higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

MATERIALS
NQF LEVEL 2

(12010062)

1 March 2018 (X-Paper)
09:00–12:00

This question paper consists of 5 pages.

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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. All work you do not want to be marked must be clearly crossed out.
5. Rule off across the page on completion of each question.
6. Write neatly and legibly.

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QUESTION 1

1.1 Indicate whether the following statements are TRUE or FALSE. Choose the answer and write only 'true' or 'false' next to the question number (1.1.1–1.1.5) in the ANSWER BOOK.

1.1.1 Compressive stress is a stress caused by a tensile force.

1.1.2 Capillarity refers to the ability of solids to be drawn into very small tubes called capillaries.

1.1.3 The yield point is the point beyond which a material will be temporarily deformed once the stress is released.

1.1.4 A force is defined as the mass that is accelerated.

1.1.5 Aggregates are any loose materials such as sand, gravel or pebbles that are added to a cementing agent to make concrete, plastered.

(5 × 1) (5)

1.2 Define the following terms:

1.2.1 Strain

1.2.2 Sustainability

(2 × 2) (4)

1.3 Give ONE criteria for selecting materials for a building application. (1)

[10]

QUESTION 2

2.1 Explain what is meant by the following terms:

2.1.1 Plate tectonics (2)

2.1.2 Geological time (2)

2.1.3 Soil (2)

2.2 Briefly explain how sedimentary rocks are formed. (4)

[10]

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QUESTION 3

3.1 Name THREE different types of machine-operated compactors. (3)

3.2 Explain the role of moisture in aiding compaction. (2)

3.3 State FIVE principal reasons for compacting soil. (5)

[10]

QUESTION 4

4.1 Describe the process of manufacturing clay bricks. (7)

4.2 Name THREE types of clay bricks. (3)

4.3 What is meant by *shell bedding*? (2)

4.4 Name THREE materials used in the manufacturing of concrete units. (3)

[15]

QUESTION 5

5.1 State TWO factors that influence the stiffening of concrete. (2)

5.2 Give FOUR ways in which you can protect your health when working with cement and concrete. (4)

5.3 Give TWO general disadvantages of adding extenders. (2)

5.4 Differentiate between *common cement* and *masonry cement*. (2)

5.5 State TWO disadvantages of each of the following:

5.5.1 Admixtures

5.5.2 Ready-made mix concrete

(2 × 2) (4)

5.6 Give THREE ways of storing admixtures. (3)

5.7 Name THREE types of extenders. (3)

5.8 Give FOUR ways in which you can reduce the bleeding of concrete. (4)

5.9 What is the purpose of making concrete test cubes? (1)

[25]

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QUESTION 6

6.1 Give THREE suitable materials that are used to make mortar. (3)

6.2 Give FIVE steps, in sequence, to explain how you would sieve sand with a high clay content. (5)

6.3 What is meant by *raking out* mortar joints? (2)
[10]

QUESTION 7

7.1 Give TWO functions of plaster. (2)

7.2 Give FOUR alternative methods of bonding plaster to soffit. (4)

7.3 Why it is important to cover or keep plastering cool during hot windy conditions or in direct sunlight? (1)

7.4 What is the recommended thickness for each of the following plaster coats?

7.4.1 First undercoat

7.4.2 Second undercoat

7.4.3 Finishing coat

(3 × 1) (3)
[10]

QUESTION 8

8.1 Define the following:

8.1.1 Bonded screeds and toppings

8.1.2 Unbounded screeds and toppings

(2 × 2) (4)

8.2 How long can you wait before tiling the screed with ceramic floor tiles? (1)

8.3 What is an acceptable slump range for screeds? (1)

8.4 Give FOUR methods of curing screeds. (4)
[10]

TOTAL: 100

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