071305T4EOP

ELECTRICAL OPERATION (POWER OPTION)

LEVEL 5 ENG/OS/PO/CC/03/5

Perform Workshop Processes

July/August 2024

Time: 3 Hours

TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION COUNCIL (TVET CDACC)

WRITTEN ASSESSMENT

(Answers) By: Careernub.com

3 HOURS

SECTION A (40 Marks)

1. **State three general types of workshop safety.** (3 marks)

- **1. Personal Safety:** Ensuring individual protection through the use of PPE and safe practices.
- **2. Equipment Safety:** Proper handling, maintenance, and usage of tools and machinery.
- **3. Environmental Safety:** Minimizing hazards related to the workshop environment, such as spills, noise, and waste management.

2. **Outline the three categories of document control.** (3 marks)

- **1. Creation:** Processes for the development and initial approval of documents.

- **2. Distribution:** Ensuring documents are accessible to authorized personnel while maintaining security.
- **3. Revision and Archiving:** Managing updates, revisions, and the storage of obsolete documents for reference.

3. **List the key points to remember when storing instruments.** (4 marks)

- **1. Cleanliness:** Ensure instruments are clean before storage to prevent contamination.
- **2. Proper Environment:** Store in a dry, temperature-controlled area to avoid damage.
- **3. Secure Storage:** Use appropriate cases or racks to prevent physical damage.
- **4. Labeling:** Clearly label storage locations for easy identification and access.

4. **Explain the importance of following manufacturer's instructions when using tools.** (2 marks)

- Following manufacturer's instructions ensures safe and effective use of tools, minimizing the risk of accidents and equipment damage, and maintaining warranty validity.

5. **List three main reasons for instruments calibration.** (3 marks)

- **1. Accuracy:** Ensures measurements are precise and reliable.
- **2. Compliance:** Meets regulatory and industry standards.
- **3. Performance Verification:** Confirms that instruments are functioning correctly and effectively.

6. **Highlight four ways of complying with the Waste Regulations.** (4 marks)

- **1. Proper Segregation:** Separate hazardous from non-hazardous waste.
- **2. Safe Disposal:** Use licensed waste disposal services for hazardous materials.
- **3. Documentation:** Maintain records of waste disposal activities.
- **4. Employee Training:** Educate staff on waste management practices and regulations.

7. **State any four reasons for record keeping in an electrical workshop.** (4 marks)

- **1. Compliance:** Ensures adherence to regulations and standards.
- **2. Safety Improvement:** Tracks incidents and safety measures taken.
- **3. Maintenance History:** Provides a log of equipment maintenance and repairs.
- **4. Operational Efficiency:** Helps in planning and resource allocation.

8. **List four Regulations for health and safety at work.** (4 marks)

- **1. Occupational Safety and Health Act (OSHA)**
- **2. Control of Substances Hazardous to Health (COSHH)**
- **3. Health and Safety at Work Act**

- **4. Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR)**

9. **State any three activities to be carried out in preparing a workshop for the next task ahead.** (3 marks)

- **1. Clean and organize the workspace.**
- **2. Inspect tools and equipment for readiness.**
- **3. Restock supplies and materials as needed.**

10. **List three types of files.** (3 marks)

- **1. Flat files**
- **2. Round files (rat-tail files)**
- **3. Half-round files**

11. **Explain two importance of proper storage of tools.** (4 marks)

- **1. Safety:** Reduces the risk of accidents by preventing tools from being misplaced or causing hazards.
- **2. Longevity:** Protects tools from damage and wear, extending their lifespan and maintaining functionality.

12. **List any three factors to consider when deciding whether to repair or replace equipment in the workshop.** (3 marks)

- **1. Cost of Repair vs. Replacement:** Compare the expenses involved in repairing versus buying new equipment.
- **2. Age and Condition of Equipment:** Assess the overall condition and remaining useful life of the equipment.
- **3. Frequency of Breakdowns:** Evaluate how often the equipment fails and the impact on productivity.

