higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

# NATIONAL CERTIFICATE (VOCATIONAL)

## ENGINEERING FUNDAMENTALS
## NQF LEVEL 2

(6021002)

**8 December 2020 (X-paper)**
**09:00–12:00**

**This question paper consists of 6 pages.**

413Q1N2008

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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 question on a new page.
5. Use only a black or blue pen.
6. Write neatly and legibly.

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## QUESTION 1

1.1 Briefly explain each of the following terms:

1.1.1 Extracting

1.1.2 Fabrication

1.1.3 Assembly

1.1.4 Agricultural engineering

1.1.5 Civil engineering

(5 × 2) (10)

1.2 Explain how to maintain or monitor each of the following ways to improve safety in a workshop:

1.2.1 Check equipment for faults.

1.2.2 Put up warning signs.

1.2.3 Give workers protective clothing.

1.2.4 Use safeguards or safety devices on equipment.

1.2.5 Train workers to use equipment and follow safety regulations.

(5 × 2) (10)

1.3 Give ONE term for each of the following descriptions by writing it next to the question number (1.3.1–1.3.5) in the ANSWER BOOK.

1.3.1 Treating people differently because of their race, gender or religion

1.3.2 Caused by personal issues including family and financial problems

1.3.3 Machine not working properly

1.3.4 Not enough fresh air in the room where people are working

1.3.5 Given to an employee when disobeying the rules of a company for the first time

(5 × 2) (10)

1.4 Indicate whether the following statements are TRUE or FALSE by writing only 'True' or 'False' next to the question number (1.4.1–1.4.5) in the ANSWER BOOK.

1.4.1 The Labour Relations Act promotes peace in the workplace.

1.4.2 A differently abled person must have the same opportunities as other workers.

1.4.3 One of the examples of good work ethics is to divulge confidential information about your company.

1.4.4 Employees receive the same salary for working later than for their normal hours.

1.4.5 You can deal with stress in the workplace by being too competitive.

(5 × 1) (5)

1.5. Briefly explain each of the following terms:

1.5.1 Demoted

1.5.2 Promoted

(2 × 2) (4)

1.6 What does *MET* stand for? (1)

**[40]**

**QUESTION 2**

2.1 Give FIVE advantages of cleaning and storing tools. (5)

2.2 Briefly explain FIVE things to do after using tools. (5)

2.3 List FIVE dangerous areas in a workplace. (5)

2.4 Choose description from COLUMN B that matches a symbol of a sign in COLUMN A. Write only the letter (A–E) next to the question number (2.4.1–2.4.5) in the ANSWER BOOK.

| COLUMN A | | COLUMN B | |
|---|---|---|---|
| 2.4.1 | WW | A | safety clothing and equipment to be worn |
| 2.4.2 | FB | B | informative signs |
| 2.4.3 | GA | C | warning signs |
| 2.4.4 | PV | D | fire-equipment warning signs |
| 2.4.5 | MV | E | prohibitive signs |

(5 × 1) (5)

2.5 Explain the significance of each of the following safety-sign colours:

2.5.1 Red and white

2.5.2 Blue

2.5.3 Black with yellow background

2.5.4 Green

2.5.5 White

(5 × 1) (5)

2.6 Briefly explain THREE reasons why head protection must be worn. (3)

2.7 Give TWO reasons why face shields must be worn. (2)
**[30]**

**QUESTION 3**

3.1 State THREE causes of electrical faults. (3)

3.2 List FOUR safety tips to keep in mind when working with flammable liquids. (4)

3.3 Briefly explain how to maintain firefighting equipment. (3)
**[10]**

**QUESTION 4**

4.1 Indicate whether the following statements are TRUE or FALSE by writing only 'True' or 'False' next to the question number (4.1.1–4.1.3) in the ANSWER BOOK.

4.1.1 The aim of first aid is to prevent infection until the correct medical attention can be obtained.

4.1.2 A first aider provides treatment without permission to save a casualty life.

4.1.3 History, symptoms and signs are the three ways to get information about a casualty.

(3 × 1) (3)

4.2 State THREE things to do immediately following the handover of the casualty to medical help. (3)

4.3 What does the severity of a wound depend on? (1)
**[7]**

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**QUESTION 5**

5.1 Choose description from COLUMN B that matches a term in COLUMN A. Write only the letter (A–E) next to the question number (5.1.1–5.1.5) in the ANSWER BOOK.

| COLUMN A | | COLUMN B | |
|---|---|---|---|
| 5.1.1 | Consulting | A | general increase in world temperature due to the amount of carbon dioxide around the earth |
| 5.1.2 | Coaching | B | discussing something with someone in order to make a decision |
| 5.1.3 | Policy | C | large area of land with a lot of sand where it is always very hot and dry |
| 5.1.4 | Global warning | D | teaching people the skills they need |
| 5.1.5 | Desert | E | way of doing something that has been agreed on and chosen by an organisation |

(5 × 1) (5)

5.2 Which type of pollution is illustrated in each of the following scenarios:

5.2.1 Playing music very loudly

5.2.2 Throwing chemicals away in rivers, killing the fish and making the water poisonous

5.2.3 Fumes or smoke mixing in the air making it unhealthy to breathe

(3 × 1) (3)

5.3 Define each of the following acts:

5.3.1 Occupational Health and Safety Act

5.3.2 Mine Health and Safety Act

(2 × 2) (4)

5.4 Give the name of the money paid to people because they have suffered injury or loss while at work. (1)

**[13]**

**TOTAL: 100**

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