higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

# NATIONAL CERTIFICATE (VOCATIONAL)

## ENGINEERING FUNDAMENTALS
## NQF LEVEL 2

(6021002)

**14 November 2022 (Y-paper)**
**13:00–16:00**

**This question paper consists of 9 pages.**

269Q1N2214

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**TIME: 3 HOURS**
**MARKS: 100**

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**INSTRUCTIONS AND INFORMATION**

1. Answer all the questions.
2. Read all the questions carefully.
3. Number the answers according to the numbering system used in this question paper.
4. Start each section on a new page.
5. Use only a blue or black pen.
6. Write neatly and legibly.

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**QUESTION 1**

1.1 The goal of the Skills Development Act, No. 97 of 1998, is to develop the skills of workers.

Briefly discuss FIVE benefits that an employee gains from the Skills Developments Act. (5)

1.2 List FIVE careers involved in fabrication and extraction. (5)

1.3 State FIVE behaviours by employees in the workplace that cause injury or damage. (5)

1.4 Briefly explain TWO reasons for why adequate lighting in the workplace is important. (4)

1.5 What is a *verbal warning*? (1)

1.6 Choose a term from COLUMN B that matches a description in COLUMN A. Write only a letter (A–J) next to the number (1.6.1–1.6.10) in the ANSWER BOOK.

| COLUMN A | | COLUMN B | |
|---|---|---|---|
| 1.6.1 | Not paying attention to safety rules | A | secondary sector |
| 1.6.2 | Workers will be given a warning if they disobey the rules set forth in the code of conduct | B | instrument fitter |
| | | C | improve safety |
| 1.6.3 | Fair and equal | D | unsafe action |
| 1.6.4 | Starters, alternators, rewiring of auto-circuits | E | disciplinary procedure |
| | | F | equitable |
| 1.6.5 | Turning raw material produced by the primary sector into finished goods | G | automotive electrician |
| 1.6.6 | A body of persons who share common goals is a trade union or … | H | movement |
| | | I | Solidarity |
| 1.6.7 | A predominantly Afrikaner labour organisation that represents workers across all sectors of public service, parastatals and industry | J | ethics |
| 1.6.8 | Petrochemical industry, power stations | | |
| 1.6.9 | A set of unwritten rules about people's behaviour in an organisation or place of employment | | |
| 1.6.10 | Running an induction course when workers join the company | | |

(10 × 1) (10)

1.7 Complete the following sentence by choosing a word or words from the list below. Write only the answer next to the question number (1.7.1–1.7.10) in the ANSWER BOOK.

| |
|---|
| accidents; manufacturing; ventilation; responsibility; wooden duckboard; field; extraction; poor house-keeping; noise; unsafe act; designated group; incidents and injuries |

1.7.1 People in management often have to work longer hours as part of their … at work.

1.7.2 … generally refers to women and people with disabilities when it comes to affirmative action in South Africa.

1.7.3 An area of study is also called a … of study.

1.7.4 Engineering also covers … and technology.

1.7.5 In … we use minerals like coal and oil as fuel to make heat and fires.

1.7.6 If there are many … in a workplace, the company will see an increase in the cost of insurance.

1.7.7 Ideally, the workshop floor should not be cold when standing on it. If this is not possible, a … should be used.

1.7.8 Stale air inside a work environment should be replaced using a good … system.

1.7.9 Workers slip on greasy, wet or dirty floors caused by …

1.7.10 … in the workplace can also drown out signals, thus affecting communication.

(10 × 1) (10)
**[40]**

**QUESTION 2**

2.1 Overalls protect your clothing, but do not protect you from flying sparks, fires or chemicals.

Briefly discuss what the condition of an overall should be, in order to be safe while wearing it. Support your answer. (8)

2.2 Indicate whether the following statements are TRUE or FALSE by writing only 'True' or 'False' next to the number (2.2.1–2.2.6) in the ANSWER BOOK.