SECTION B (60 Marks)

13. **a) Explain five basic dress rules that you should always follow while working in a workshop.** (10 marks)

- **1. Wear appropriate PPE:** Always use safety goggles, gloves, and helmets as required.
- **2. Avoid loose clothing:** Wear fitted clothing to prevent snagging on equipment.
- **3. Closed-toed shoes:** Use sturdy footwear to protect feet from heavy objects.
- **4. Long hair secured:** Tie back long hair to prevent entanglement in machinery.
- **5. Avoid jewelry:** Remove rings, bracelets, and necklaces that can catch on tools or equipment.

b) State any six limitations of PPE. (6 marks)

- **1. False sense of security:** Users may underestimate other safety measures.
- **2. Comfort issues:** PPE can be uncomfortable and may not be worn consistently.
- **3. Limited protection:** PPE may not protect against all hazards.
- **4. Maintenance requirements:** PPE needs regular inspection and replacement.
- **5. Cost:** High-quality PPE can be expensive.
- **6. Training needs:** Users must be trained on proper use and limitations.

c) Highlight any four ways on how Personal Protective Equipment should be taken care of. (4 marks)

- **1. Regular inspection:** Check for wear and damage before each use.
- **2. Proper cleaning:** Clean according to manufacturer instructions to maintain hygiene.
- **3. Safe storage:** Store in a designated area away from contaminants.
- **4. Timely replacement:** Replace PPE that is worn out or damaged.

14. **a) State any four importance of maintenance.** (4 marks)

- **1. Ensures safety:** Reduces the risk of accidents and injuries.
- **2. Increases efficiency:** Keeps equipment running at optimal performance.
- **3. Extends lifespan:** Prolongs the life of machinery and tools.
- **4. Reduces costs:** Minimizes the need for expensive repairs or replacements.

b) Explain five different types of maintenance. (10 marks)

- **1. Preventive Maintenance:** Scheduled maintenance to prevent breakdowns.
- **2. Corrective Maintenance:** Repairs made after equipment failure.
- **3. Predictive Maintenance:** Using data and analytics to predict when maintenance should be performed.
- **4. Routine Maintenance:** Regular checks and minor repairs to keep equipment functional.
- **5. Condition-Based Maintenance:** Maintenance performed based on the actual condition of equipment.

c) List any six activities carried out during preventive maintenance. (6 marks)

- **1. Lubrication of moving parts**
- **2. Inspection for wear and tear**
- **3. Cleaning of equipment**
- **4. Calibration of instruments**
- **5. Replacement of worn-out parts**
- **6. Testing safety features**

15. **a) State three safety precautions to be observed while working with the following tools:** (6 marks)

- **i. Chisels:**
- **1. Keep chisels sharp to reduce slippage.**
- **2. Use a chisel guard when not in use.**
- **3. Cut away from your body to avoid injury.**
- **ii. Hammers:**
- **1. Inspect the hammer for damage before use.**
- **2. Use the correct hammer for the job to avoid accidents.**
- **3. Wear safety goggles to protect eyes from flying debris.**

b) List any three examples for each of the following classifications of tools: (9 marks)

- **i. On the basis of shape:**
- **1. Flat tools (e.g., flat screwdrivers)**
- **2. Round tools (e.g., round files)**
- **3. Angled tools (e.g., angled wrenches)**
- **ii. On the basis of grades:**
- **1. Industrial grade tools**
- **2. Commercial grade tools**
- **3. Consumer grade tools**
- **iii. On the basis of cut:**
- **1. Single cut files**
- **2. Double cut files**
- **3. Rasp files**

c) List any five tools required in every working station when carrying out solar installation. (5 marks)

- **1. Screwdrivers**
- **2. Wrenches**
- **3. Wire cutters/strippers**
- **4. Multimeter**
- **5. Safety harnesses**