30	40
TOTAL		56	184	240

4.1. Lesson Plan of Module - 05

Module 05:

Maintain Tools & Equipment

Learning Unit

LU-1: Arrange tools and equipment

LU-2: Maintain Tool Box

LU-3: Insulate Tools and Equipment

LU-4: Calibrate measuring tools

LU-5: Manage Inventory of tools and equipment

Learning Outcomes

Trainee will be able to maintain tools and equipment for generator Mechanic. Trainee will be able to understand various tools and equipment and their maintenance. Trainee will be able to Arrange tools and equipment maintain tool box, insulate tools and equipment, calibrate measuring tools and Manage Inventory of tools/Equipment.

Methods:

Through
Multimedia
Presentations
and Physical
demonstration
of machines

Key Notes:

Tools and Equipment
Maintaining Tool Box
Insulation of Tools and Equipment
Calibration of measuring Tools
Managing Inventory of Tools/Equipment

Media:

Multimedia

Time:

50 hrs.

Introduction

Introduction to Maintaining Tools and Equipment, Identification of Tools and equipment, Maintaining Tool Box, Insulating Tools and Equipment, Calibrating measuring tools, Managing inventory of tools and equipment.

Main Body

- Define various tools and equipment and their functions
- Define Job card/work order
- Describe arrangement of tools/equipment as per job
- Differentiate between corrective and preventive maintenance
- Describe arrangements of tools and equipment in tool box
- Explain storage methods of tools and equipment
- Define insulation procedure
- Describe types of insulation
- Describe methods of insulated tools and equipment
- Describe types of calibration
- Describe methods of equipment calibration
- Explain methods of tools and equipment inventory
- Elaborate writing of faulty tools and equipment.

Conclusion

Various tools and equipment and their function, Maintenance of toolbox, Insulation of Tools and equipment, Calibration of measuring tools, Managing inventory of tools and equipment.

Assessment

Ask learners

Name various tools and equipment and their function?

What is the importance of insulating tools and equipment?

What is the importance of calibrating measuring tools?

Total time:

50 Hrs.

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Module-5

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Module 5: Maintain Tools and Equipment

Learning Unit	Suggested Teaching / Learning Activities	Delivery Context	Media
<p>LU1: Arrange Tools and Equipment</p>	<p>Deliver an illustrated presentation on arranging tools and equipment. Ensure you address the importance of the following points:</p> <ul style="list-style-type: none"> • Identifying tools and equipment • Interpreting job card • Preparing list of tools and equipment as per requirement • Collecting tools and equipment from store <p>Display a slide or flip chart with a key question relating to arranging tools and equipment.</p> <p>Step 1 – Think</p> <p>Working on their own, each learner thinks about the question and makes notes of their responses or key points which they believe to be important.</p> <p>Step 2 – Pair</p> <p>For the next step, each learner pairs up with a partner. The two learners exchange their ideas and make further notes to add clarity to their own ideas.</p> <p>Step 3 – Share</p> <p>The final step is for you to invite different pairs to share the ideas they have discussed in response to the key question relating to arranging tools and equipment.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to arranging tools and equipment in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>	<p>Class room with multimedia aid, audio-visual facilities and flip charts</p> <p>Workshop or Workplace</p>	<ul style="list-style-type: none"> • PPT Presentations. • Videos • Whiteboard • Learning guide • Job card • Tools
<p>LU2: Maintain Toolbox</p>	<p>Deliver an illustrated presentation on maintaining toolbox. Ensure you address the importance of the following points:</p> <ul style="list-style-type: none"> • Checking physical conditions of tools and equipment before use • Performing preventive maintenance as per standards • Performing corrective maintenance of tools as per requirements 	<p>Class room with multimedia aid, audio-visual</p>	<ul style="list-style-type: none"> • PPT Presentations. • Videos • Whiteboard

