



higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

T730(E)(A5)T

NATIONAL CERTIFICATE

FOUNDRY THEORY N1

(11020221)

5 April 2018 (X-Paper)

09:00–12:00

This question paper consists of 4 pages.

DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA
NATIONAL CERTIFICATE
FOUNDRY THEORY N1
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. Sketches must be large, neat and fully labelled.
 5. Write neatly and legibly.
-

QUESTION 1

Explain sand grains under the following headings:

- | | | |
|-----|--------------------|-------------|
| 1.1 | Rounded grains | (8) |
| 1.2 | Sub-angular grains | (2) |
| 1.3 | Angular grains | (6) |
| 1.4 | Compounded grains | (9) |
| | | [25] |

QUESTION 2

Explain *loss on ignition*, and also how we test for it. **[10]**

QUESTION 3

Give the minimum tests recommended for sand control in respect of the following:

- | | | |
|-----|--------|-------------|
| 3.1 | Moulds | (6) |
| 3.2 | Cores | (5) |
| | | [11] |

QUESTION 4

Name the tests used in the evaluation of bonding clays. **[7]**

QUESTION 5

Name FIVE different types of cores that are used, and also make a neat sketch of each of them. (5 × 2) **[10]**

QUESTION 6

Explain or give the definition of the following:

- 6.1 Alloy
- 6.2 Blow hole
- 6.3 Cheek
- 6.4 Cold shut
- 6.5 Draft
- 6.6 Flask
- 6.7 Green sand core
- 6.8 Jig
- 6.9 Porosity
- 6.10 Rapping

(10 × 2) **[20]**

QUESTION 7

Explain the following with regard to the use of ladles in a foundry:

- 7.1 Describe the method of lining a large ladle. (5)
- 7.2 Why should the bottom lining be thicker than the sides? (2)
- 7.3 What precautions would you take to allow the escape of gases generated in the lining? (5)
- 7.4 What is the result of insufficient or careless drying of the lining? (5)

[17]

TOTAL: 100