higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

# NATIONAL CERTIFICATE (VOCATIONAL)

## MATERIALS
## NQF LEVEL 2

(12010062)

**12 November 2018 (X-Paper)**
**09:00–12:00**

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

NCV

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

## 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. Rule off across the page after completion of each question.
5. Write neatly and legibly.

NCV

## QUESTION 1

1.1 Various options are given as possible answers to the following questions. Choose the answer and write only the letter (A–C) next to the question number (1.1.1–1.1.5) in the ANSWER BOOK.

1.1.1 The density of an material is the mass of a given material contained within a given …

A mass.
B density.
C volume.

1.1.2 Durability of a material gives an indication of …

A how cheap a material is.
B how long a material will stretch.
C how long a material will last.

1.1.3 When a building is demolished, a lot of building materials can be recycled.

Which of the following building materials cannot be recycled?

A Window frames
B Corrugated iron sheets
C Damp proof course

1.1.4 A material is considered to be transparent if …

A it can bend.
B light can move through it.
C light cannot move through it.

1.1.5 Flammability of a material tells you …

A how easily a material will catch fire.
B how far a material can be deformed.
C how easily gases or liquids can penetrate the material.

(5 × 1) (5)

1.2 Name TWO points to consider when selecting materials for a particular application. (2)

1.3 Give ONE advantage of recycling materials. (1)

1.4 Name TWO advantages of using materials that meet SABS/SANS standards. (2)

**[10]**

## QUESTION 2

2.1 Define the following terms:

2.1.1 Mantle

2.1.2 Inner core

(2 × 2) (4)

2.2 Name TWO different types of rocks. (2)

2.3 Indicate whether the following statements are TRUE or FALSE. Choose the correct answer and write only 'true' or 'false' next to the question number (2.3.1–2.3.2) in the ANSWER BOOK.

2.3.1 Coal is formed from a very large amount of dead land-based plant life, mainly trees that died between 360 Mya and 65 Mya.

2.3.2 Igneous rocks are formed when magma cools down and solidifies, either on the earth's surface or inside the earth.

(2 × 1) (2)

2.4 Briefly explain the geological process of soil formation. (2)

**[10]**

## QUESTION 3

3.1 State THREE hand operated compactors. (3)

3.2 Give TWO advantages of compacting soil in thin layers. (2)

3.3 List FOUR principle reasons of compacting soil. (4)

3.4 What type of compaction equipment is best suited to compact clay soil? (1)

**[10]**

## QUESTION 4

4.1 State TWO reasons for brick bonding. (2)

4.2 What is meant by *vanadium staining*? (2)

4.3 List THREE different types of face bricks. (3)

4.4 Give an appropriate remedy to combat the following problems in brickwork:

4.4.1 Efflorescence

4.4.2 Mortar smear

(2 × 2) (4)

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4.5 Concrete blocks are laid differently from clay bricks.

State TWO processes of laying the concrete blocks. (2)

4.6 Give TWO reasons why it is important that masonry units be subjected to quality control before they are put on the market. (2)

**[15]**

## QUESTION 5

5.1 What is meant by the following terms:

5.1.1 Cement

5.1.2 Plasticisers

5.1.3 Slag

(3 × 2) (6)

5.2 Briefly discuss the principles of good housekeeping when storing and using admixtures. (5)

5.3 List THREE dangers of working with cement and concrete. (3)

5.4 State THREE advantages of using ready mix concrete. (3)

5.5 Give TWO materials that are unsuitable for making concrete. (2)

5.6 Explain how plastic shrinkage cracks in concrete can be prevented. (4)

5.7 Briefly explain how to reduce plastic settlement cracks in concrete. (2)

**[25]**

## QUESTION 6

6.1 Give ONE function of mortar. (1)

6.2 What is the difference between mortar mixes containing masonry cement and mortar mixes made with common cement? (4)

6.3 Name THREE factors you would consider to assess the suitability of sand for making mortar. (3)

6.4 What does it mean to *re-temper mortar*? (2)

**[10]**

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## QUESTION 7

7.1 Give TWO reasons why plaster should be mixed and used in small batches. (2)

7.2 What preparation work should be done on a substrate before plaster can be applied? (3)

7.3 How can plastic shrinkage cracks in plaster be prevented? (3)

7.4 What will happen if you apply the plaster incorrectly and do not scratch the plaster before you apply the next coat of plaster? (2)
**[10]**

## QUESTION 8

8.1 Give TWO functions of screeds and toppings. (2)

8.2 Name THREE materials for making toppings. (3)

8.3 Explain the importance of clean, oil and dust free substrate when placing a bonded screed or topping. (2)

8.4 State the maximum nominal stone size that may be used if the topping thickness is:

8.4.1 25 mm

8.4.2 30 mm

8.4.3 In excess of 40 mm

(3 × 1) (3)
**[10]**

**TOTAL: 100**

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