Module 5: Maintain Tools and Equipment			
Learning Unit	Suggested Teaching / Learning Activities	Delivery Context	Media
	<ul style="list-style-type: none"> Cleaning tools and equipment after use Placing tools and equipment at appropriate place <p>Prepare either:</p> <ul style="list-style-type: none"> A flip chart / A PowerPoint slide / A handout <p>...showing the key topics about maintaining toolbox. Go through all the key topics briefly and then allocate one key topic to each group.</p> <p>Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record three main points from their discussions that relate to their key topic.</p> <p>After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for maintaining toolbox. Discuss these main points briefly with the whole group. Learners should make additional notes on the flip chart to record additional points their group had not identified.</p> <p>Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics.</p> <p>End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to maintaining toolbox in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>	<p>facilities and flip charts</p> <p>Workshop or Workplace</p>	<ul style="list-style-type: none"> Learning guide Tools Box
<p>LU3: Insulate tools and equipment</p>	<p>Lead a brainstorm on insulating tools and equipment. Use ideas from the brainstorm to explain the following key points</p> <ul style="list-style-type: none"> Selecting insulated tools and equipment Adopting insulated tools and equipment as per standards <p>Display a slide or flip chart with a key question relating to insulating tools and equipment.</p> <p>Step 1 – Think</p> <p>Working on their own, each learner thinks about the question and makes notes of their responses or key points which they believe to be important.</p>	<p>Class room with multimedia aid, audio-visual facilities and flip charts</p>	<ul style="list-style-type: none"> PPT Presentations. Videos Whiteboard Learning guide

Module 5: Maintain Tools and Equipment			
Learning Unit	Suggested Teaching / Learning Activities	Delivery Context	Media
	<p>Step 2 – Pair</p> <p>For the next step, each learner pairs up with a partner. The two learners exchange their ideas and make further notes to add clarity to their own ideas.</p> <p>Step 3 – Share</p> <p>The final step is for you to invite different pairs to share the ideas they have discussed in response to the key question relating to insulating tools and equipment.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to insulating tools and equipment in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>	Workshop or Workplace	
<p>LU4: Calibrate measuring tools</p>	<p>Lead a discussion about importance of calibrating measuring tools. Use real examples to support the discussion and ensure the discussion considers:</p> <ul style="list-style-type: none"> • Checking calibration status of the measuring tools • Performing calibration of measuring tools as per standards • Recording calibration test results <p>Prepare either:</p> <ul style="list-style-type: none"> • A flip chart • A PowerPoint slides • A handout <p>...showing key topics for calibrating measuring tools. Learners need to work in small groups discussing the key topics. Each group should make notes from their discussions that identify three main points that related to each key topic.</p> <p>After the discussion, begin the feedback session. Ask one group to share the main points they have recorded for the first key topic for calibrating measuring tools. Discuss these main points briefly with the whole group. Learners should make additional notes to record</p>	Class room with multimedia aid, audio-visual facilities and flip charts	<ul style="list-style-type: none"> • PPT Presentations. • Videos • Whiteboard • Learning guide • Testing Instrument as per requirement

Module 5: Maintain Tools and Equipment

Learning Unit	Suggested Teaching / Learning Activities	Delivery Context	Media
	<p>additional points their group had not identified.</p> <p>Then ask the next group to share the main points they have recorded for the second key topic. Repeat the discussion process. Continue until you have covered all the key topics.</p> <p>End the group discussion activity with a summary.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to calibrating measuring tools in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>	Workshop or Workplace	
<p>LU5: Manage Inventory of tools and equipment.</p>	<p>Lead a discussion about managing inventory of tools and equipment. Use real examples to support the discussion and ensure the discussion considers:</p> <ul style="list-style-type: none"> • Checking tools and equipment as per record • Reporting for faulty tools and equipment to supervisor • Generating demand for deficit tools and equipment • Maintaining all records of tools and equipment <p>Display a slide or flip chart with a key question relating to managing inventory of tools and equipment.</p> <p>Step 1 – Think</p> <p>Working on their own, each learner thinks about the question and makes notes of their responses or key points which they believe to be important.</p> <p>Step 2 – Pair</p> <p>For the next step, each learner pairs up with a partner. The two learners exchange their ideas and make further notes to add clarity to their own ideas.</p> <p>Step 3 – Share</p> <p>The final step is for you to invite different pairs to share the ideas they have discussed in response to the key question relating to managing inventory of tools and equipment.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to managing inventory of tools and equipment in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>	<p>Class room with multimedia aid, audio-visual facilities and flip charts</p> <p>Workshop or</p>	<ul style="list-style-type: none"> • PPT Presentations. • Videos • Whiteboard • Learning guide • Inventory Book/ Register