2.2.1 Report any machinery malfunction to the supervisor.

2.2.2 Never reach into or across a machine.

2.2.3 Unsafe habits in the workshop can contribute to eliminating injuries.

2.2.4 A fixed guard cannot be removed and replaced using a tool.

2.2.5 Too many people being inside a workshop is caused by employees finishing their work too early.

2.2.6 It is the responsibility of an employee to do a safety check and respond to any unsafe conditions.

(6 × 1) (6)

2.3 Choose a term from COLUMN B that matches a description in COLUMN A. Write only a letter (A–F) next to the question number (2.3.1–2.3.6) in the ANSWER BOOK.

| COLUMN A | | COLUMN B | |
|---|---|---|---|
| 2.3.1 | Identify … when you set off the alarm | A | accident |
| 2.3.2 | Rehearsal of the procedure to be carried out in case of a fire | B | vacate |
| 2.3.3 | It is wrong and … to run equipment if you are overly tired or not feeling well | C | prohibitive sign |
| 2.3.4 | It indicates you must not do something | D | fire drills |
| 2.3.5 | Caused by someone doing something that is unsafe and dangerous | E | emergency services |
| 2.3.6 | In case of a fire, workers should know how to … the workplace quickly and safely | F | dangerous |

(6 × 1) (6)

2.4 Safety signs are intended to identify hazards and provide emergency information. Identify the following safety symbols used in the workplace by writing their names next to the question number (2.4.1–2.4.10) in the ANSWER BOOK.

2.4.1



2.4.2




2.4.3



2.4.4

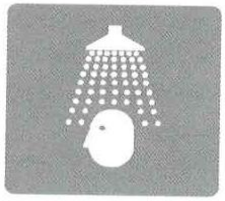


☆

2.4.5



2.4.6



☆

2.4.7



2.4.8



☆

2.4.9



☆

2.4.10



(10 × 1) (10)

**[30]**

## QUESTION 3

3.1 Briefly discuss the meaning of the following terms:

3.1.1 Smother

3.1.2 Extinguisher

(2 × 2) (4)

3.2 Complete the following sentence by choosing a word or words from the list below. Write only the answer next to the number (3.2.1–3.2.3) in the ANSWER BOOK.

| |
|---|
| oxygen; oxy acetylene; spills; carbon dioxide; dirt; rubber tubing; nozzle |

3.2.1 Dry powder is expelled from the extinguisher by means of …

3.2.2 A hose reel consists of … that does not kink or twist.

3.2.3 Clean up … of any flammable liquids as soon as you see them.

(3 × 1) (3)

3.3 Choose a description in COLUMN B that matches a term from COLUMN A. Write only a letter (A–E) next to the number (3.3.1–3.3.3) in the ANSWER BOOK.

| COLUMN A | | COLUMN B |
|---|---|---|
| 3.3.1 | Ignite | A produce or cause |
| 3.3.2 | Discarded | B something that can easily catch fire |
| 3.3.3 | Generated | C two moving surfaces rub against each other |
| | | D to catch fire |
| | | E thrown away, got rid of |

(3 × 1) (3)

**[10]**

## QUESTION 4

4.1 Briefly describe the term *disability*. (2)

4.2 What do we call a place where an accident or crime has happened? (1)

4.3 Briefly explain what *history of an injury* means. (2)

4.4 Briefly discuss the following terms:

4.4.1 Numbness

4.4.2 Nauseous

(2 × 1) (2)
**[7]**

**QUESTION 5**

5.1 Complete the following sentence by choosing a word or words from the list below. Write only the answer next to the question number (5.1.1–5.1.2) in the ANSWER BOOK.

| Danger; accidents; incidents; at risk; hazards; workshop activity |
|---|

5.1.1 … are events, especially unusual, important or violent ones.

5.1.2 … is being in a situation where you may be harmed.

(2 × 1) (2)

5.2 Indicate whether the following statements are TRUE or FALSE by writing only 'True' or 'False' next to the number (5.2.1–5.2.5) in the ANSWER BOOK.

5.2.1 According to OHSA, nobody at work may interfere with, damage, or misuse any equipment.

5.2.2 Reports are factual and they do not usually include the writer's opinions.

5.2.3 Using noisy machines is bothersome to people and animals both inside and outside the factory.

5.2.4 Every organisation with more than twenty employees must have two health and safety representatives.

5.2.5 The government wants to find ways to help factories produce their goods while protecting people and the environment.

(5 × 1) (5)

5.3 Name THREE things that are included in Occupational Health. (3)

5.4 OHSA gives an employee the right to refuse any work that she/he believes is unsafe.

State THREE reasons why workers will exercise their right to refuse to work. (3)
**[13]**

**TOTAL**: **100**

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