Module 5: Maintain Tools and Equipment

Learning Unit	Suggested Teaching / Learning Activities	Delivery Context	Media
		Workplace	

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Module-6

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Module 6: Identify Generators & its Components			
Learning Unit	Suggested Teaching / Learning Activities	Delivery Context	Media
LU2: Identify components & attachments	<p>Lead a brainstorm on ways to identify components and attachments of generator. Use ideas from the brainstorm to explain the following key points:</p> <ul style="list-style-type: none"> • Identification of alternator. • Identification of fuel pump. • Identification of water pump. • Identification of radiator. • Identification of turbo charger/inter cooler. <p>Display a slide or flip chart with a key question relating to identifying components and attachments of generator.</p> <p>Step 1 – Think Working on their own, each learner thinks about the question and makes notes of their responses or key points which they believe to be important.</p> <p>Step 2 – Pair For the next step, each learner pairs up with a partner. The two learners exchange their ideas and make further notes to add clarity to their own ideas.</p> <p>Step 3 – Share The final step is for you to invite different pairs to share the ideas they have discussed in response to the key question relating to identifying components and attachments. Learners must be able to practice and develop their knowledge and skills relating to identifying components and attachments of generator in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>	<p>Class room with multimedia aid, audio-visual facilities and flip charts</p> <p>Workshop or Workplace</p>	<p>Alternator</p> <p>Fuel pump</p> <p>Water pump</p> <p>Radiator</p> <p>Turbo charger/inter cooler</p>

Frequently Asked Questions

<p>1. What is Competency Based Training (CBT) and how is it different from currently offered trainings in institutes?</p>	<p>Competency-based training (CBT) is an approach to vocational education and training that places emphasis on what a person can do in the workplace as a result of completing a program of training. Compared to conventional programs, the competency-based training is not primarily content based; it rather focuses on the competence requirement of the envisaged job role. The whole qualification refers to certain industry standard criterion and is modularized in nature rather than being course oriented.</p>
<p>2. What is the passing criterion for CBT certificate?</p>	<p>You shall be required to be declared “Competent” in the summative assessment to attain the certificate.</p>
<p>3. What are the entry requirements for this course?</p>	<p>The entry requirement for this course is 8th Grade or equivalent.</p>
<p>4. How can I progress in my educational career after attaining this certificate?</p>	<p>You shall be eligible to take admission in the National Vocational Certificate Level-3 in Leather Products Development Technician (Pattern Maker). You shall be able to progress further to National Vocational Certificate Level-4 in Heavy Construction Machinery Operator Course; and take admission in a level-5, DAE or equivalent course (if applicable). In certain case, you may be required to attain an equivalence certificate from The Inter Board Committee of Chairmen (IBCC).</p>
<p>5. If I have the experience and skills mentioned in the competency standards, do I still need to attend the course to attain this certificate?</p>	<p>You can opt to take part in the Recognition of Prior Learning (RPL) program by contacting the relevant training institute and getting assessed by providing the required evidences.</p>
<p>6. What is the entry requirement for Recognition of Prior Learning program (RPL)?</p>	<p>There is no general entry requirement. The institute shall assess you, identify your competence gaps and offer you courses to cover the gaps; after which you can take up the final assessment.</p>
<p>7. Is there any age restriction for entry in this course or Recognition of Prior Learning program (RPL)?</p>	<p>There are no age restrictions to enter this course or take up the Recognition of Prior Learning program</p>

8. What is the duration of this course?	The duration of the course work is 1,510 hrs. (11 months)
9. What are the class timings?	The classes are normally offered 25 days a month from 08:00am to 01:30pm. These may vary according to the practices of certain institutes.
10. What is equivalence of this certificate with other qualifications?	As per the national vocational qualification's framework, the level-4 certificate is equivalent to Matriculation. The equivalence certificate can be obtained from The Inter Board Committee of Chairmen (IBCC).
11. What is the importance of this certificate in National and International job market?	This certificate is based on the nationally standardized and notified competency standards by National Vocational and Technical Training Commission (NAVTTTC). These standards are also recognized worldwide as all the standards are coded using international methodology and are accessible to the employers worldwide through NAVTTTC website.
12. Which jobs can I get after attaining this certificate? Are there job for this certificate in public sector as well?	You shall be able to take up jobs in the local or overseas construction companies in heavy machinery operator job profile.
13. What are possible career progressions in industry after attaining this certificate?	You shall be able to progress up to the level of supervisor after attaining sufficient experience, knowledge and skills during the job. Attaining additional relevant qualifications may aid your career advancement to even higher levels.
14. Is this certificate recognized by any competent authority in Pakistan?	This certificate is based on the nationally standardized and notified competency standards by National Vocational and Technical Training Commission (NAVTTTC). The official certificates shall be awarded by the relevant certificate awarding body.
15. Is on-the-job training mandatory for this certificate? If yes, what is the duration of on-the-job training?	On-the-job training is not a requirement for final / summative assessment of this certificate. However, taking up on-the-job training after or during the course work may add your chances to get a job afterwards.
16. How much salary can I get on job after attaining this certificate?	The minimum wages announced by the Government of Pakistan in 2019 are PKR 17,500. This may vary in subsequent years and different regions of the country. Progressive employers may pay more than the mentioned amount. The heavy Machinery Operator normally earns 20,000 to 25,000 in the start.
17. Are there any alternative certificates	There are some short courses offered by some training institutes on this subject. Some

which I can take up?	institutes may still be offering conventional certificate courses in the field.
18.What is the teaching language of this course?	The teaching language of this course is Urdu and English.
19.Is it possible to switch to other certificate programs during the course?	There are some short courses offered by some training institutes on this subject. Some institutes may still be offering conventional certificate courses in the field.
20.What is the examination / assessment system in this program?	Competency based assessments are organized by training institutes during the course which serve the purpose of assessing the progress and preparedness of each student. Final / summative assessments are organized by the relevant qualification awarding bodies at the end of the certificate program. You shall be required to be declared “Competent” in the summative assessment to attain the certificate.
21.Does this certificate enable me to work as freelancer?	You can start your small business by purchasing your own heavy construction machine and can start earning 50,000 per month. You may need additional skills on entrepreneurship to support your initiative.

Test Yourself (Multiple Choice Questions)

MODULE: 5

Q1. Instrument for measurement of voltage is known as:

- a. Ammeter
- b. Voltmeter
- c. Ohmmeter
- d. Power factor meter

Q2. Ampere meter is used to measure

- a. Current
- b. Voltage
- c. Frequency
- d. Power

Q3. Tachometer is an instrument used to measure

- a. Rotation or revolution speed of objects.
- b. Temperature.
- c. Distance between objects.
- d. Voltage.

Q4. Which Instrument is used for insulation resistance test?

- a. Clamp meter
- b. Megger
- c. Power factor Meter
- d. Tachometer

Q5. Which statement is correct regarding preventive maintenance?

- a. To change only lubricant and filter timely

- b. To check only fuel system timely
- c. To maintain the vehicle performance at all time
- d. Only to inspect and replace components.
- e.

Q6. Which of the following kinds of maintenance could increase chances of machine operation without breaks for longer duration?

- f. Preventive
- g. Breakdown
- h. Routine
- i. Emergency

MODULE 6:

Q1. In a diesel engine, the fuel is injected by

- a. Spark
- b. Injected fuel
- c. Ignitor
- d. **Heat resulting from compression** air that is supplied from combustion

Q2. A diesel engine has....

- a. One valve
- b. Two valves
- c. **Three valves**
- d. Four valves

Q3. What does a spark plug do?

- a. **Ignites the fuel and air mixture to create energy**
- b. Injects the fuel and air mixture in to combustion chamber
- c. Supply the engine with energy
- d. Injects air in to the intake valve.

Q4. In a petrol engine, the mixture has the lowest pressure at the

- a. Beginning of the suction stroke
- b. **End of suction stroke**
- c. End of compression stroke
- d. Middle of suction stroke

Q5. The radiator is usually made of

- a. Aluminum
- b. **Copper**
- c. Galvanized Iron
- d. Stainless steel

ANSWERS:

MODULE 5: Q1.b Q2.a Q3.a Q4.b Q5.a Q6.c

MODULE 6: Q1.d Q2.c Q3.a Q4.b Q5.b

